

SAFRON

Ola Holmberg

Radiation Protection of Patients Unit
Division of Radiation, Transport and Waste Safety



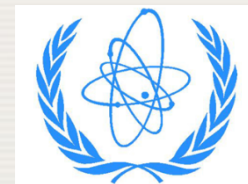
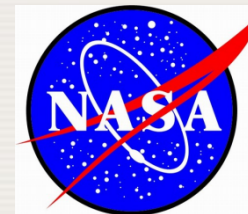
IAEA

International Atomic Energy Agency

Safety reporting and learning – how?

Setting

- **Voluntary safety reporting** system:
 - “Setting in an organization that has a **regulatory and enforcement role** for the activity **discourages** trust and use of reporting”
 - “**Independent third party** should administer the program and fulfil the role of an honest broker attending to the interests of both sides”



NB! **Mandatory safety reporting** to authorities still needs to be done for certain types of events, as defined by the authorities!

Safety reporting and learning – how?

Contents

What makes safety reports meaningful? “the narrative”

Charles Billings (the designer of the Aviation Safety Reporting System in the USA)



Narrative: 1

This incident occurred on straight-in final approach to Runway 31 at my home airport PAO. This flight originated south of SJC. I was in contact with Norcal on 120.1 for SJC Class C clearance with a hand off to NUQ Tower on 119.55. Cleared through NUQ class D and advised of info Bravo (winds favoring Runway 31 at PAO) and that PAO Tower was closed. Comm 1 King 155A was on 119.5 with 118.6 in waiting.

At 1,500 FT and 3 miles focus was on airspeed, landing configuration, and final approach. Wheels down, flaps 15 degrees, 100 KTS, PAPI/RWY 31 lights indicated low on the glide slope and right of mid-line. Corrected alignment and used excess airspeed with some power to hold altitude to glide slope intercept at 80 KTS. No traffic observed, radio silent. At around 500 FT, perhaps lower, a high-wing aircraft flew across and above my flightpath. I initiated a go-around and checked Comm 1 setting - still on 119.55 NUQ and NOT on PAO advisory 118.6. Switched to 118.6 and announced my go-around intentions, the Cessna also (calmly) announced a go-around and said he had 'called base', which I am sure he had but I had obviously not heard. I apologized for being on the wrong frequency, entered a right-hand pattern to Runway 31 and landed, followed by the Cessna. I attempted to confer with the Cessna pilot after tie down but could not locate him on the ramp.

This is a flight I have made many times but rarely at night. Certainly when PAO Tower is operational there is a hand off instruction from NUQ to switch to PAO frequency. With the Tower closed I still anticipated this prompt and my focus was elsewhere. In retrospect I should have been proactive and announced to NUQ that I was switching to PAO prior to the final approach process and not rely on a prompt which may only be a courtesy and not a requirement for the Controller in this situation.

Synopsis

A pilot talking to NUQ Tower while on approach to PAO had a near miss at 500 FT with an aircraft also on PAO Runway 31 final but communicating on PAO CTAF because the Tower was closed during night operations.



Describe the incident in detail:

A CT-sim patient that started treatment. The positioning of the patient is not noted in the chart when the patient comes from the CT-sim. The patient has 2 target volumes. When treating the abdomen the positioning is different, there is no note in the chart on how to position the patient's head. The patient wants her own pillow. At the next fraction it is found in the chart that she should have had a different head rest. The treatment was finished with 2 fractions. At the first fraction a move of 1cm cran and 1cm lat was needed, but the next fraction was OK. (ROSI 1071965082)



IAEA

There is no substitute for knowing **why a system failed or why a human erred!**

SAFRON

- **Retrospective risk analysis: Safety in Radiation Oncology (SAFRON)**
 - Safety reporting and **safety learning system for radiotherapy** developed by the IAEA and made available for general use in December 2012
 - **Voluntary and anonymous** reporting for radiotherapy centres internationally
 - Register through link on rpop.iaea.org

SAFRON

- **Safety in Radiation Oncology (SAFRON)**
 - **Learn** from radiotherapy safety-related learning events (incidents and near-misses)
 - **Contribute** events to the system for others to learn from



