

Welcome to the fifth issue of *Safer Radiotherapy*. The aim of the newsletter is to provide a regular update on the analysis by the Health Protection Agency of radiotherapy error (RTE) reports. These reports are submitted to the National Reporting and Learning System (NRLS) of the National Patient Safety Agency (NPSA), to promote learning and improve patient safety.

The newsletter is designed to disseminate learning from RTEs to professionals in the radiotherapy (RT) community to influence local practice and improve patient safety.

Regular features include:

- **RTE Data Analysis** – undertaken by the HPA, highlighting key messages and trends identified from a three-month period of RTE reports
- **‘Error of the Month’** – provides advice on preventing recurring errors in the patient pathway
- **Guest Editorials** – are invited from those wishing to contribute to issues surrounding patient safety issues in radiotherapy
- **Patient Safety in Radiotherapy Steering Group** – updates on the work of this multidisciplinary group (IPEM, RCR, SCoR, NPSA, HPA and service users).

Any comments and suggestions for inclusion in the newsletter would be gratefully received. They should be sent to radiotherapy@hpa.org.uk

Thanks to all contributors to this issue. The next issue of *Safer RT* will be published in December 2011 and will be available at www.hpa.org.uk/radiotherapy

Kim Baldwin
Editor

Patient Safety in Radiotherapy Steering Group

Safer Radiotherapy Issue 3 introduced the work of the Patient Safety in Radiotherapy Steering Group on causative factors and detection methods. In April 2011 draft taxonomies were proposed at a Steering Group meeting. Following refinement of the taxonomies, a guidance document has been drafted.

Ten RT departments have been asked to trial the taxonomies and to provide feedback on the guidance document. Application of the taxonomy codes will be consistency checked by the HPA RT team. Feedback from the trial centres will be incorporated into a revised guidance document and taxonomies. A larger selection of departments will then be asked to trial the taxonomies and submit the coded RTEs to the NRLS, to ensure no problems arise with data flow to the HPA for its regular three-monthly analysis.

By early next year, the guidance document will be ready for publication and the taxonomies will be presented to the RT community.

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The HPA Radiotherapy Team is based at CRCE Chilton



EDITORIAL HEADLINE

Can We Improve the Shared Learning from RTEs? *Yes We Can!*

It is known from previous analyses that 53 RT departments have at some time since December 2009 reported RTEs to the NRLS. However, around a third of these are not submitting RTEs using the TSRT9 trigger code.

The Patient Safety in Radiotherapy Steering Group is keen to improve understanding of local reporting of RTEs. To this end, a survey questionnaire entitled ‘National Reporting of Radiotherapy Errors (and Near Misses)’ has been circulated by the SCoR to all RT service providers in England and Wales.

It is hoped that the results from the survey will identify barriers to reporting.

To ensure that appropriate learning from RTEs continues to be shared nationally, make sure your RTEs are TSRT9 coded and submitted to the NRLS.

Please complete the survey by the end of September, if you have not already done so. If you have not yet received a copy of the survey, email us at radiotherapy@hpa.org.uk

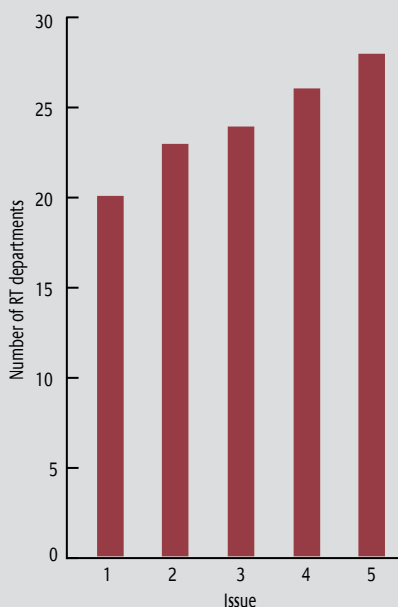
RTE Data Analysis: February–April 2011

Who is Contributing to the Shared Learning?

This quarter's data indicates four more RT departments are now submitting RTEs to the NRLS, bringing the total since December 2009 to 34. It is known that the frequency of reporting differs between clinical departments and it is hoped that the survey highlighted in this issue's Editorial Headline (see page 1) will provide more information in due course.

