SAFRON

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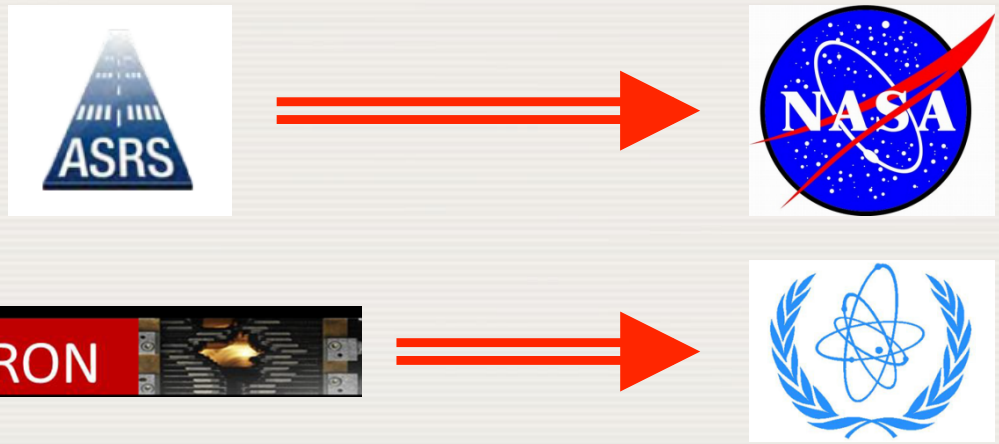
Radiation Protection of Patients Unit
Division of Radiation, Transport and Waste Safety

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"



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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. (ROSIS 1071965082)

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

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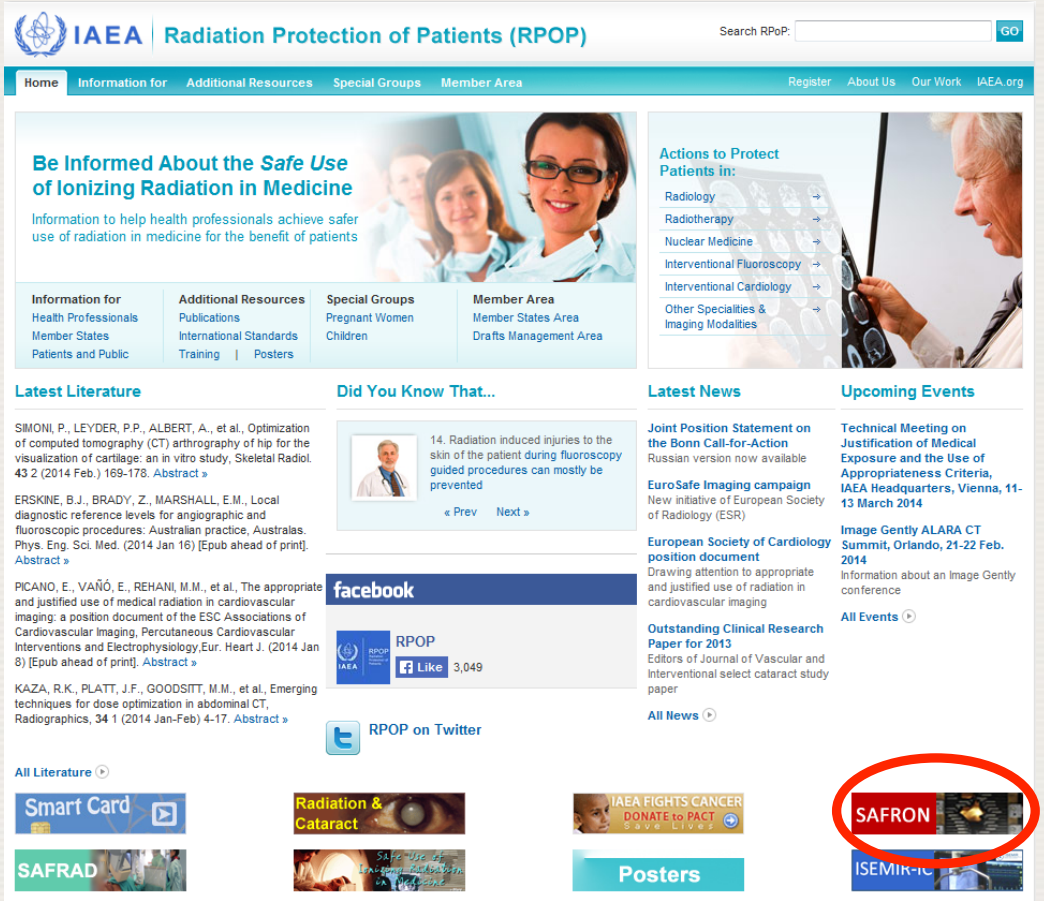
- **Retrospective risk analysis: Safety in Radiation Oncology (SAFRON)**
  - Safety reporting and safety learning system for radiotherapy developed by the IAEA and made available for general use in December 2012
  - Voluntary and anonymous reporting for radiotherapy centres internationally
  - Register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



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- **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