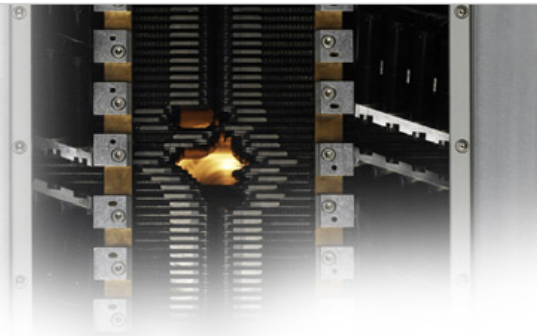
The screenshot shows the SAFRON website interface. At the top, there is the IAEA logo and the title "SAFRON - Safety in Radiation Oncology". A dropdown menu on the right shows "Dataset: All incident reports". Below the title is a navigation bar with links: Home, Process Steps, Incident Reports, Documents and Links, Registrations, and Help. The main content area features a large image of a radiotherapy machine head. Below the image, the text reads: "SAFRON is voluntary and aims to enable global shared learning from safety related events and safety analysis in order to improve the safe planning and delivery of radiotherapy. SAFRON is provided by the IAEA." There are three columns of content: "Actions" with links like "Browse Safety Info by Process Step >", "Featured Incident Reports" with a link "Incorrect calibration of machine output", and "Featured Documents & Links" with links "Task Group 142 report: Quality assurance of medical accelerators" and "Acceptance Testing and Commissioning of Linear Accelerators". At the bottom, a footer contains the text: "Version 1.1, Copyright © 2011-2012 International Atomic Energy Agency, Vienna International Centre, PO Box 100, 1400 Vienna, Austria".

SAFRON



Safety Reporting and Learning System for Radiotherapy

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



Actions

[Browse Safety Info by Process Step >](#)

[Search for Incident Reports >](#)

[Search for Documents & Links >](#)

[Request Registration >](#)

[View Instructions >](#)

Featured Incident Reports

[Incorrect calibration of machine output](#)

Electron beams of 7 and 11 MeV were calibrated incorrectly, resulting in underdosage of 17-18%. On the same machine, a photon beam was calibrated incorrectly, resulting in overdosage of 5%. In...

[Misapplication of distance correction](#)

An institution treated most patients with a constant source-skin distance (SSD) technique, although some patients were treated with a constant source-axis distance (SAD) or isocentric technique....

Featured Documents & Links

[Task Group 142 report: Quality assurance of medical accelerators](#)

This is an AAPM report on quality assurance of medical accelerators. It provides the reader with information on up-to-date recommendations of Table II of the AAPM TG-40 report on quality assurance...

[Acceptance Testing and Commissioning of Linear Accelerators](#)

This Report gives guidance for the acceptance testing and commissioning of radiotherapy linear accelerators and comprises a comprehensive account, including some of the most recent clinical...

SAFRON



IAEA

SAFRON - Safety in Radiation Oncology

Dataset: All incident reports

Home

Process Steps

Incident Reports

Documents and Links

Registrations

Help

Browse Process Steps

You can view all the process steps for a selected treatment modality.

All process step for: External beam radiotherapy

3. Treatment phase

3.1. Treatment setup

3.1.1. Patient setup

- 3.1.1.1. Patient ID process
- 3.1.1.2. Patient data ID process
- 3.1.1.3. Explanation/instructions to patient
- 3.1.1.4. Patient positioning
- 3.1.1.5. Use of reference marks
- 3.1.1.6. Other

3.1.2. Treatment unit setup

- 3.1.2.1. Setting of treatment machine parameters
- 3.1.2.2. Setting of collimator angle
- 3.1.2.3. Setting of jaw position
- 3.1.2.4. Setting of asymmetry
- 3.1.2.5. Setting of couch position/angle
- 3.1.2.6. Setting of energy
- 3.1.2.7. Setting of monitor units
- 3.1.2.8. Other

3.1.3. Use of treatment accessories

- 3.1.3.1. Use of immobilization devices

SAFRON



IAEA

SAFRON - Safety in Radiation Oncology

Dataset: All incident reports

Home

Process Steps

Incident Reports

Documents and Links

Registrations

Help

View Safety Information for 3.1.2.6. Setting of energy

You can view own/all incident reports and other safety information related to a specific process step.

Incident Reports

| Incident Headline | Actions |
|---|----------------------|
| Wrong energy selected | View |
| Inadvertently re-setting energy in R&V system | View |
| Input check | View |
| Treating with wrong energy | View |
| Patient treated with another energy than that planned | View |
| Energy wrongly set-up on treatment unit | View |
| Wrong energy used to treat field | View |
| Energy incorrectly entered | View |
| Input error | View |
| Treatment with energy other than that prescribed | View |
| 1 2 | |

Related Document and Links

No Document & Link record found.

SAFRON

View Incident Report

You can view incident report details below.

[Add to Home Page](#)

[Edit Incident Report](#)

Inadvertently re-setting energy in R&V system

Treatment modality: External beam radiotherapy

Date of discovery:

Who discovered the incident? Radiation therapist/Staff at treatment unit treating patients

How was the incident discovered? Found at later stage during patient treatment

What phase in the process is the incident associated with? 3.1.2.6. Setting of energy

Where in the process was incident discovered? 3. Treatment phase

Was anyone affected by the incident? Yes, one patient

Was any part of the prescribed treatment delivered incorrectly? Yes

How many fractions were delivered incorrectly? 6

Total number of fractions prescribed: 10

Prescribed dose per fraction (Gy):

If relevant, please estimate the dose deviation from the prescribed dose per fraction:

Clinical incident severity: No information provided

If the incident-cause is related to equipment (hardware or software), please specify the make, model and version number:

Describe the incident in detail: Involving 6 fractions of total 10. For the 1st 6 treatments the patient got treatment at 6MeV instead of the prescribed 9MeV. All information was entered correctly into visir including energy @ 9MeV. On day 1 the gantry angle was changed. While this was being changed the energy was accidentally changed to 6MeV. It was not noticed until day 6 as the energy inside the treatment sheet was incorrectly entered as 6MV not 9MeV. Non-correctable. (ROSI 1050966102)

Describe the causes of the incident:

Describe contributing factors to the incident: Change to treatment after treatment was prepared and all checks had been carried out, involved accidentally changing another parameter. Change required double signature - should have been spotted by second person - but as checks had all been done before,

Suggest preventive action(s): A full check of the information on-screen should be done before double-signing any change to that screen. This should be followed by repeating the standard print-out check.

SAFRON



IAEA

SAFRON - Safety in Radiation Oncology

Dataset:

- All incident reports
- All incident reports
- Own incident reports

Home

Process Steps

Incident Reports

Documents and Links

Registrations

Help

View Safety Information for 3.1.2.6. Setting of energy

You can view own/all incident reports and other safety information related to a specific process step.

Incident Reports

| Incident Headline | Actions |
|---|----------------------|
| Wrong energy selected | View |
| Inadvertently re-setting energy in R&V system | View |
| Input check | View |
| Treating with wrong energy | View |
| Patient treated with another energy than that planned | View |
| Energy wrongly set-up on treatment unit | View |
| Wrong energy used to treat field | View |
| Energy incorrectly entered | View |
| Input error | View |
| Treatment with energy other than that prescribed | View |
| 1 2 | |

Related Document and Links

No Document & Link record found.



View Safety Information for 1.1.1.4. Commissioning

You can view own/all incident reports and other safety information related to a specific process step.

Incident Reports

| Incident Headline | Actions |
|--|----------------------|
| Orthovoltage equipment not properly calibrated | View |
| Incorrect use of a plane parallel chamber | View |
| Error in correction for atmospheric pressure | View |
| Error in correction for atmospheric pressure | View |
| Inoorrect calibration procedures | View |
| Calibration error after a source change in a Co-60 unit | View |
| Inoorrect calibration of machine output | View |
| Calibration error after changing a Co-60 teletherapy source | View |
| Inoorrect calibration of a machine with asymmetric jaws | View |
| Lack of communication regarding units of output of a treatment machine | View |

1 2

Related Document and Links

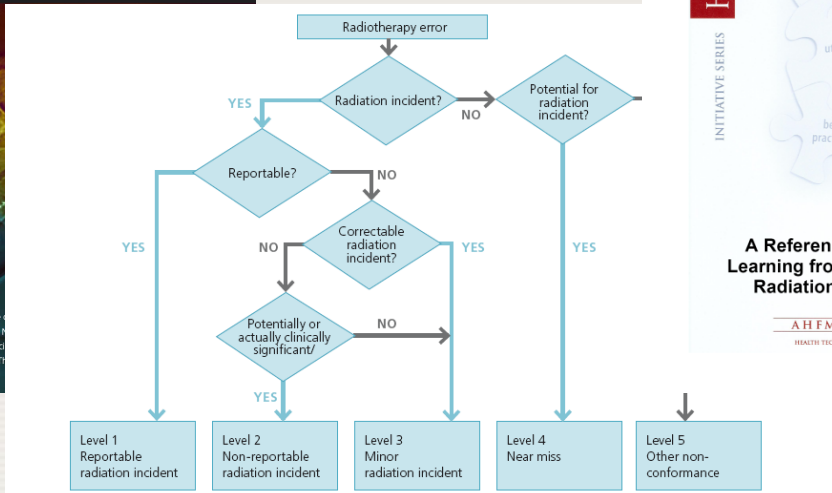
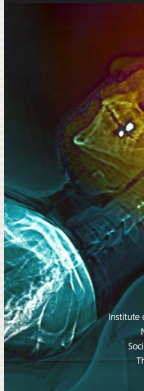
| Type | Title | Process Step | Modified | Actions |
|------|--|------------------------|------------------|--|
| Link | IAEA Safety Reports Series No. 17: Lessons Learned from Accidental Exposures in Radiotherapy (4.7MB) | 1.1.1.4. Commissioning | 2012-04-12 14:37 | View Delete |
| Link | IAEA Report: Accidental Overexposure of Radiotherapy Patients in San José, Costa Rica (2.75MB) | 1.1.1.4. Commissioning | 2012-04-12 14:43 | View Delete |
| Link | ICRP Presentation: Prevention of Accidental Exposures to Patients Undergoing Radiotherapy (.8MB) | 1.1.1.4. Commissioning | 2012-04-12 15:40 | View Delete |
| Link | Cancer Care Ontario: The Ottawa Orthovoltage Incident, Report of Panel of Experts | 1.1.1.4. Commissioning | 2012-06-29 11:11 | View Delete |
| Link | Report concerning the radiotherapy incident at the universtiy hospital centre in Toulouse-Ranguel H | 1.1.1.4. Commissioning | 2012-06-29 11:17 | View Delete |
| Link | Review of the Radiation Incident at Royal Adelaide Hospital Report 15/8/08 | 1.1.1.4. Commissioning | 2012-06-28 15:37 | View Delete |
| Link | Task Group 142 report: Quality assurance of medical accelerators | 1.1.1.4. Commissioning | 2012-08-27 15:04 | View Delete |
| Link | Modern-Day Linear Accelerator Acceptance Testing and Commissioning | 1.1.1.4. Commissioning | 2012-08-27 15:11 | View Delete |
| Link | Accelerator beam data commissioning equipment and procedures: | 1.1.1.4. Commissioning | 2012-08-27 15:13 | View Delete |
| Link | Acceptance Testing and Commissioning of Linear Accelerators | 1.1.1.4. Commissioning | 2012-08-27 15:14 | View Delete |



