

# Safer Radiotherapy



September 2010 Issue 1

Welcome to the first issue of *Safer Radiotherapy*. The aim of this 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 community to influence local practice and improve patient safety.

Regular features will include:

- **RTE Data Analysis** – undertaken by the HPA, highlighting key messages and trends identified from a three-month period of RTE reports (for this first issue the analysis will cover a back catalogue of data for a five-month period)
- **'Error of the Month'** – will provide 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.

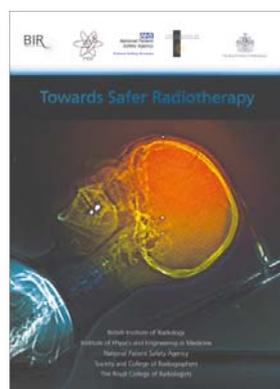
Any comments and suggestions for inclusion in the newsletter would be gratefully received. They should be sent to [radiotherapy@hpa.org.uk](mailto:radiotherapy@hpa.org.uk)

Thanks to all contributors to this issue. The next issue of *Safer Radiotherapy* will be published in December 2010 and will be available at [www.hpa.org.uk/radiotherapy](http://www.hpa.org.uk/radiotherapy)

**Kim Baldwin**  
Editor

## HPA Patient Safety in Radiotherapy Steering Group

The primary objective of this Steering Group is to improve patient safety in radiotherapy in the UK by building on the recommendations of *Towards Safer Radiotherapy*, supporting their implementation and taking them forward.



The HPA chairs the Group whose membership includes representatives from the National Patient Safety Agency, the Royal College of Radiologists, Society and College of Radiographers, Institute of Physics and Engineering in Medicine and a Patient Representative. Regular updates on the work of the Group will be reported.

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*The HPA Radiotherapy Team is based at CRCE Chilton*



## EDITORIAL HEADLINE

### Business as Usual

The Department of Health's review of arm's length bodies in July this year states that the Health Protection Agency will lose its status as a non-departmental public body (see [www.dh.gov.uk](http://www.dh.gov.uk)).

This does not mean that the HPA is being 'axed' as implied by some of the media reports. The HPA functions will continue and will be included in a new public health service, likely to be established within the next two years.

The DH review also states that the safety functions of the National Patient Safety Agency will be retained and in the future transferred to the National Commissioning Board.

Therefore radiotherapy departments should continue to submit RTE reports to the NPSA and contact the HPA Radiotherapy Team regarding requests for clinical site visits.

# RTE Data Analysis: December 2009 to April 2010

In 2008 the NPSA sent a questionnaire on local reporting of radiotherapy patient safety incidents to radiotherapy departments in England and Wales. The full report on the responses from the radiotherapy community to the questionnaire can be found on the NPSA website\*. These responses included the following recommendations to help improve RTE reporting:

- Timely and sensitive feedback to the radiotherapy community on analysis of national reporting
- Further shared learning from radiotherapy incidents to influence clinical practice
- Provision of guidance on implementation of *Towards Safer Radiotherapy* classification and coding
- Provision of guidance on how to include *Towards Safer Radiotherapy* classification and coding in reports for the NRLS of the NPSA.

With publication of this quarterly newsletter it is hoped that the HPA can build on existing work/publications to address these recommendations.

## Has RTE reporting culture changed since the 2008 questionnaire?

All reports supplied for analysis have a unique, anonymised hospital identifier.

Of the 47 radiotherapy departments that responded to the questionnaire, 42 were reporting via the NRLS to the NPSA.

**The latest analysis shows 53 out of 59 RT departments in England and Wales now submit RTE reports via the NRLS to the NPSA.**

## Who is using the TSRT classification and coding system and the TSRT9 trigger code?

Two searches were run on the NPSA database for reports submitted between December 2009 and April 2010. One used the TSRT9 code; the other used relevant key words but excluded the TSRT9 code.

### ***Around 50% of the reporters are not yet using the TSRT9 trigger code.***

With publication in July this year of 'Implementing Towards Safer Radiotherapy: guidance on reporting radiotherapy errors and near misses effectively\*\*' by the NPSA, it is hoped that more RT departments will use the TSRT9 trigger code and the TSRT classification and coding system. Future data analyses by the HPA will only be undertaken on TSRT9 coded reports.

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### ***We Need Your Help***

***– to facilitate an efficient and consistent analysis of RTEs for local and national comparison***

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## Recommendations for improving RTE reporting

- TSRT9 trigger code and TSRT classification and coding system should be used when reporting RTEs to the NPSA
- 'Good practice in RTE reporting' guidance† should be followed, with enough free text to allow TSRT classification and coding for consistency checking
- The order of TSRT coding should reflect the point in the pathway where the incident first occurred.

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\* Available at [www.nrls.npsa.nhs.uk/resources/clinical-specialty/radiology-and-radiotherapy/](http://www.nrls.npsa.nhs.uk/resources/clinical-specialty/radiology-and-radiotherapy/) and click on Implementing 'Towards Safer Radiotherapy'

† Good practice in RTE reporting. An ongoing series to demonstrate how to report RTEs occurring throughout the patient pathway: available at [www.hpa.org.uk/radiotherapy](http://www.hpa.org.uk/radiotherapy)

On reviewing the submitted RTE reports, the HPA considered that the use of coding could be further improved.