Clinical site visits undertaken by the HPA have revealed that local RT departments are using the information provided in these newsletters to map their performance against the national picture. To facilitate an individual department's use of the data, the number of departments whose data is analysed in each issue of *Safer Radiotherapy* is given in the figure below. In future issues the number of departments whose data are included will be stated in the analysis.

Number of departments per issue of *Safer Radiotherapy*



Only TSRT9 trigger-coded RTEs will be analysed by the HPA and contribute to UK learning

Quarterly Analysis

The full data analysis for 1 February 2011 to 30 April 2011 is available at www.hpa.org.uk/radiotherapy

The analysis includes data on primary process coding and severity classification of the RTE. A breakdown of primary process codes by classification levels is also included.

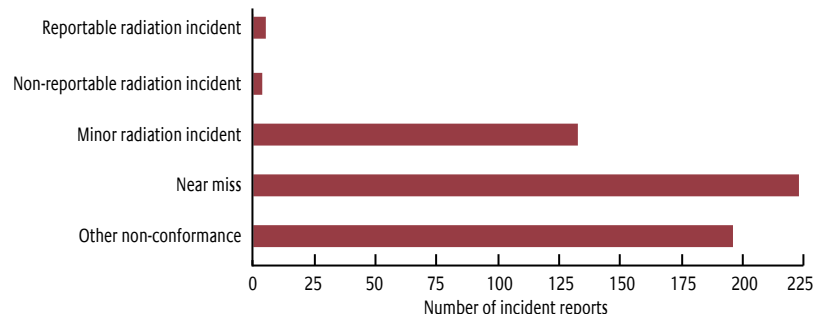
Classification of RTEs

Of those RTEs reported to the NPSA for the period February–April 2011, 98% were classified as minor radiation incidents, near misses or other non-conformances (see Figure 1). These are all lower level incidents which would have no significant effect on the planning or delivery of individual patient treatments.

Of the 561 RTEs reported, 133 were in the minor radiation incident category. Of these, 80 RTEs concerned 'treatment unit process', of which 40% were related to imaging tasks. The accompanying text in the RTE report indicated that the review of verification images failed to take place according to local protocol in a timely fashion. This resulted in corrections to the treatment isocentre not being applied before the next treatment fraction delivery.

IR(ME)R Regulation 7(8) and Schedule 1(j) Employer's Procedure require 'procedures for the carrying out and recording of an evaluation for each medical exposure' to be in place.

FIGURE 1 Classification breakdown of RTE reports extracted from the NRLS using the TSRT9 trigger code, February–April 2011 (561 reports)



* A Guide to Understanding the Implications of the Ionising Radiation (Medical Exposure) Regulations in Radiotherapy. The Royal College of Radiologists (2008). Available at www.rcr.ac.uk

Published guidance* indicates that the clinical evaluation of on-treatment verification images must be undertaken by an adequately trained, entitled operator and that there is a record of the outcome for each medical exposure. These evaluations provide the basis for continuation or adjustment of treatment and must therefore be carried out in a timely manner.

For further advice on 'on-set imaging: approval process' see *Safer RT*, Issue 3: Error of the Month.

