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60 Years

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Update on the Safety In Radiation Oncology Incident Learning System SAFRON

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- Safety in Radiation Oncology (SAFRON) is an IAEA-developed user system for **improving the safety and quality of care in radiation therapy through the sharing of knowledge.**

- Clearinghouse for multiple reporting systems and contains information gathered by the IAEA, ROSIS, ASN, CRCPD and individual clinics.
- Database includes 1334* incidents and near misses.
- Non-punitive, anonymous, and voluntary.

- Designed to:
 - provide information such as statistical data and charts to participating facilities
 - share events with other facilities to enhance their learning
 - improve safety and quality in radiotherapy as an international learning system.
- Provides additional information for improving safety in radiotherapy through detailed reports and peer reviewed publications.
- Offers direct access to information in the database to anyone who registers with the IAEA gateway NUCLEUS.



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SAFRON

Safety Reporting and Learning System
for Radiotherapy

Select Dataset: All incident reports ▼

Home

Process Steps

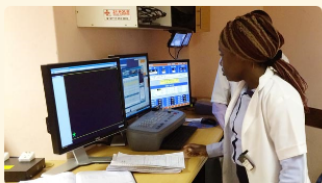
Incident Reports

Documents and Links

Registrations

Statistical Reports

Help



Safer use of radiation in radiotherapy through learning and reporting

SAFRON aims to enable global shared learning from safety related events and safety analysis in order to improve the safe planning and delivery of radiotherapy.

New User?

[Request Registration](#)

Actions

[Browse Safety Info by Process Step](#)

[Search Reports](#)

[Search Documents & Links](#)

[See Statistical Reports](#)

[View Instructions](#)

[Submit Report](#)

[Download Reports](#)

Featured Incident Reports

Patient treated with 4 Gy fractions instead of 2 Gy fractions to the whole brain.

Patient prescribed for 2 Gy fractions to 24 Gy. Planning RTs assumed standard prescription of 4 Gy fractions to 20 Gy and verbally asked treatment RTs request confirmation of the prescription (which...

Overlap of matched photon/electron treatment fields

sclav/chestwall/IMC treatment using a mono-isocentre. 1st RT Marked the monoiso location on correctly during the initial set up of the patient 2nd RT marked on the "monoiso" after treating the...


Featured Documents & Links

Quantitative cone-beam CT imaging in radiation therapy using planning CT as a prior: first patient

This study looked at the difficulties of using CBCT for patient positioning because of poor imaging and scatter contamination. By using a correction method using the planning CT the capabilities of...

Unintended overexposure of a patient during radiotherapy treatment at the Edinburgh Cancer Centre

The treatment was properly prescribed in accordance with the applicable treatment protocol, but errors were made in the subsequent process of planning how the prescribed treatment was to be...



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Safety Reporting and Learning System for Radiotherapy

Select Dataset: All incident reports

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Search for Incident Reports

You can search own/all incident reports by process step, who and how the incident was discovered, specific words in the free text fields, or a combination of these parameters.

Please choose your preferred dataset in the top right corner of this screen. Based on this selection, you can browse your own or all incident reports.

What phase in the process is the incident associated with?

SELECT

Who discovered the incident?

How was the incident discovered?

Any word in the free text fields:

Clinical incident severity:

Critical incident

HELP TEXT

Did the incident reach the patient?

☐ Yes
 ☐ No

Was any part of the prescribed treatment delivered incorrectly?

Was anyone affected by the incident?

Describe the causes of the incident (Select one or several reasons):

SELECT INCIDENT CAUSES

Start Date of discovery (YYYY-MM-DD):

End Date of discovery (YYYY-MM-DD):

What safety barrier failed to identify the incident?

What safety barrier identified the incident?

What safety barrier might have identified the incident?

Is risk assessment complete?