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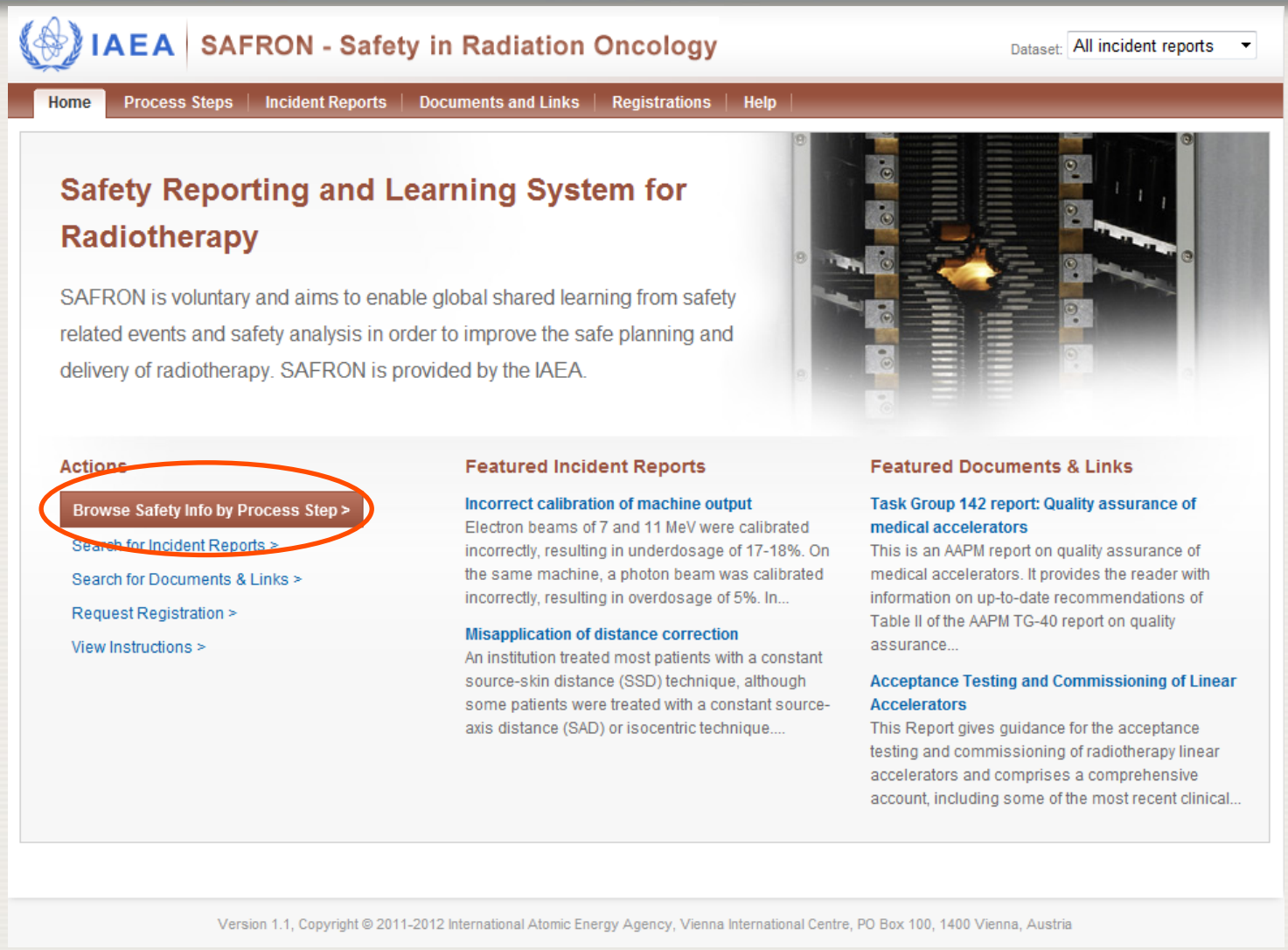
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SAFRON - Safety in Radiation Oncology
Dataset: All incident reports
Home
Process Steps
Incident Reports
Documents and Links
Registrations
Help
Safety Reporting and Learning System for Radiotherapy
SAFRON is voluntary and aims to enable global shared 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...
Version 1.1, Copyright © 2011-2012 International Atomic Energy Agency, Vienna International Centre, PO Box 100, 1400 Vienna, Austria

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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

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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. (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.

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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

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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

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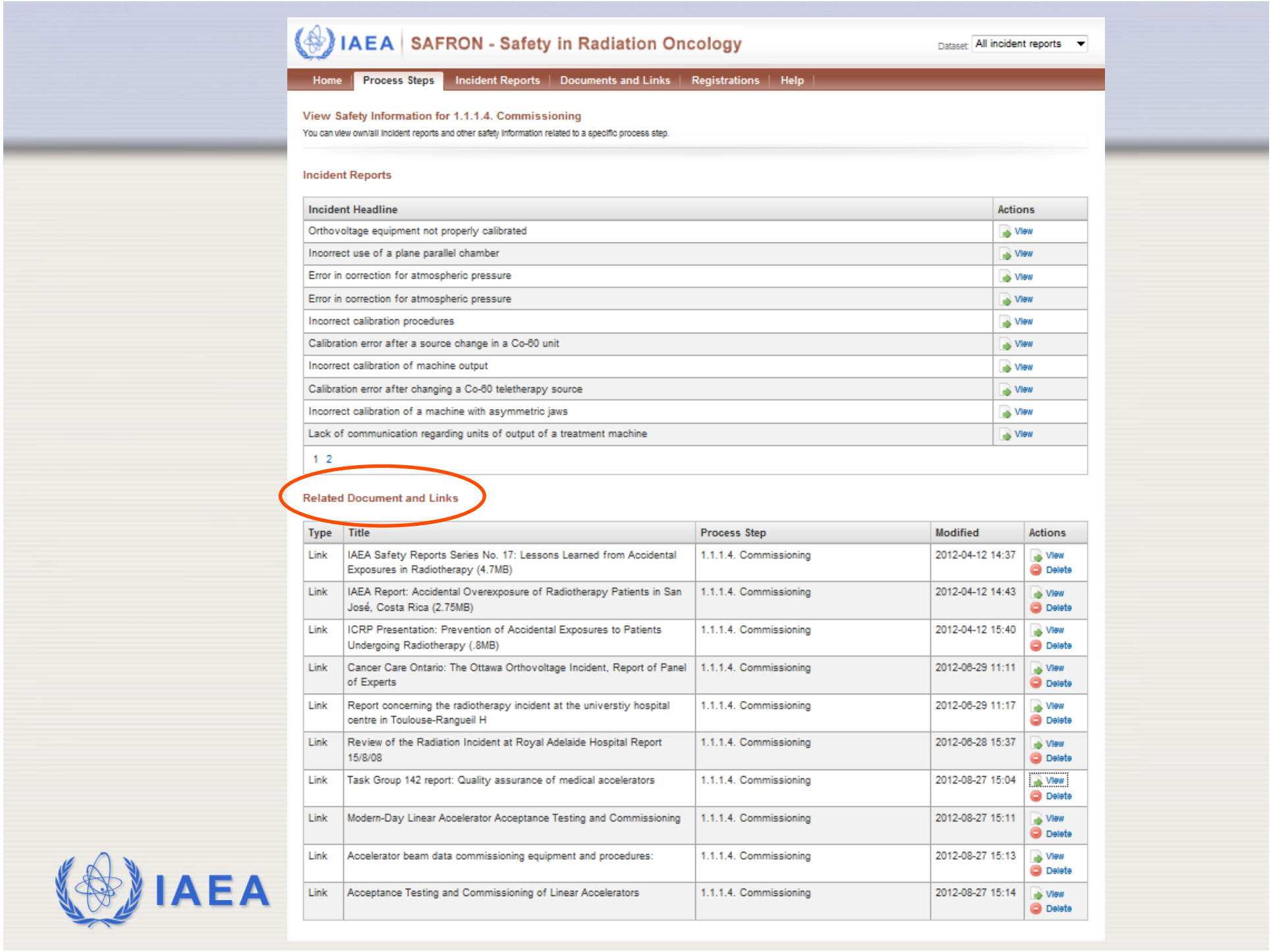
Related Document and Links

No Document & Link record found.