Good quality reporting:

- Facilitates independent consistency checking of the application of the classification and coding
- Informs ongoing development of causative factors taxonomy
- Identifies method of RTE detection.

## Quarterly Analysis

The full RTE data analysis for 1 December 2009 to 30 April 2010, detailing the classification and coding of submitted RTE reports, is available at [www.hpa.org.uk/radiotherapy](http://www.hpa.org.uk/radiotherapy)

The analysis includes data on primary process coding and severity classification of the RTEs. A breakdown of primary process code by classification level is also included.

## Classification of RTEs

Of those RTEs reported to the NPSA for the period December 2009 to April 2010, 95% were classified as minor radiation incidents, near misses or other non-conformances (see Figure 1). These are all lower level incidents which would have had no significant affect on the planning or delivery of individual patient treatment.

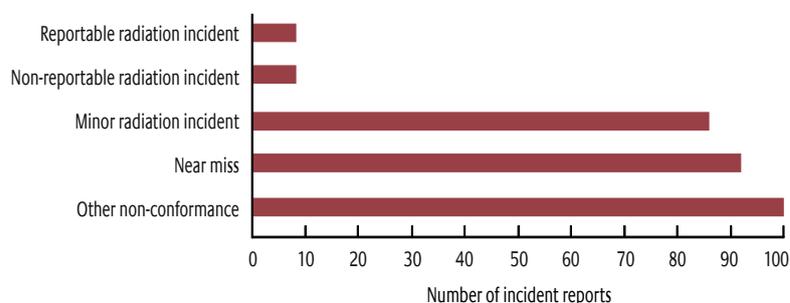
Of the 294 RTEs, 92 (31%) were in the near miss category. It should be noted that 17 of these near misses (19%) concerned the 'communication of intent'. A further breakdown of these showed that 53% (9 out of 17) were related to 'Authorisation to irradiate (IR(ME)R) process code 5k':

'Authorisation is the verification that the process of justification has taken place and is usually demonstrated by the signature of the practitioner or an appropriately entitled operator.'

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\* Available at [www.nrls.npsa.nhs.uk/resources/clinical-specialty/radiology-and-radiotherapy/](http://www.nrls.npsa.nhs.uk/resources/clinical-specialty/radiology-and-radiotherapy/) and click on Implementing 'Towards Safer Radiotherapy'

**FIGURE 1** Classification breakdown of RTEs reports extracted from the NRLS using the TSRT9 trigger code, for December 2009 to April 2010 (294 reports)



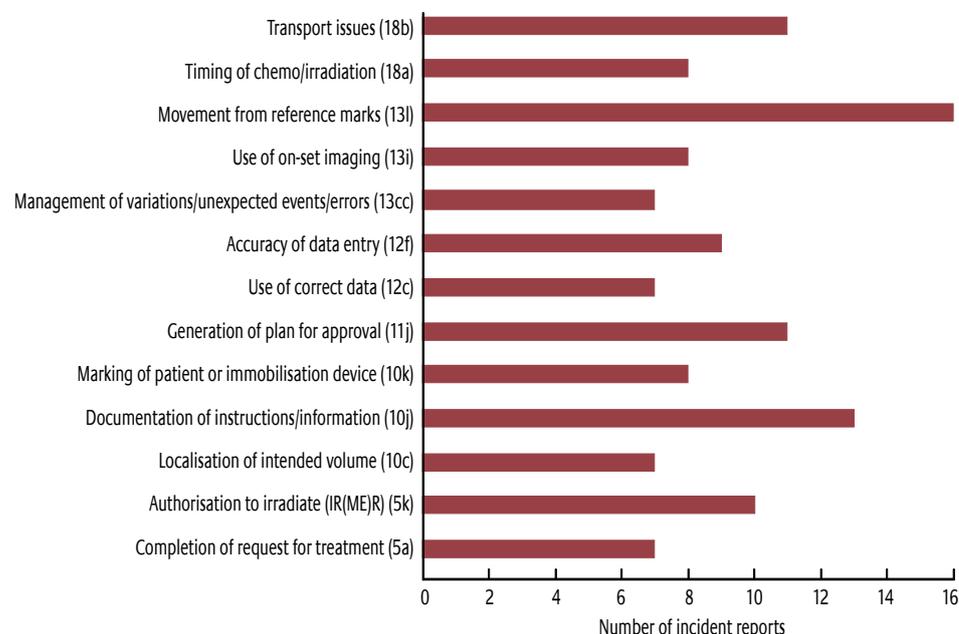
### What is the value of reporting a near miss RTE?

The aim of analysing near miss reports is to influence clinical practice and thus prevent the 'second event' (see page 4 of this issue).

### Primary Process Code

The Main Themes (points in the patient pathway where the majority of reported RTEs occurred) of this set of data are shown in Figure 2. They correlate well with previously analysed data. 'Movement from reference marks' continues to be the leading RTE in the treatment unit process category. See 'Error of the Month' for further information.