☐ Yes
 ☐ No

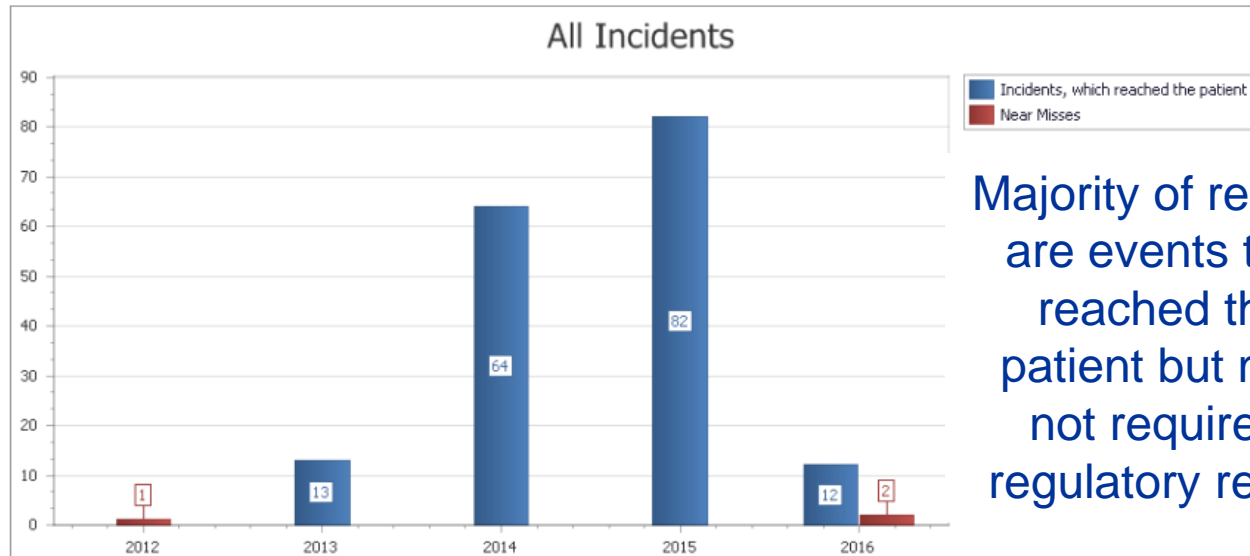
Equipment used:

Clinical Incident Severity	Number of reported events
Critical Events	46
Major Events	10
Potential Major Event	1
Serious Event	20
Potential Serious Event	11
Minor Incident	159
No information	1087*

*ROSIS Data

Incidents reaching the patients vs near misses (over time)

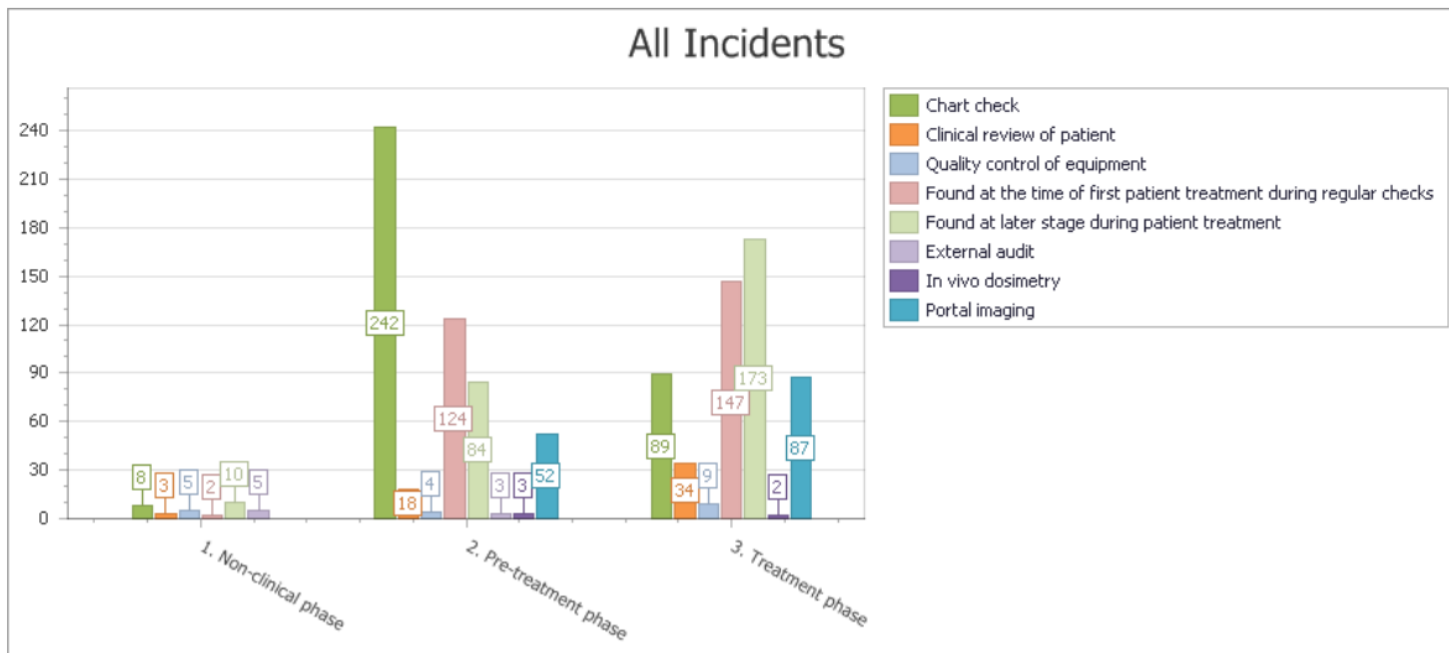
You can view own/all incidents reaching the patient vs near misses.