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Dataset: All incident reports

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

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
Incorrect calibration procedures	View
Calibration error after a source change in a Co-60 unit	View
Incorrect calibration of machine output	View
Calibration error after changing a Co-60 teletherapy source	View
Incorrect 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-Rangueil 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

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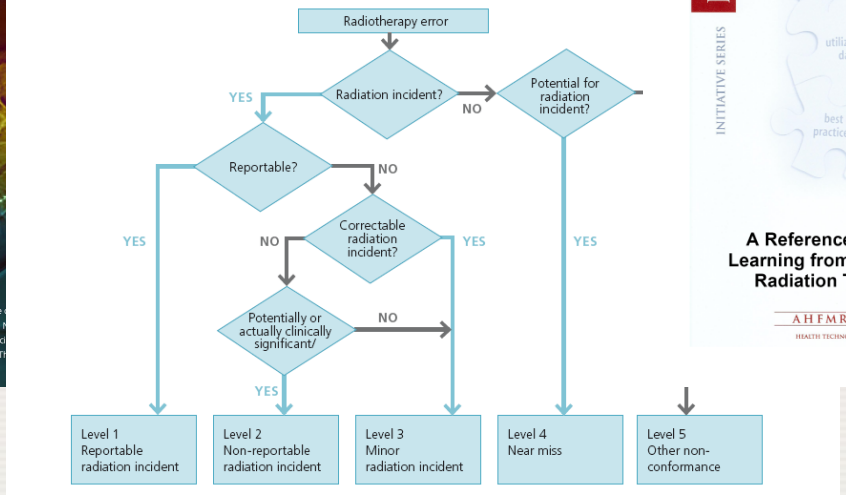
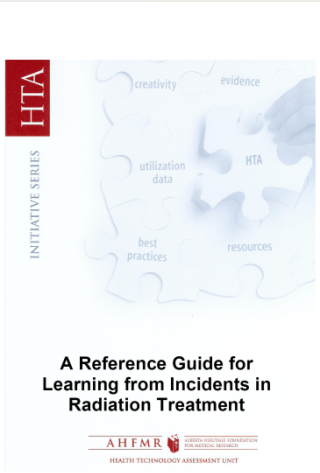
Safety reporting and learning – what?

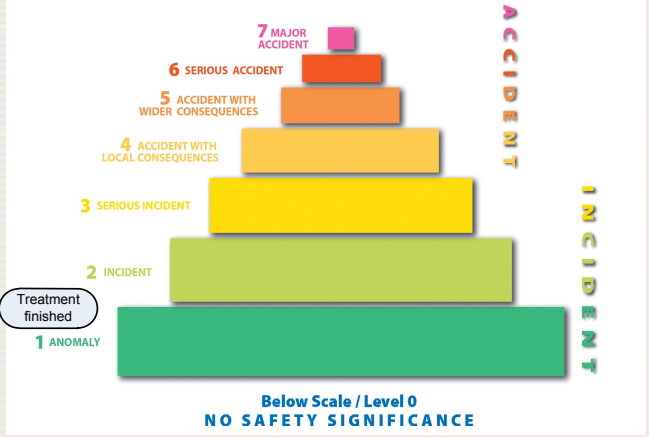
Common understanding of parameters for safety reporting systems

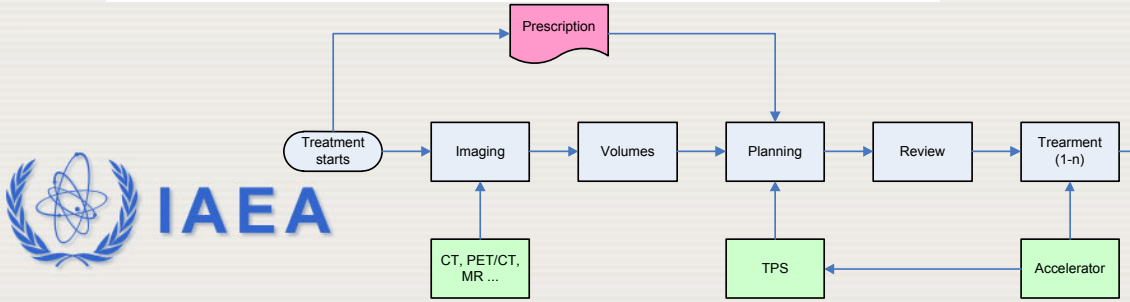
Severity grading; Causes / contributing factors classification; Standardized process map; Other terminology





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.	*Immediately notify:* Senior Management, Manager, Supervisor, Physician
Major Incident	Dose variation from prescribed total dose of	*Immediately notify:* Senior
Potential Major Incident		





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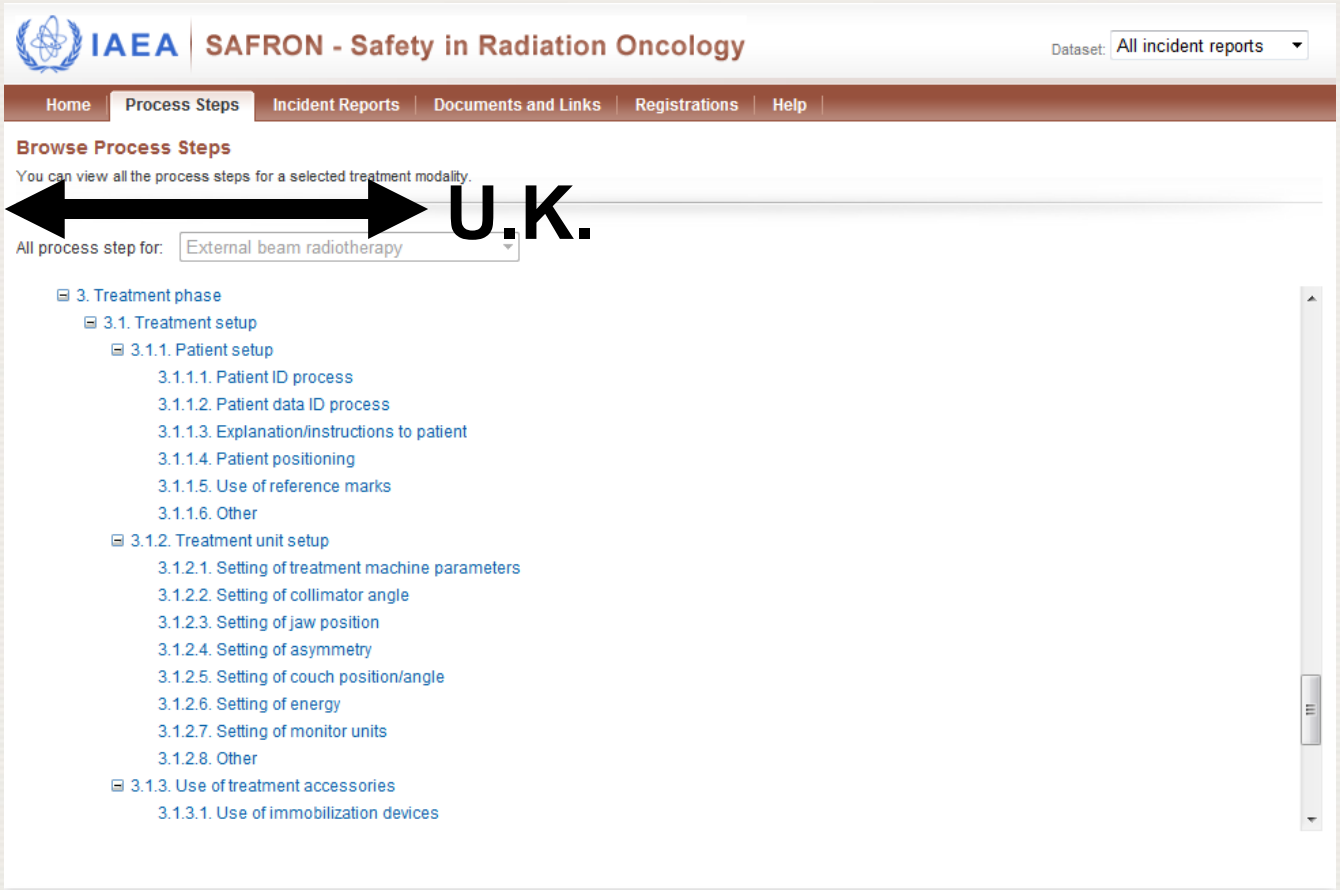
Safety reporting and learning – what?