**FIGURE 2** RTE Main Themes (for 122 out of 294 reports), for December 2009 to April 2010 (with process code indicated)



### Secondary Process Code

From the additional coding supplied on the RTE reports the highest occurring secondary error is 'End of process checks'.

Thought should be given to the purpose of these checks and to ensure that adequate time is given and the environmental conditions are suitable to ensure their relevance and accuracy. This will be discussed in a future issue of *Safer Radiotherapy*.

For further information or enquiries please contact the HPA Radiotherapy Team, Úna O'Doherty and Kim Baldwin, [radiotherapy@hpa.org.uk](mailto:radiotherapy@hpa.org.uk)

## ERROR OF THE MONTH

### Movement from Reference Marks

**TSRT Process Code:**  
**Treatment unit process (13)**  
**Movement from reference marks (I)**

Movement from reference marks has been highlighted as a point in the patient pathway where RTEs commonly occur. In the data analysed here (December 2009 – April 2010) more than 80% of the 'movement from reference marks' RTEs occurred due to the incorrect directional application of the moves from reference or following portal image analysis corrective moves that were not applied appropriately.

### How can we minimise the risk of this RTE occurring?

#### Points to consider

- 1 Indexing of immobilisation devices on the pre-treatment and treatment couches
- 2 Tattooing of isocentre and using asymmetric fields where appropriate – consider reproducibility of tattoo positions
- 3 Capturing of couch parameters on day one
- 4 Using fiducial markers in immobilisation devices to allow input of isocentre position prior to day one
- 5 Commissioning of technique specific tolerance tables – based on local department technique reproducibility data
- 6 Making independent in-room visual check on patient of moves from reference marks – direction and magnitude, when move is manually completed
- 7 Ensuring the primary source for moves is identified and routinely used for moves – avoid duplication and transcription of source data
- 8 Ensuring the process for implementing corrective moves after portal image analysis is robust.



GUEST EDITORIAL

## Preventing the Second Event

Leslie Frew MSc MIPEM

Head of Radiotherapy Physics, Belfast Health and Social Care Trust

Two years and over 1500 miles apart two stereotactic units were commissioned (see the panel below). What did these two events have in common? Both resulted in incorrectly calibrated treatment units and brought unexpected harm to patients. Had details of the first incident been shared, the second may well have been avoided.

'In 2004 in Florida it was reported that a stereotactic unit was miscalibrated, resulting in 50% higher dose than intended for 77 patients with brain tumours.'

<http://rpop.iaea.org>

'In April 2006, in France a new stereotactic unit with micro-MLCs was commissioned. As part of the beam calibration, for very small fields formed by the micro-MLCs, a mis-calibration occurred. This resulted in a maximum overdose of approximately 200% when small treatment fields were used.

'The error was discovered by the vendor some time later during a review of calibration files collected from several centres. One hundred and forty-five patients had been affected by the error. In most cases, the dosimetric impact was assessed as having been small. However, tolerance doses in normal tissues and organs were exceeded in some patients.'

Derreumanx S et al (2008)  
*Radiat Prot Dosim*, 131, 130–135

While it is generally accepted that it is impossible to negate all risk of error, it is possible to reduce the incidence of error. Most importantly, it is imperative to learn the lessons and reduce the repetition of errors, thus 'preventing the second event'.

In radiotherapy, the first step in preventing the second event involves the local reporting of the error with the application of the classification and coding from *Towards Safer Radiotherapy* (TSRT) (available at [www.rcr.ac.uk](http://www.rcr.ac.uk)). This supports the local analysis of the error. Following the establishment of a culture of internal reporting and investigation, the next step is to report nationally to facilitate learning in the wider community.

This next step involves achieving disclosure of radiotherapy errors, through submission of reports to the NPSA, where possible, in England and Wales. The HPA is currently working to identify an appropriate mechanism for the anonymisation and collation of error reports from pursuing a

solution for Scotland and Northern Ireland, for analysis.

With appropriate analysis of the data and timely reporting it will become more likely that we will prevent recurrence of RTEs.

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*'the value of history lies in the fact that we learn by it, from the mistakes of others – learning from our own is a slow process'*

*W Stanley Sykes 1894–1961*

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This vital element in our armoury can only be available if groups are prepared to share their experiences.

As technology and new techniques develop, there will be new possibilities for mistakes. It is therefore imperative to ensure the continued review of radiotherapy incidents and ensure that lessons are learned and we prevent the second event.

### DATES FOR THE DIARY

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6 September	BIR Late Effects of Radiotherapy: Better Recognition, Better Intervention, Better Care, London
11–16 September	ESTRO 29, Barcelona
14 and 15 September	HPA Health Protection Conference, Warwick
8 October	NRAG 10, London
13 October	BIR Protection of the Patient in Radiotherapy, London
September	<i>IPEM Guidelines on Small Field MV Photon Dosimetry</i>
December	<i>Safer Radiotherapy</i> , Issue 2