Majority of reports are events that reached the patient but may not require a regulatory report

Incidents based on how the incident was discovered

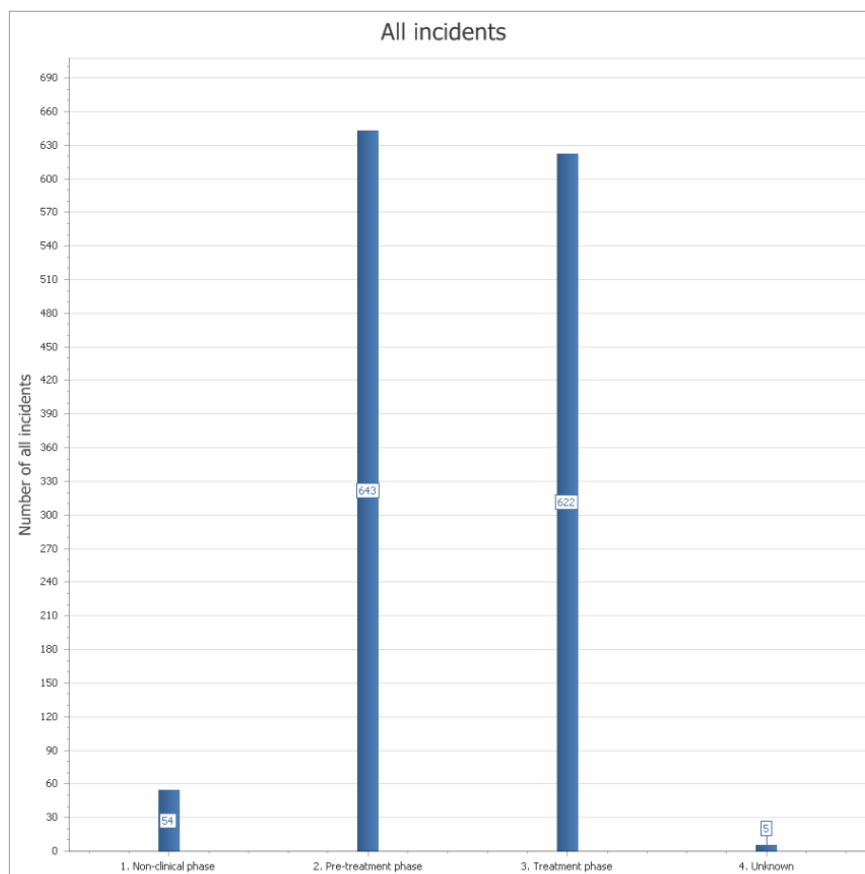
Distribution based on how the incident was discovered (in particular process steps).