Process steps

WHO ⟷ U.K.



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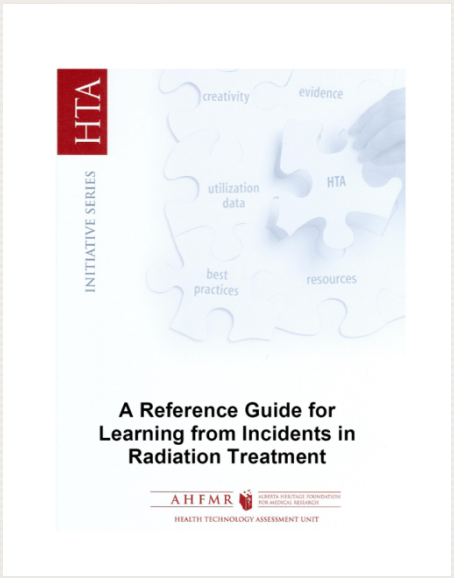
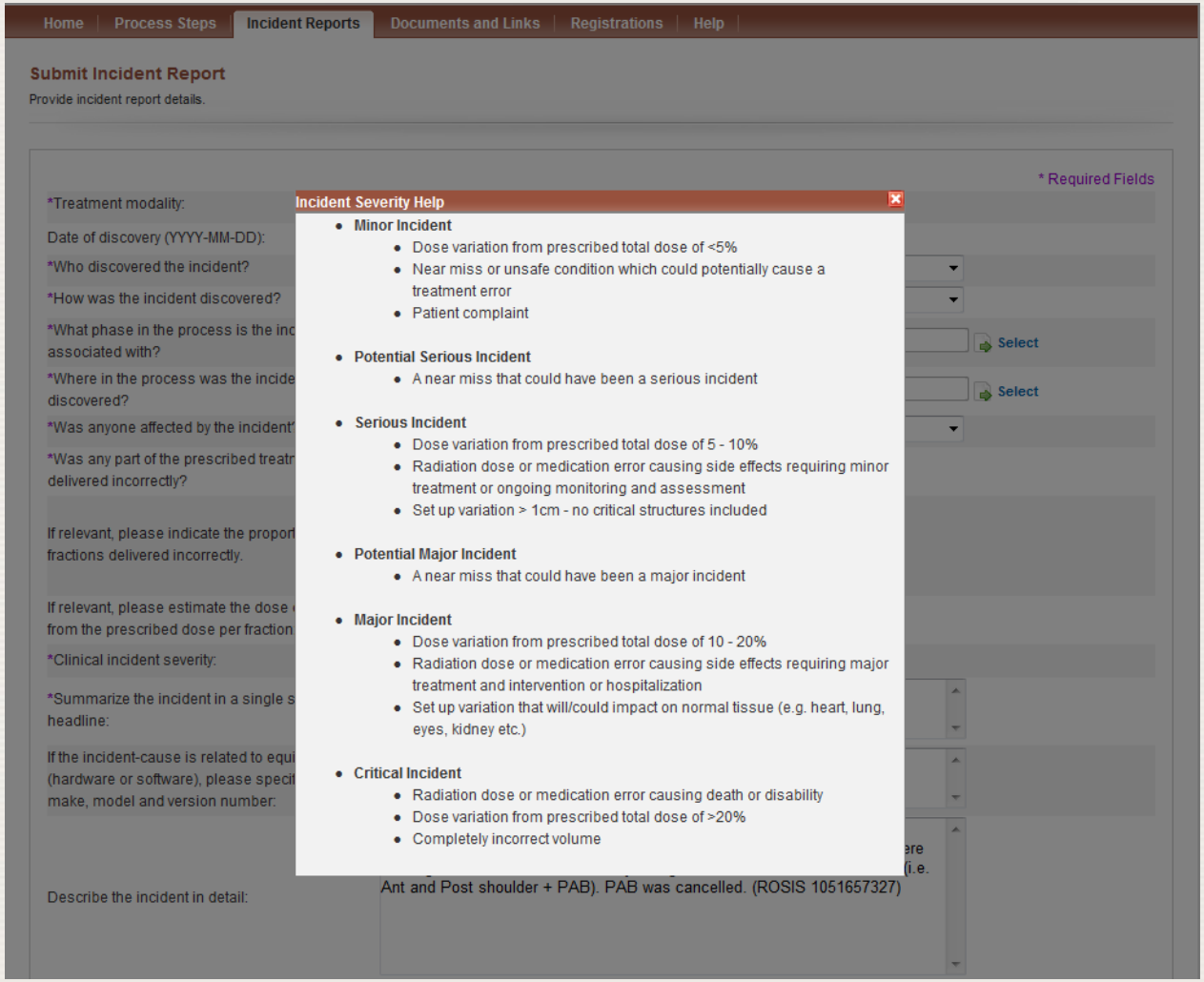
Safety reporting and learning – what?