Safety reporting and learning – what?

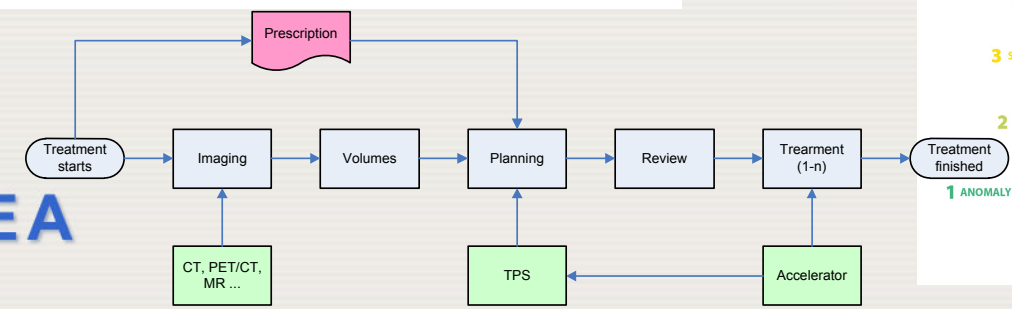
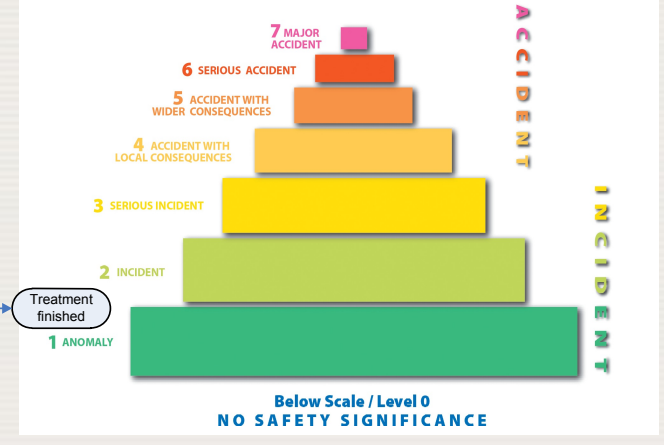
Common understanding of parameters for safety reporting systems

Severity grading; Causes / contributing factors classification; Standardized process map; Other terminology



| Incident Severity | Examples: Clinical Incident | Individuals to be notified |
|-------------------|---|--|
| Critical Incident | Radiation dose or medication error causing death or disability. Dose variation from prescribed total dose of >20%. Completely incorrect volume. | <i>Immediately notify:</i> Senior Management, Manager, Supervisor, Physician |
| Major Incident | Dose variation from prescribed total dose of | <i>Immediately notify:</i> Senior |

| ASN-SFRO SCALE APPLICATION | EVENTS (UNPREDICTED, UNEXPECTED) | CAUSES | CONSEQUENCES (CTCAE VS.0 GRADE) |
|----------------------------|---|---|--|
| 5 to 7* ACCIDENT | Death | Dose (or irradiated volume) much greater than normal resulting in complications or sequelae incompatible with life | Death |
| 4** ACCIDENT | Serious life-threatening event, disabling complication or sequelae | Dose or irradiated volume much greater than the tolerable doses or volumes | Serious unexpected or unpredictable acute or delayed effect, grade 4 |
| 3** INCIDENT | Event resulting in severe alteration of one or more organs or functions | Dose or irradiated volume greater than the tolerable doses or volumes | Serious unexpected or unpredictable acute or delayed effect, grade 3 |
| 2** INCIDENT | Event resulting in or likely to result in moderate alteration of an organ or function | Dose greater than the recommended dose, or irradiations of a volume that may lead to unexpected but moderate complications | Moderate unexpected or unpredictable acute or delayed effect, grade 2, minimal or absence of alteration of quality of life |
| 1 EVENT | Event with domestic consequences but no expected clinical consequences | Dose or volume error (e.g. dose error or target error in a session not compensable over the treatment as a whole) | No symptoms expected |
| 0 EVENT | Event with no consequences for the patient | Dose error (number of monitor units, filter, etc.) compensated over the treatment as a whole. Error of identification of a patient treated for the same pathology (compensable) | |



Safety reporting and learning – what?