Number of incidents over process phase

Distribution of the process phases, with which the incident is associated.

HOW TO USE THE CHARTS: The chart indicates only the main process phases (1-4), if you wish to see a detailed distribution of each process phase with all the sub steps, please click on the phase number.

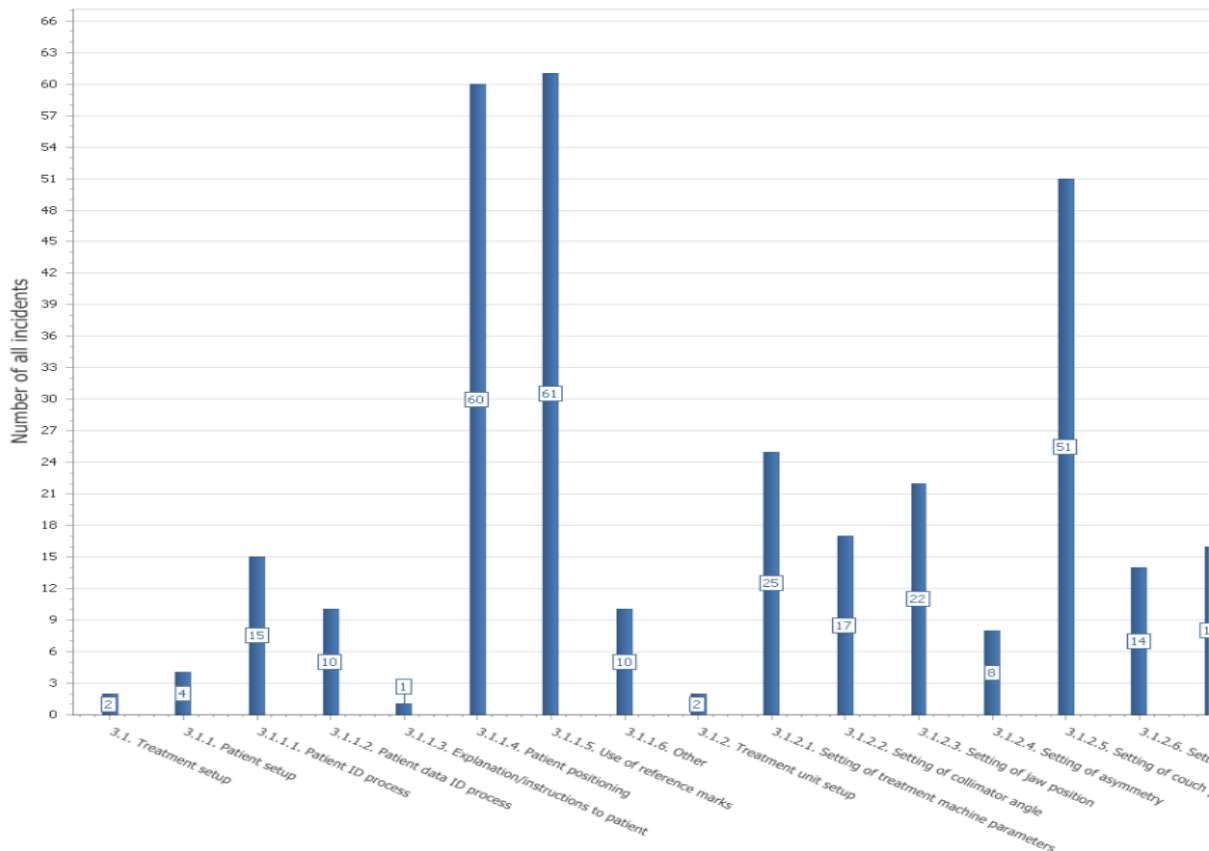


Number of incidents over process phase

Distribution of the process phases, with which the incident is associated.