Severity scale

Canada





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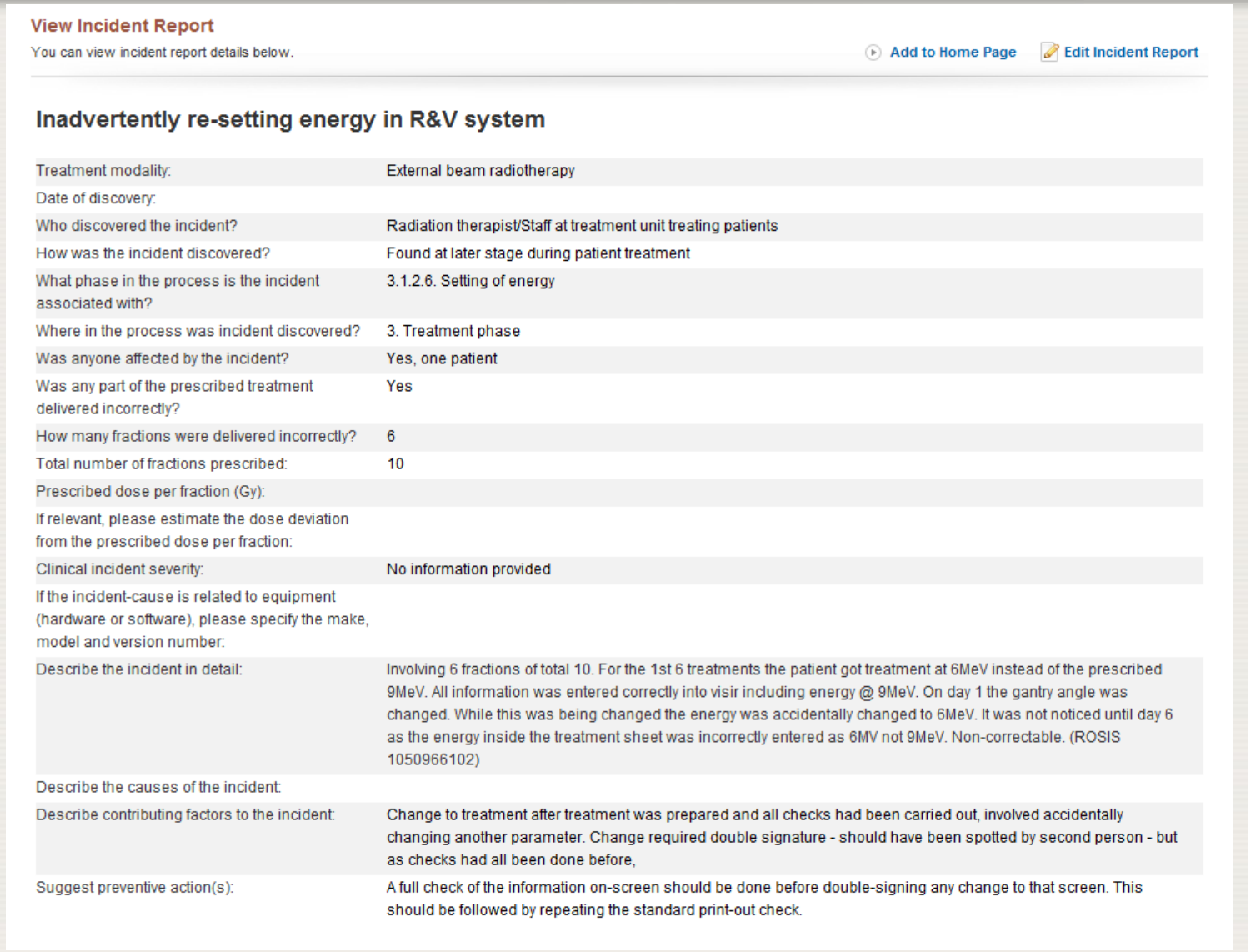
Safety reporting and learning – what?

Many other parameters ROSIS

ROSIS
Radiation Oncology Safety Information System



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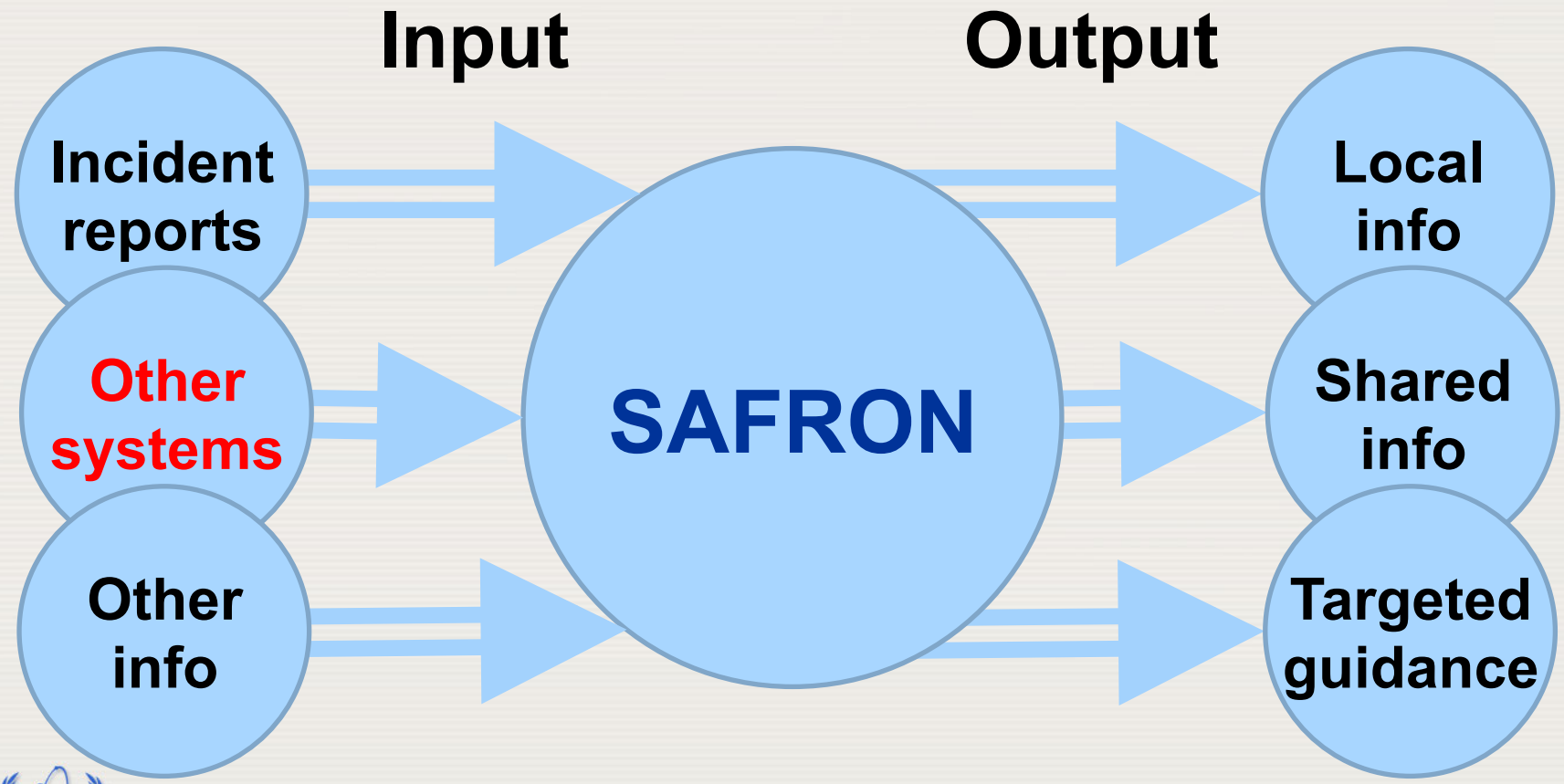
Safety reporting and learning – what?