Process steps

WHO ← → U.K.

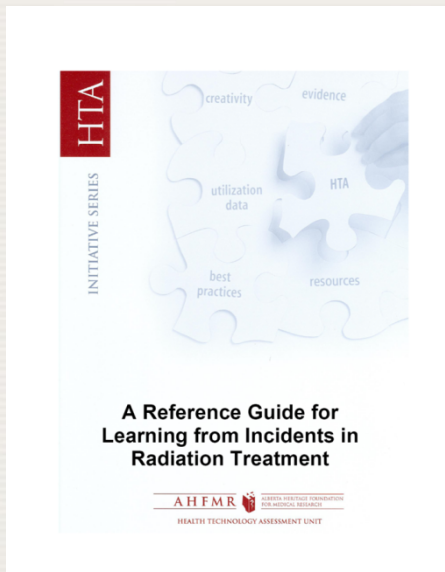
The screenshot shows the IAEA SAFRON website interface. At the top, there is a navigation bar with the IAEA logo and the text "IAEA SAFRON - Safety in Radiation Oncology". To the right of the navigation bar, there is a dropdown menu labeled "Dataset:" with "All incident reports" selected. Below the navigation bar, there are several tabs: "Home", "Process Steps", "Incident Reports", "Documents and Links", "Registrations", and "Help". The "Process Steps" tab is active. Below the tabs, there is a section titled "Browse Process Steps" with the text "You can view all the process steps for a selected treatment modality." Below this text, there is a dropdown menu labeled "All process step for:" with "External beam radiotherapy" selected. Below the dropdown menu, there is a list of process steps, including "3. Treatment phase", "3.1. Treatment setup", "3.1.1. Patient setup", "3.1.2. Treatment unit setup", and "3.1.3. Use of treatment accessories".

- 3. Treatment phase
 - 3.1. Treatment setup
 - 3.1.1. Patient setup
 - 3.1.1.1. Patient ID process
 - 3.1.1.2. Patient data ID process
 - 3.1.1.3. Explanation/instructions to patient
 - 3.1.1.4. Patient positioning
 - 3.1.1.5. Use of reference marks
 - 3.1.1.6. Other
 - 3.1.2. Treatment unit setup
 - 3.1.2.1. Setting of treatment machine parameters
 - 3.1.2.2. Setting of collimator angle
 - 3.1.2.3. Setting of jaw position
 - 3.1.2.4. Setting of asymmetry
 - 3.1.2.5. Setting of couch position/angle
 - 3.1.2.6. Setting of energy
 - 3.1.2.7. Setting of monitor units
 - 3.1.2.8. Other
 - 3.1.3. Use of treatment accessories
 - 3.1.3.1. Use of immobilization devices

Safety reporting and learning – what?

Severity scale

Canada



Home | Process Steps | Incident Reports | Documents and Links | Registrations | Help

Submit Incident Report

Provide incident report details.

* Treatment modality: * Required Fields

Date of discovery (YYYY-MM-DD):

* Who discovered the incident?

* How was the incident discovered?

* What phase in the process is the incident associated with?

* Where in the process was the incident discovered?

* Was anyone affected by the incident?

* Was any part of the prescribed treatment delivered incorrectly?

If relevant, please indicate the proportion of fractions delivered incorrectly.

If relevant, please estimate the dose variation from the prescribed dose per fraction.

* Clinical incident severity:

* Summarize the incident in a single sentence headline:

If the incident-cause is related to equipment (hardware or software), please specify make, model and version number.

Describe the incident in detail:

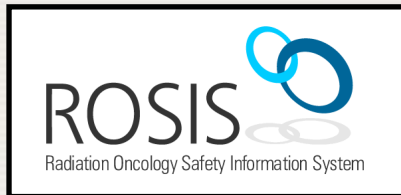
Incident Severity Help

- **Minor Incident**
 - Dose variation from prescribed total dose of <5%
 - Near miss or unsafe condition which could potentially cause a treatment error
 - Patient complaint
- **Potential Serious Incident**
 - A near miss that could have been a serious incident
- **Serious Incident**
 - Dose variation from prescribed total dose of 5 - 10%
 - Radiation dose or medication error causing side effects requiring minor treatment or ongoing monitoring and assessment
 - Set up variation > 1cm - no critical structures included
- **Potential Major Incident**
 - A near miss that could have been a major incident
- **Major Incident**
 - Dose variation from prescribed total dose of 10 - 20%
 - Radiation dose or medication error causing side effects requiring major treatment and intervention or hospitalization
 - Set up variation that will/could impact on normal tissue (e.g. heart, lung, eyes, kidney etc.)
- **Critical Incident**
 - Radiation dose or medication error causing death or disability
 - Dose variation from prescribed total dose of >20%
 - Completely incorrect volume

Ant and Post shoulder + PAB). PAB was cancelled. (ROSIS 1051657327)

Safety reporting and learning – what?