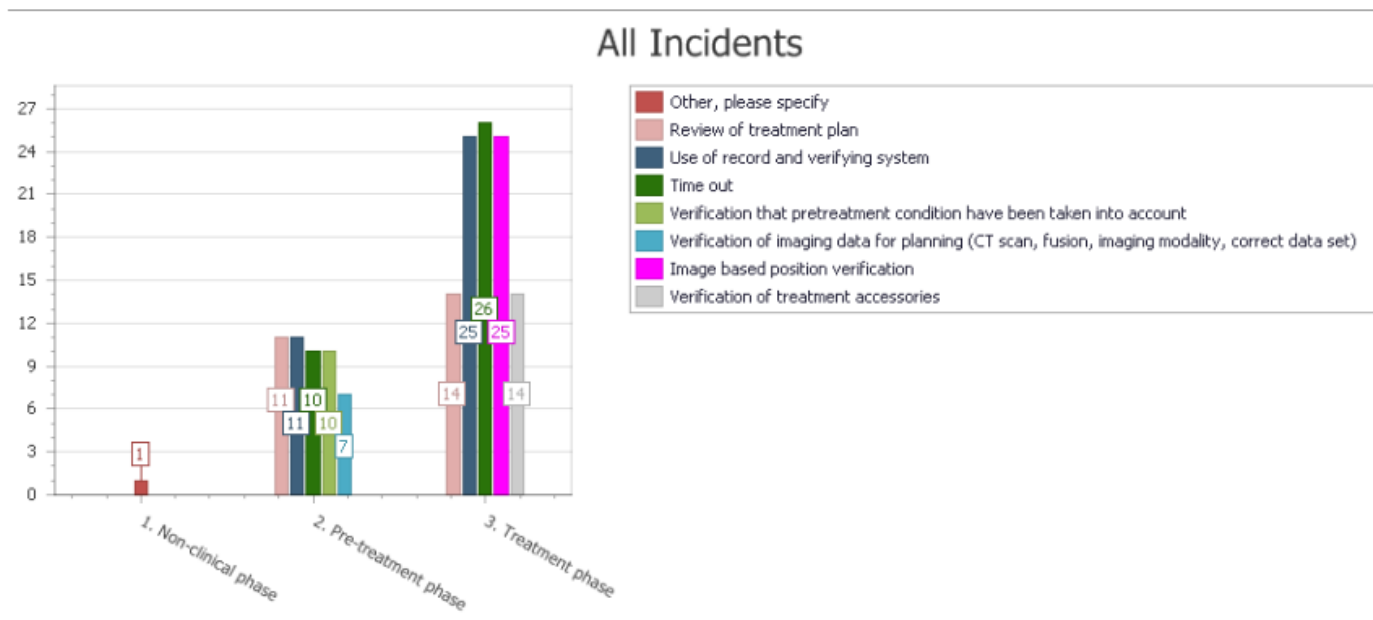
HOW TO USE THE CHARTS: The chart indicates only the main process phases (1-4), if you wish to see a detailed distribution of each process phase with all the sub steps, please

[Back to the main view...](#)



Incidents by failure of safety barriers

Distribution of 5 most common safety barriers which failed to identify the incident.



- Identify areas where safety and quality can be improved
- Support the use of safety barriers to prevent errors from reaching the patient
- Learn from events to support standardization in an effort to reduce errors from reaching the patient.