Why so many parameters in common with other systems?



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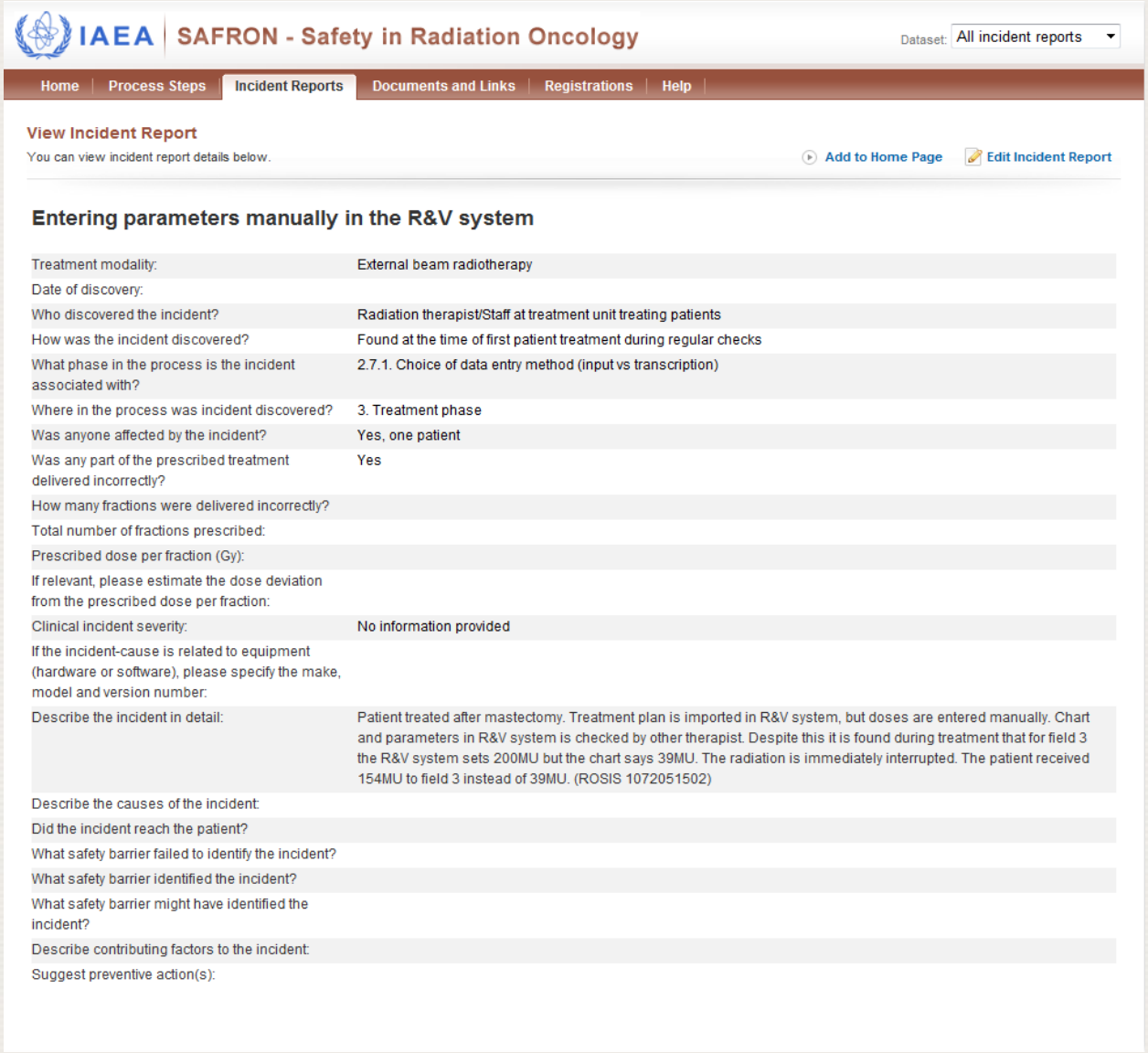
e.g. IAEA, ROSIS, ASN, …