Many other parameters
ROSIS



View Incident Report

You can view incident report details below.

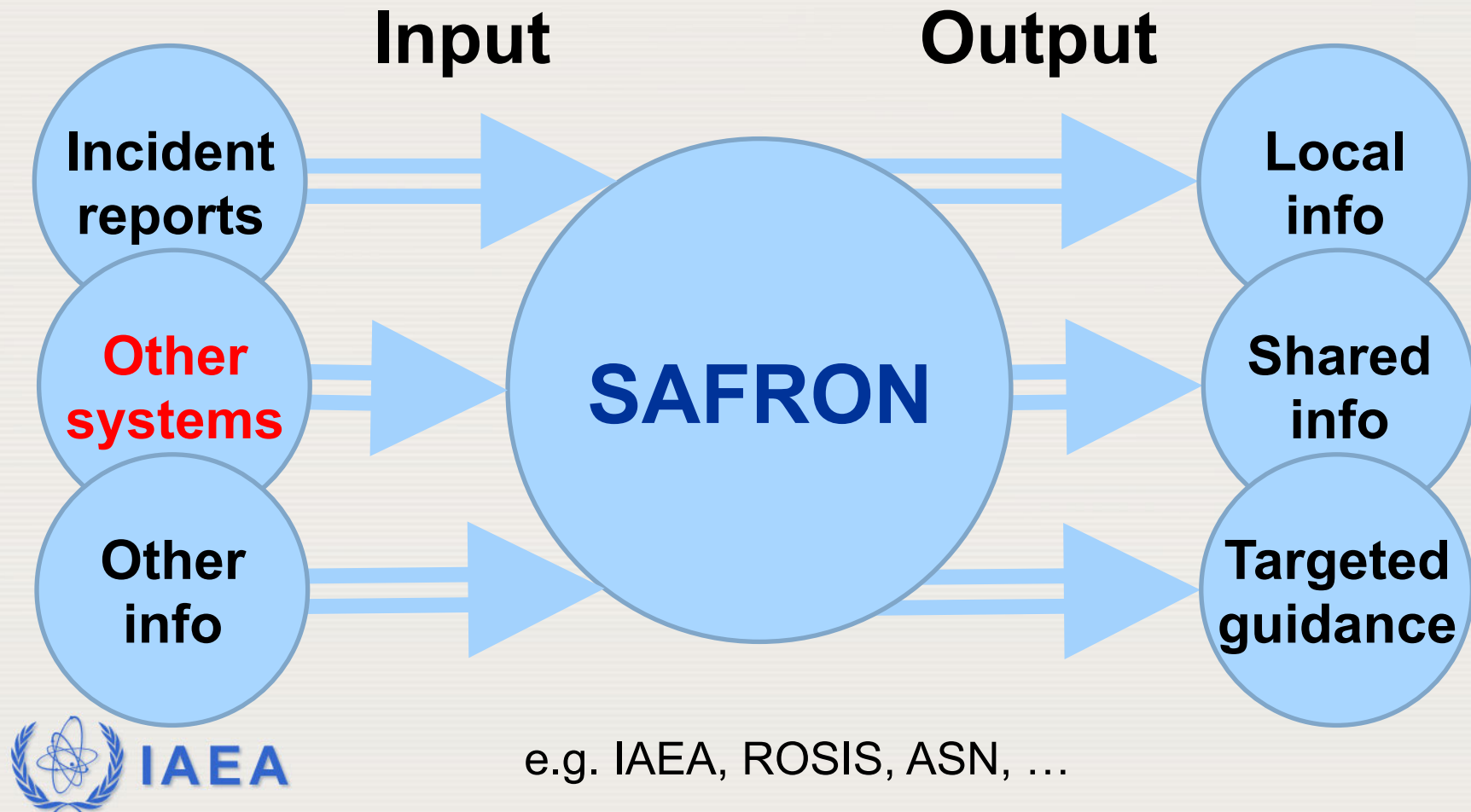
[Add to Home Page](#) [Edit Incident Report](#)