CRCPD Reports in SAFRON

Focus on Repeat Events

- (2013 event repeated in 2015)
- Notification to users and FDA

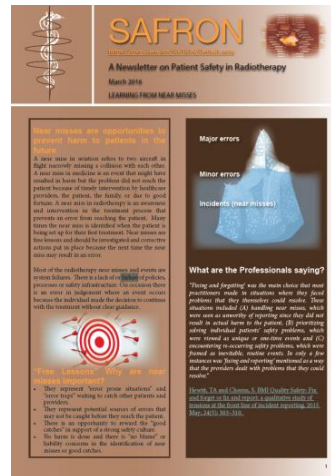
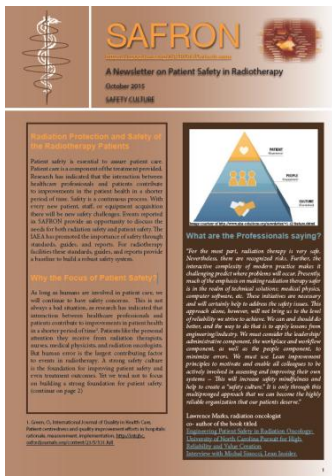
Wrong Anatomical Treatment Site Weekly >30% The therapist did not follow the prescription and procedure for the treatment.	Patient was scheduled to receive treatments to two sites (whole brain from external beam and subcutaneous metastasis on posterior right chest wall using electron beam). Both sites were treated in four consecutive days. The dose to the posterior chest wall exceeded more than 30% from the prescribed dose.	Evaluating the use of MOSAIQ's treatment calendar for the treatments that differ from the routine daily treatments. In addition to the physicist's weekly chart, a weekly chart check will be done by another therapist to serve as a peer review. Weekly random audit of 10 charts will be performed by the Manager or the Director of Radiation Oncology.
Extra treatment delivered to treatment site S/C radiation prescribed for 26 fractions was delivered 27 fractions.	Chief physicist/RSO called to report a linac medical event. The patient was being treated for right breast cancer (post mastectomy) - tangential beams for the chestwall and A/P supraclavicular field for the node. The prescription is 180 cGy/fraction X 28 fractions for the chestwall and 180 cGy per fraction X 26 fractions for the supraclav field. The setup used a single isocenter - that is set the isocenter to treat the supraclav field, then treat the chestwall tangents. The patient's 26 treatments were completed, but for setting up and imaging purposes before treating the tangential fields, the therapist had to set up this field again. MOSAIQ R&V system has the correct prescription and gave an interlock that this field may not be treated anymore. For imaging purposes they overrode the interlock and ended delivering a full daily treatment of 180 cGy to the supraclavicular node. (27 treatments instead of 26)	<p>The physicist said they contacted MOSAIQ and tried to get some help. MOSAIQ was not aware of the details needed to use the Treatment Calendar with a dynamic wedge. The treatment calendar in MOSAIQ does not work if dynamic wedge is used for treatment. The facility uses dynamic wedge in about 70% of their patients and have been using an alternate way for creating and imaging a field.</p> <p>The facility figured out how to get the MOSAIQ Treatment Calendar to work with dynamic wedged fields. Now they have two methods available for filming fields which are not part of the treated prescription:</p> <ol style="list-style-type: none">1. The workaround we described in our report of creating an imaging field from a treatment field in another prescription.2. Treatment Calendar <p>The Treatment Calendar will take some time to implement. In the short term, due to staffing issues, they will continue with the workaround because it is working quite well. Going forward, they plan to gradually implement the Treatment Calendar.</p>

SAFRON Learning



60 Years
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- Presentations to interested parties
 - Numerous international presentations to medical and regulatory authorities
- Newsletters



SAFRON Learning

• Awareness

EXPLAINING THE CHECK, REVIEW, AND REPORT PROCESS

INDIVIDUAL CHECKS

As part of the time-out procedure, all team members should ask these questions:

- » Correct Patient?
- » Correct Prescription?
- » Correct Plan?
- » Correct Site?
- » Correct Set-up?



TEAM REVIEW

The Team Review process requires timely and continuous communications among all of the radiotherapy team members that are involved, especially when changes are required. Team reviews comprise a follow-up process that should be established in the course of radiotherapy to assess appropriateness of treatment plans, dose calculations, and treatment delivery for individual patient.

REPORT

Know the policies for reporting any unacceptable activity to other team members. Internal or external reporting on near misses or incidents is encouraged. Through evaluating information in the reports, the radiotherapy team can derive valuable lessons that can lead to a stronger safety culture and improved patient outcome.



DID YOU KNOW?

SAFRON is IAEA's web-based learning and voluntary reporting system. SAFRON helps you to improve patient safety by allowing you to share and learn about safety-related events. It provides users with opportunities to share their information with radiotherapy facilities worldwide and gain useful resources for preventing future incidents—for free!