SAFRON next developments



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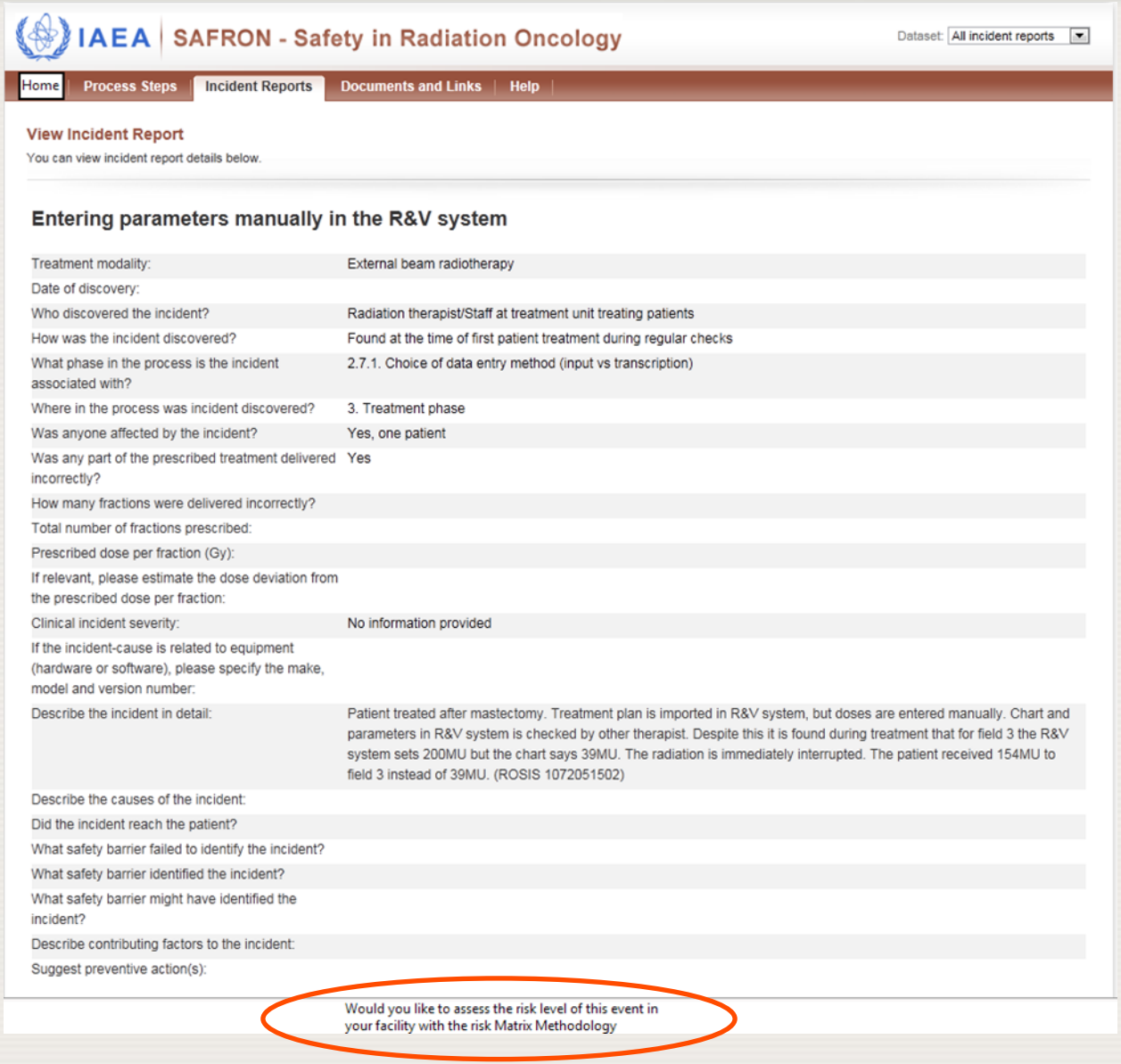
SAFRON next developments



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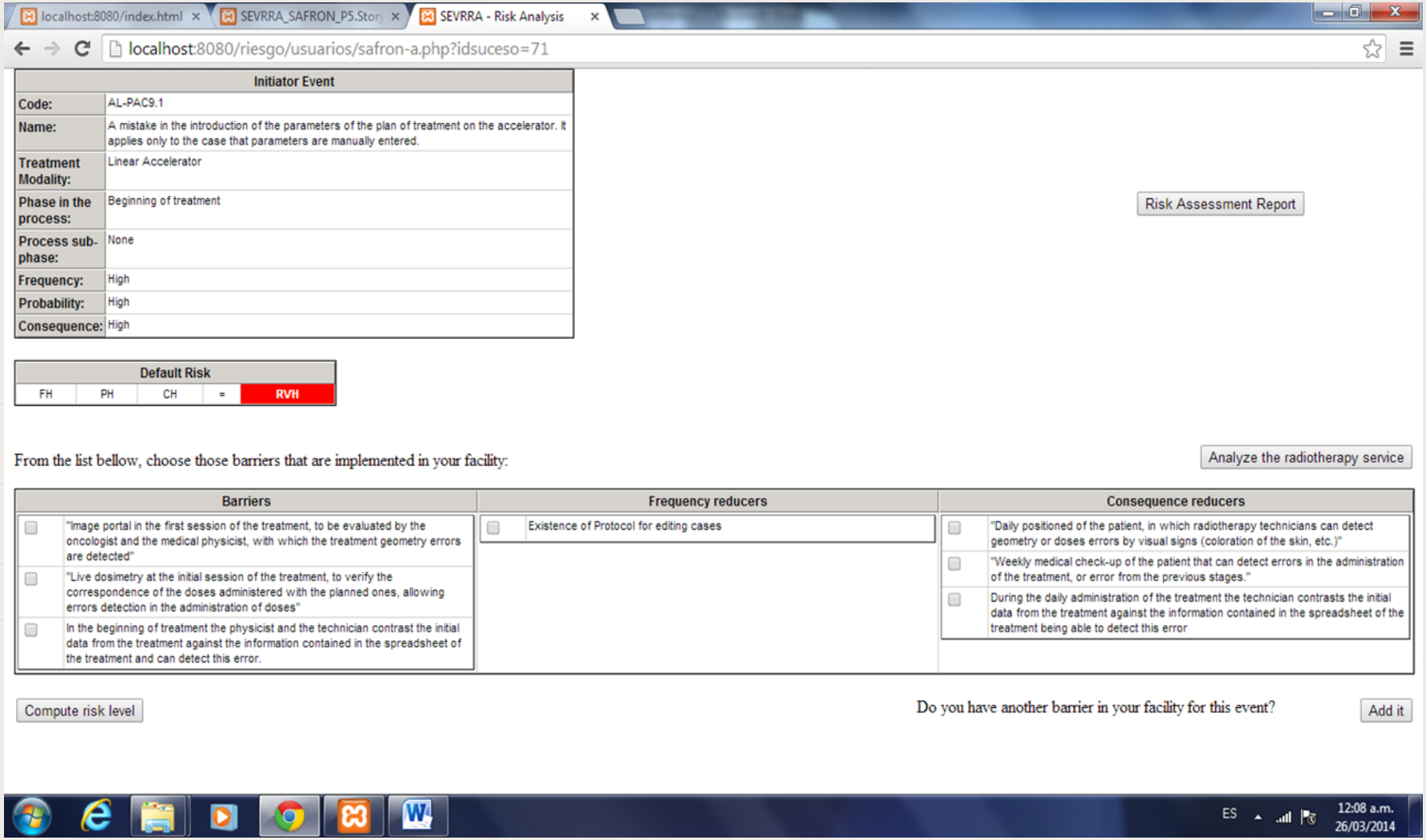
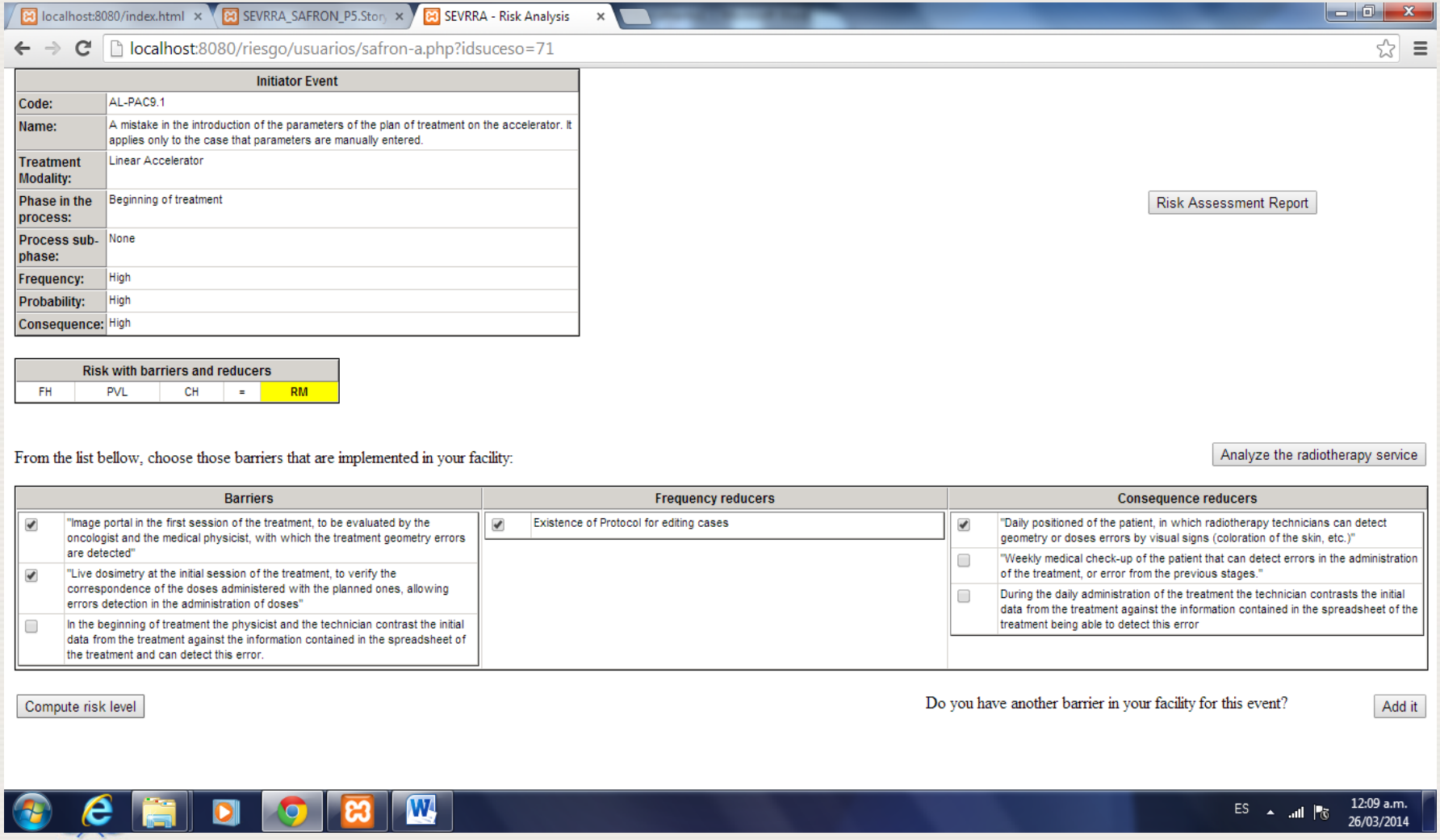
SAFRON next developments