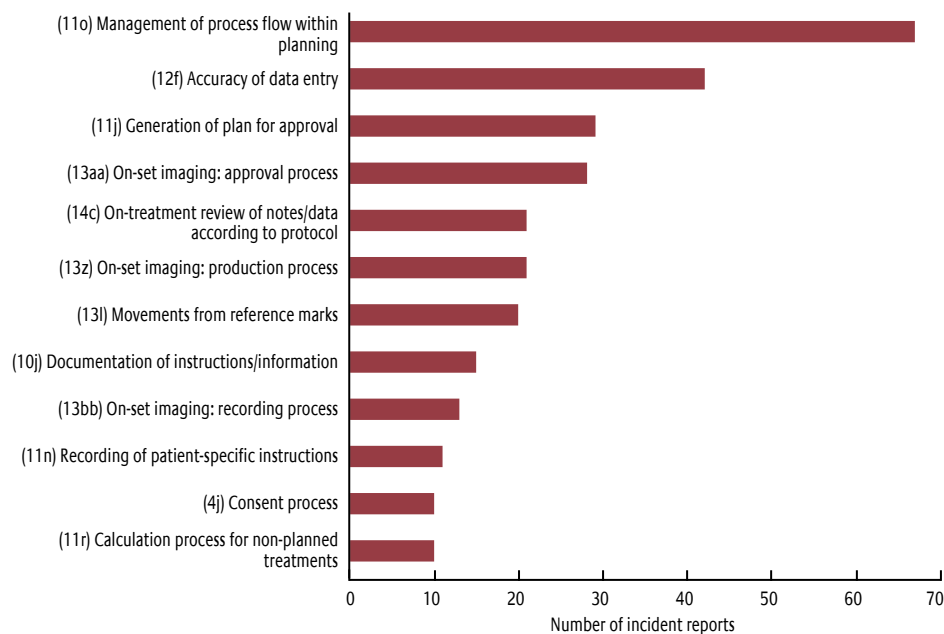
Primary Process Code

The main themes (points in the patient pathway where the majority of reported RTEs occurred) for this dataset are shown in Figure 2. Nearly a quarter (23%) of these RTEs are attributed to 'management of process flow within planning'. See the Error of the Month for further information.

RTEs associated with the accuracy of data entry and on-treatment imaging continue to yield high numbers. Points to consider when trying to limit these types of error can be found in *Safer RT*, Issues 2 and 3: Error of the Month.

RTEs related to 'on-treatment review of notes/data according to protocol' have appeared previously in the main themes section and feature again in this quarter's data. The accompanying text to the reports indicates the lack of adequately trained, entitled operators to undertake this check. The value

FIGURE 2 RTE Main Theme (287 out of 561 reports), for February–April 2011 (with process code indicated)



of reviewing the notes and data is in reducing the occurrence of potential RTEs and thereby increasing patient safety. It is suggested that if this check is not routinely performed in a department, a risk assessment should be undertaken to ensure patient safety is not compromised.

Secondary Process Code

Additional coding was supplied with 35% (195 out of 561) of the RTE reports submitted during the period February–April 2011. Most of these occurred at the ‘pretreatment planning process’ and the ‘treatment unit process’ points in the pathway.

Half of the ‘pretreatment planning process’ secondary subcodes related to ‘end of process checks’. Advice on these checks can be found in *Safer RT*, Issue 4: Error of the Month.

‘Movements from reference marks’ accounted for 20% of the ‘treatment unit process’ secondary subcodes and related to corrections to the isocentre not being undertaken due to failure of the image approval process or recording of correction. A further 24% of the ‘treatment unit process’ secondary subcodes related to ‘management of variations/unexpected events/errors’.

What is a Patient Safety Incident?

The National Patient Safety Agency has defined a patient safety incident as:

‘A patient safety incident is any unintended or unexpected incident which could have or did lead to harm for one or more patients receiving NHS care.’

www.npsa.nhs.uk

Example As a linear accelerator treatment machine was rotating, the portal imaging panel struck the immobilisation storage trolley, startling the patient but no harm was done to the patient or to staff.

Six per cent of the RTE reports submitted with the TSRT9 trigger code for this quarter were patient safety incidents but were not radiation incidents.

Patient safety incidents that are not radiation incidents and have no potential to be radiation incidents do not contribute to the analysis of RTEs. Please do not TSRT9 trigger code these patient safety incidents.

The data analysed is submitted by the RT community, therefore your comments and suggestions regarding the RTE analysis are welcomed. For further information or enquiries please contact the HPA Radiotherapy Team, Úna Findlay and Kim Baldwin, radiotherapy@hpa.org.uk

ERROR OF THE MONTH

Management of Process Flow within Planning

TSRT Process Code:
Pretreatment planning process (11)
Management of process flow within planning (o)

Management of process flow within planning has been highlighted as a point in the patient pathway where ‘other non-conformance’ RTEs commonly occur. In this quarter’s data, 40 of the 66 RTEs reported were due to the late volume delineation of the target by the oncologist.

How can we minimise the risk of this RTE occurring?