For more information, please visit:
<https://rpop.iaea.org/SAFRON/>

Division of Radiation, Transport and Waste Safety
Department of Nuclear Safety and Security
International Atomic Energy Agency
Vienna International Centre, PO Box 100
1400 Vienna, Austria



FOR MORE INFORMATION VISIT:
<https://rpop.iaea.org>

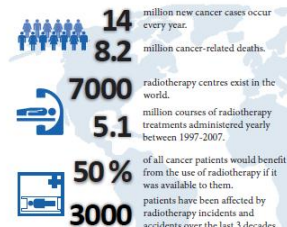
CHECK, REVIEW AND REPORT

Delivering safe radiotherapy is in your hands

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DID YOU KNOW?



WHO IS RESPONSIBLE FOR ENSURING PATIENT SAFETY?

Patient safety is an essential and vital component of quality care. Each radiotherapy professional is encouraged to commit to patient safety as part of their professional responsibilities.

The team approach toward patient safety is critical. Each team member must be fully aware of their responsibilities individually and within the team to achieve the ultimate goal of safe and effective radiotherapy.

Build patient safety into every system of care by using the CHECK, REVIEW, AND REPORT method.

CHECK, REVIEW, REPORT



DURING PATIENT CARE, HAVE YOU...

- Explained treatment procedures to patients?
- Described the possible side effects of treatment and management of these to the patients?
- Monitored, assessed and recorded the changes in patients throughout treatment?
- Provided support to patients to help them cope with any physical and emotional effects of treatment?
- Notified the radiation oncologist whenever you discovered an unusual response to treatment or other health condition?
- Encouraged your patients to speak up about their health conditions and treatment and listened to them?

DURING EQUIPMENT MANAGEMENT, HAVE YOU...

- Ensured that all new planning systems and treatment equipment is commissioned and acceptance testing is performed and independently verified prior to clinical use?
- Confirmed that the planning systems and treatment equipment is routinely calibrated and independently verified?
- Performed comprehensive quality assurance on all planning and treatment equipment?
- Reported and investigated any unusual equipment faults or failures?

DURING TREATMENT PLANNING, HAVE YOU...

- Checked that you are using correct images for correct patient when developing treatment plans?
- Ensured the appropriateness of the treatment prescription and organ dose, balancing the treatment of target volume to the irradiation of normal tissue?
- Confirmed the medical history such as co-morbidities and concurrent treatments of the patient?
- Established evidence-based protocols for treatment and verification?
- Calculated and independently checked all dose calculations with an approved method?
- Verified that the treatment plans of patients who need special care have been approved and communicated to the treatment team?

DURING TREATMENT DELIVERY, HAVE YOU...

- Ensured that the correct treatment plan and the correct treatment setup are used for the correct patient?
- Ensured that the daily quality checks have been performed and are within tolerance before clinical use?
- Checked the treatment plan been authorised and agreed?
- Assessed the patient is fit for treatment prior to set-up?
- Maintained daily treatment records for each patient?
- Performed time-out to assure the correct set up prior to machines switch on?



SAFRON Learning

Provides participants with an understanding of the relationship between safety and quality using illustrations from three medical errors.

The modules cover FMEA, RCA, incident learning and Safety Culture.




SAFRON Learning

- E-Learning

Designed to allow the participant to complete over time. Each module is completed by successfully completing the quiz.

Certificate of completion is provided.

SAFETY AND QUALITY IN RADIOTHERAPY ACKNOWLEDGEMENT



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SAFRON Next Steps

- Add a prospective risk analysis feature for contributors (2017)
- Add capabilities to capture events in brachytherapy (2017/18)
- Add translation capabilities (2018)
- Add Nuclear Medicine events (2019)

2017 Meetings

- Technical Meeting on Preventing Unintended and Accidental Medical Exposures in Radiology, 6-8 March 2017
- International Conference on Radiation Protection in Medicine, 11-15 December 2017



BONN CALL FOR ACTION
10 Actions to Improve Radiation Protection
in Medicine in the Next Decade



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Thank you!

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