Inadvertently re-setting energy in R&V system


| | |
|--|---|
| Treatment modality: | External beam radiotherapy |
| Date of discovery: | |
| Who discovered the incident? | Radiation therapist/Staff at treatment unit treating patients |
| How was the incident discovered? | Found at later stage during patient treatment |
| What phase in the process is the incident associated with? | 3.1.2.6. Setting of energy |
| Where in the process was incident discovered? | 3. Treatment phase |
| Was anyone affected by the incident? | Yes, one patient |
| Was any part of the prescribed treatment delivered incorrectly? | Yes |
| How many fractions were delivered incorrectly? | 6 |
| Total number of fractions prescribed: | 10 |
| Prescribed dose per fraction (Gy): | |
| If relevant, please estimate the dose deviation from the prescribed dose per fraction: | |
| Clinical incident severity: | No information provided |
| If the incident-cause is related to equipment (hardware or software), please specify the make, model and version number: | |
| Describe the incident in detail: | Involving 6 fractions of total 10. For the 1st 6 treatments the patient got treatment at 6MeV instead of the prescribed 9MeV. All information was entered correctly into visir including energy @ 9MeV. On day 1 the gantry angle was changed. While this was being changed the energy was accidentally changed to 6MeV. It was not noticed until day 6 as the energy inside the treatment sheet was incorrectly entered as 6MV not 9MeV. Non-correctable. (ROSIS 1050966102) |
| Describe the causes of the incident: | |
| Describe contributing factors to the incident: | Change to treatment after treatment was prepared and all checks had been carried out, involved accidentally changing another parameter. Change required double signature - should have been spotted by second person - but as checks had all been done before, |
| Suggest preventive action(s): | A full check of the information on-screen should be done before double-signing any change to that screen. This should be followed by repeating the standard print-out check. |

Safety reporting and learning – what?

Why so many parameters in common with other systems?



SAFRON next developments

 **IAEA** | **SAFRON - Safety in Radiation Oncology** Dataset: All incident reports ▾

[Home](#) | [Process Steps](#) | [Incident Reports](#) | [Documents and Links](#) | [Registrations](#) | [Help](#)


View Incident Report

You can view incident report details below. [Add to Home Page](#) [Edit Incident Report](#)

Entering parameters manually in the R&V system

| | |
|--|--|
| Treatment modality: | External beam radiotherapy |
| Date of discovery: | |
| Who discovered the incident? | Radiation therapist/Staff at treatment unit treating patients |
| How was the incident discovered? | Found at the time of first patient treatment during regular checks |
| What phase in the process is the incident associated with? | 2.7.1. Choice of data entry method (input vs transcription) |
| Where in the process was incident discovered? | 3. Treatment phase |
| Was anyone affected by the incident? | Yes, one patient |
| Was any part of the prescribed treatment delivered incorrectly? | 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: | No information provided |
| If the incident-cause is related to equipment (hardware or software), please specify the make, model and version number: | |
| Describe the incident in detail: | Patient treated after mastectomy. Treatment plan is imported in R&V system, but doses are entered manually. Chart and parameters in R&V system is checked by other therapist. Despite this it is found during treatment that for field 3 the R&V system sets 200MU but the chart says 39MU. The radiation is immediately interrupted. The patient received 154MU to field 3 instead of 39MU. (ROSI 1072051502) |
| Describe the causes of the incident: | |
| Did the incident reach the patient? | |
| What safety barrier failed to identify the incident? | |
| What safety barrier identified the incident? | |
| What safety barrier might have identified the incident? | |
| Describe contributing factors to the incident: | |
| Suggest preventive action(s): | |

SAFRON next developments

 **IAEA** | SAFRON - Safety in Radiation Oncology Dataset:

[Home](#) | [Process Steps](#) | [Incident Reports](#) | [Documents and Links](#) | [Help](#)

View Incident Report

You can view incident report details below.

Entering parameters manually in the R&V system

| | |
|--|---|
| Treatment modality: | External beam radiotherapy |
| Date of discovery: | |
| Who discovered the incident? | Radiation therapist/Staff at treatment unit treating patients |
| How was the incident discovered? | Found at the time of first patient treatment during regular checks |
| What phase in the process is the incident associated with? | 2.7.1. Choice of data entry method (input vs transcription) |
| Where in the process was incident discovered? | 3. Treatment phase |
| Was anyone affected by the incident? | Yes, one patient |
| Was any part of the prescribed treatment delivered incorrectly? | 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: | No information provided |
| If the incident-cause is related to equipment (hardware or software), please specify the make, model and version number: | |
| Describe the incident in detail: | Patient treated after mastectomy. Treatment plan is imported in R&V system, but doses are entered manually. Chart and parameters in R&V system is checked by other therapist. Despite this it is found during treatment that for field 3 the R&V system sets 200MU but the chart says 39MU. The radiation is immediately interrupted. The patient received 154MU to field 3 instead of 39MU. (ROSIS 1072051502) |
| Describe the causes of the incident: | |
| Did the incident reach the patient? | |
| What safety barrier failed to identify the incident? | |
| What safety barrier identified the incident? | |
| What safety barrier might have identified the incident? | |
| Describe contributing factors to the incident: | |
| Suggest preventive action(s): | |

Would you like to assess the risk level of this event in your facility with the risk Matrix Methodology

SAFRON next developments

Access to SEVRRRA-SAFRON

The screenshot shows a web browser window with the URL `localhost:8080/riesgo/usuarios/safron-a.php?idsuceso=71`. The page displays the following elements:

Initiator Event

| | |
|-----------------------|--|
| Code: | AL-PAC9.1 |
| Name: | A mistake in the introduction of the parameters of the plan of treatment on the accelerator. It applies only to the case that parameters are manually entered. |
| Treatment Modality: | Linear Accelerator |
| Phase in the process: | Beginning of treatment |
| Process sub-phase: | None |
| Frequency: | High |
| Probability: | High |
| Consequence: | High |