Access to SEVRRA-SAFRON

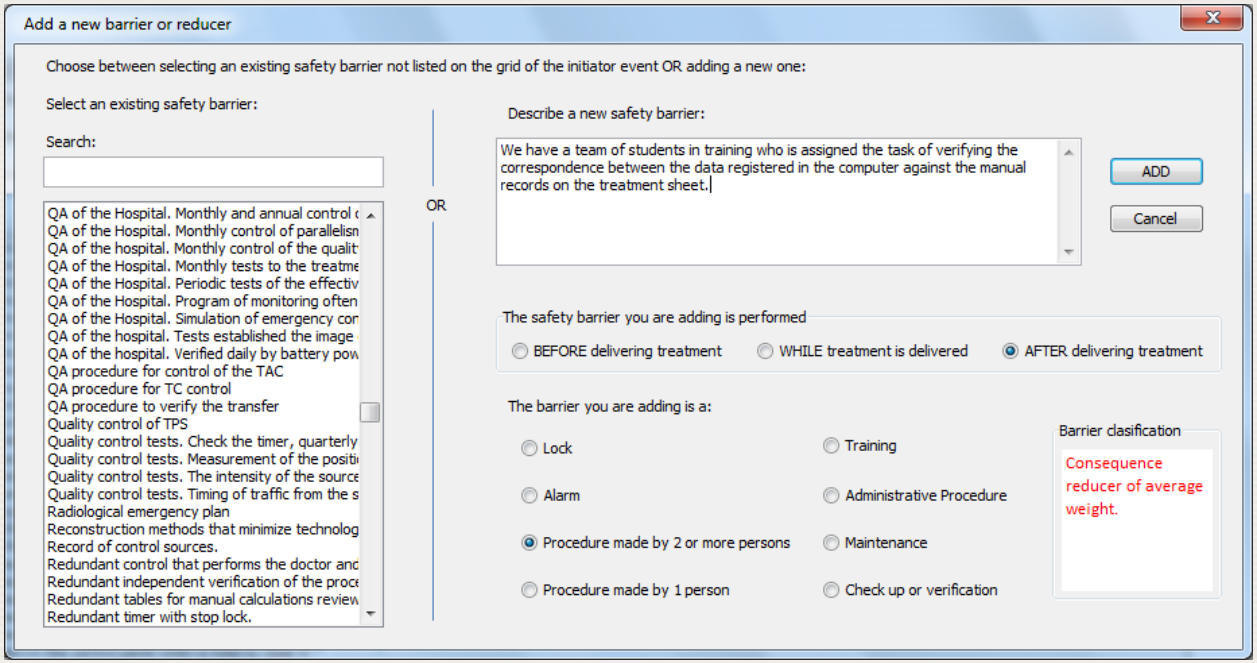


SAFRON next developments

Access to SEVRRA-SAFRON



SAFRON next developments



Upcoming

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

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