Points to consider

- 1 Review and audit radiotherapy pathways ensuring individual tasks are allocated the appropriate time
- 2 Review oncologists’ job plans to ensure dedicated time is allocated for volume delineation
- 3 Use local skill mix to expedite the delineation of organ(s) at risk and target volumes (where appropriate) for practitioner approval
- 4 Ensure clinical team working so clinicians’ leave is covered, to avoid delays in the planning process
- 5 Provide and record appropriate local training to indicate competency of staff to undertake tasks [IR(ME)R Reg 11(4)]
- 6 Use structure templates and standardised nomenclature within the treatment planning system
- 7 Create an appropriate environment with minimal distractions for staff, as such tasks require intense concentration and carry a high level of responsibility [TSRT pages 5, 10 and 35]
- 8 Ensure appropriate booking of patient appointments, to manage workflow and prevent placing stress on staff
- 9 Use locally available electronic systems such as the Oncology Management System to manage individual staff workloads
- 10 Review clinical errors at consultant business meetings.



GUEST EDITORIAL

TSRT Classification and Process Coding Worth the Effort?

Joanne McCarthy

Quality Assurance Radiographer, Radiotherapy Department, Cancer Centre, Belfast City Hospital

Adoption of the classification and process coding from TSRT enabled the identification of RTE trends. The process changes subsequently implemented addressed a number of TSRT recommendations:

- Skill mix reviewed for specific times of day to ensure patient safety (Rec 2)
- Written procedures updated in order to standardise practice (Rec 9)
- Software introduced to undertake independent monitor unit check (Rec 11)
- Reverse checking of shift application in the treatment room (Rec 11)
- QMS forms redesigned with space for TSRT9 code, classification and process coding (Rec 32)
- Workshops held to disseminate learning and promote open discussion (Rec 32)
- Educational packages introduced and changes made to competency framework (Rec 32)
- Audit undertaken to monitor effectiveness of process change (Rec 32)
- TSRT classification and process coding of RTEs adopted locally, with improved communication to ensure consistency of application (Rec 34)
- Local processes now allow time to be allocated for undertaking calculations and independent checks, thus reducing stress on the treatment unit staff (TSRT Executive Summary sixth key recommendation).

In 2008, prompted by the publication of *Towards Safer Radiotherapy* (TSRT), the Quality Management Team in the Radiotherapy Department of Belfast City Hospital introduced the classification and process coding of radiotherapy errors (RTEs). Application of the classification and process coding system has allowed local analysis of RTEs to a much greater level than previously achievable.

Local analysis of RTEs submitted between April 2008 and March 2009 revealed that minor radiation incidents (as defined in TSRT) were occurring at specific points in the pathway relating to:

- Incorrect application of shifts
- Inaccurate documentation of shifts
- Non-standard practice
- Inconsistency in application of reverse or independent checks
- Completion of manual calculations at busy times of the day
- Gaps in staff training.

Working groups were established and, using the learning provided from the RTE analysis along with local discussions, changes to local practice were implemented. Audits were undertaken between April 2009 and March 2010 as new procedures were being adopted

– these indicated a significant decrease in the number of RTEs at the identified points in the pathway (see the table). This has resulted in an overall reduction of 15% in minor radiation incidents.

Process code	Activity code	Decrease in RTEs
11r	Calculation process for non-planned treatment	50%
13l	Movements from reference marks	83%
13q	Setting of couch position/angle	67%

RTE trend identification has improved targeting preventive action and has made implementing change more effective.

The system of classifying, process coding, RTE trend identification, preventive action development, implementation of change and audit is now established as routine and seen as effective, thus improving patient safety and local practice. Results are shared with other staff groups and management review meetings to identify points in the patient pathway where potential RTEs may occur, allowing new and realistic targets for improvements to be made.

Yes, we think it is worth the effort.

DATES FOR THE DIARY

19 September	RCR – Improving Outcomes in Radiotherapy – The Promise of New Technology, London
7 October	BIR – Developments in the Treatment of Head and Neck Cancer with Chemotherapy, Biological Agents and Radiotherapy, London
11 October	IPEM – Oncology Managements Systems and Their Use in Cancer Care, London
19 October	SCoR – Making Research Happen – A Researcher Development Workshop, London
2 November	NRAG 2011 Annual Conference, London
10 November	IPEM – Electrons: Dosimetry, Planning and Treatment, Birmingham
8–9 December	BIR – <i>In-Vivo</i> Dosimetry and Dose Guided Radiotherapy, London
December	<i>Safer Radiotherapy</i> , Issue 6