Default Risk

| | | | | |
|----|----|----|---|------------|
| FH | PH | CH | = | RVH |
|----|----|----|---|------------|

Risk Assessment Report (button)

From the list below, choose those barriers that are implemented in your facility:

Analyze the radiotherapy service (button)

| Barriers | Frequency reducers | Consequence reducers |
|---|--|---|
| <input type="checkbox"/> "Image portal in the first session of the treatment, to be evaluated by the oncologist and the medical physicist, with which the treatment geometry errors are detected" <input type="checkbox"/> "Live dosimetry at the initial session of the treatment, to verify the correspondence of the doses administered with the planned ones, allowing errors detection in the administration of doses" <input type="checkbox"/> In the beginning of treatment the physicist and the technician contrast the initial data from the treatment against the information contained in the spreadsheet of the treatment and can detect this error. | <input type="checkbox"/> Existence of Protocol for editing cases | <input type="checkbox"/> "Daily positioned of the patient, in which radiotherapy technicians can detect geometry or doses errors by visual signs (coloration of the skin, etc.)" <input type="checkbox"/> "Weekly medical check-up of the patient that can detect errors in the administration of the treatment, or error from the previous stages." <input type="checkbox"/> During the daily administration of the treatment the technician contrasts the initial data from the treatment against the information contained in the spreadsheet of the treatment being able to detect this error |

Compute risk level (button)

Do you have another barrier in your facility for this event? **Add it** (button)

The Windows taskbar at the bottom shows the system time as 12:08 a.m. on 26/03/2014.

SAFRON next developments

Access to SEVRRRA-SAFRON

The screenshot shows a web browser window with the URL `localhost:8080/riesgo/usuarios/safron-a.php?idsuceso=71`. The main content area displays an 'Initiator Event' form with the following details:

| Initiator Event | |
|-----------------------|--|
| Code: | AL-PAC9.1 |
| Name: | A mistake in the introduction of the parameters of the plan of treatment on the accelerator. It applies only to the case that parameters are manually entered. |
| Treatment Modality: | Linear Accelerator |
| Phase in the process: | Beginning of treatment |
| Process sub-phase: | None |
| Frequency: | High |
| Probability: | High |
| Consequence: | High |

Below the form is a 'Risk with barriers and reducers' table:

| Risk with barriers and reducers | | | | |
|---------------------------------|-----|----|---|----|
| FH | PVL | CH | = | RM |

To the right of the form is a 'Risk Assessment Report' button. Below the risk table, a text prompt reads: 'From the list below, choose those barriers that are implemented in your facility:'. To the right of this prompt is an 'Analyze the radiotherapy service' button.

The barrier selection section is divided into three columns:

| Barriers | Frequency reducers | Consequence reducers |
|---|---|--|
| <input checked="" type="checkbox"/> "Image portal in the first session of the treatment, to be evaluated by the oncologist and the medical physicist, with which the treatment geometry errors are detected" <input checked="" type="checkbox"/> "Live dosimetry at the initial session of the treatment, to verify the correspondence of the doses administered with the planned ones, allowing errors detection in the administration of doses" <input type="checkbox"/> "In the beginning of treatment the physicist and the technician contrast the initial data from the treatment against the information contained in the spreadsheet of the treatment and can detect this error." | <input checked="" type="checkbox"/> Existence of Protocol for editing cases | <input checked="" type="checkbox"/> "Daily positioned of the patient, in which radiotherapy technicians can detect geometry or doses errors by visual signs (coloration of the skin, etc.)" <input type="checkbox"/> "Weekly medical check-up of the patient that can detect errors in the administration of the treatment, or error from the previous stages." <input type="checkbox"/> During the daily administration of the treatment the technician contrasts the initial data from the treatment against the information contained in the spreadsheet of the treatment being able to detect this error |

At the bottom of the interface, there is a 'Compute risk level' button on the left, a question 'Do you have another barrier in your facility for this event?' in the center, and an 'Add it' button on the right.

SAFRON next developments

Add a new barrier or reducer [X]

Choose between selecting an existing safety barrier not listed on the grid of the initiator event OR adding a new one:

Select an existing safety barrier:

Search:

OR

Describe a new safety barrier:

We have a team of students in training who is assigned the task of verifying the correspondence between the data registered in the computer against the manual records on the treatment sheet.

ADD

Cancel

The safety barrier you are adding is performed

BEFORE delivering treatment WHILE treatment is delivered AFTER delivering treatment

The barrier you are adding is a:

Lock Training

Alarm Administrative Procedure

Procedure made by 2 or more persons Maintenance

Procedure made by 1 person Check up or verification

Barrier classification

Consequence reducer of average weight.

Upcoming

- **Next steps for SAFRON:**
 - SEVRRRA-SAFRON
 - Brachytherapy
 - More regular feedback