Public Health England

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Safer Radiotherapy

Radiotherapy Newsletter of Public Health England
March 2016 Issue 18

Welcome to the 18th issue of *Safer Radiotherapy*. The aim of the newsletter is to provide a regular update on the analysis by PHE of radiotherapy error (RTE) reports. These anonymised reports are submitted on a voluntary basis through the National Reporting and Learning System (NRLS) of NHS England or directly to PHE, to promote learning and minimise recurrence of these events.

Safer RT is designed to disseminate learning from RTEs to professionals in the radiotherapy community to positively influence local practice and improve patient safety.

Published three times a year, *Safer RT* contains key messages and trends from the analysis of four-month periods of RTE reports.

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

Thanks to all contributors to this issue. The next issue of *Safer RT* will be published in May 2016 and will be available at **www.gov.uk/government/collections/medical-radiation-uses-dose-measurements-and-safety-advice**.

Madeleine Ottrey
Interim Editor

INSIDE THIS ISSUE

Patient Safety in Radiotherapy Steering Group (PSRT)

The primary objective of the PSRT is to improve patient safety in radiotherapy in the UK. Its membership includes representatives from Public Health England, Royal College of Radiologists, Society and College of Radiographers, Institute of Physics and Engineering in Medicine and a patient representative.

The work of the PSRT is built on the recommendations of *Towards Safer Radiotherapy*, supporting their implementation and further development.

Current workstreams include:

- regular data analysis of RTE and near miss events and dissemination of the findings to the radiotherapy community to facilitate learning opportunities
- improved learning from RTEs through development of the analysis of these events, which includes identification of the underlying causes of RTEs; introduction of the use of a safety barrier taxonomy; and refinement of the process coding to incorporate emerging techniques and technologies

Regular updates from the PSRT will be reported.

The Radiotherapy Team is based at PHE CRCE Chilton

EDITORIAL HEADLINE

Pause and Check

Following a successful working party, survey and peer-review process, the Society and College of Radiographers (SCoR) is pleased to announce the production of two versions of a 'Pause and Check' poster and one 'prompt card' – these are intended to support operators working under the Ionising Radiation (Medical Exposure) Regulations 2000 – IR(ME)R – in the delivery of safe and effective clinical imaging services using ionising radiations. The poster should be hung in a prominent position within the clinical imaging department and the prompt card should be placed at each 'control panel'.

The two versions of the poster contain the same basic text – one in statement form and the other in question form. These are freely available in PDF format for all to download from the SCoR website at **www.sor.org/news/free-have-you-paused-and-checked-posters-and-card** for use in departments and higher education institutes.

The concept of 'Pause and Check' was raised at a recent SCoR IR(ME)R study day on contemporary radiotherapy practice, at which delegates were prompted to consider it within the radiotherapy pathway. Do you wish to see a similar poster in radiotherapy? If so, should this be for treatment or imaging (or both)?

Maria Murray, SCoR Professional Officer, would like to hear your views – contact her at **MariaM@sor.org**.

RTE Data Analysis: August to November 2015

Data Analysis

Submissions from 55 NHS UK RT providers contributed to this issue's full data analysis, covering 1 August to 30 November 2015. It is available at **www.gov.uk/government/collections/medical-radiation-uses-dose-measurements-and-safety-advice**. This is consistent with the previous analysis when 55 providers submitted data, reflecting the strong reporting culture that continues in the UK RT community.

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

New and existing NHS radiotherapy providers are welcome to contact radiotherapy@phe.gov.uk for advice on how to submit data.

Classification of RTEs

Of those RTEs reported for the period August to November 2015, 2371 out of 2460 reports (96.4%) were classified as minor radiation incidents, near misses or other non-conformances (see Figure 1). This is consistent with previous analyses. These are lower level incidents which would have no significant effect on the planning or delivery of individual patient treatments.

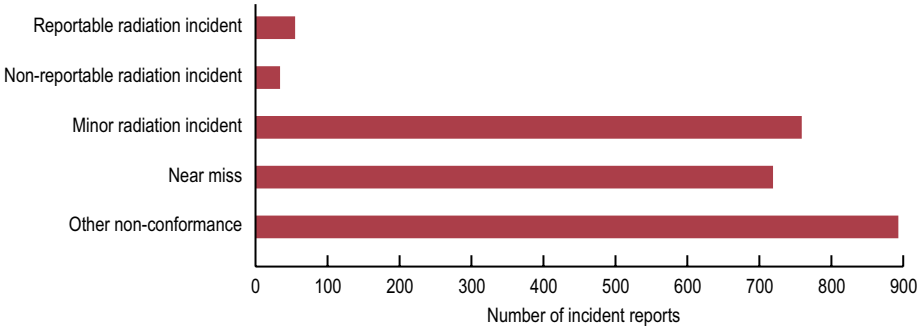
Reportable radiation incidents (level 1) made up 55 (2.2%) of all reports. 'Authorisation to irradiate' and 'on-set imaging: production process' each comprised 6 (10.9%) of all level 1 RTEs reported for this time period. Non-reportable radiation incident reports (level 2) made up 34 (1.4%) of all reports. 'On-set imaging: approval process' comprised 10 (29.4%) of all level 2 RTEs, which is consistent with the previous analysis.

Of the 759 minor radiation incidents (level 3) reported, 241 (31.8%) of this subset were related to the 'on-set imaging: production process', making it the most frequently occurring code in this classification and a slight increase from the previous analysis. Also, in comparison to the previous analysis, codes related to on-set imaging have increased from comprising the top three most frequently reported level 3 errors to the top four, with the number of reported errors increasing in 'on-set imaging: recording process'. Guidance on this error can be found in issue 7 of *Safer RT*.

The most commonly occurring RTE process code in the near miss classification (level 4) was 'on-set imaging: approval process', with 74 reports (10.3%).

Within the non-conformance (level 5) classification 'bookings made according to protocol' had 56 reports (6.3%), making it the most frequently occurring RTE in this classification.

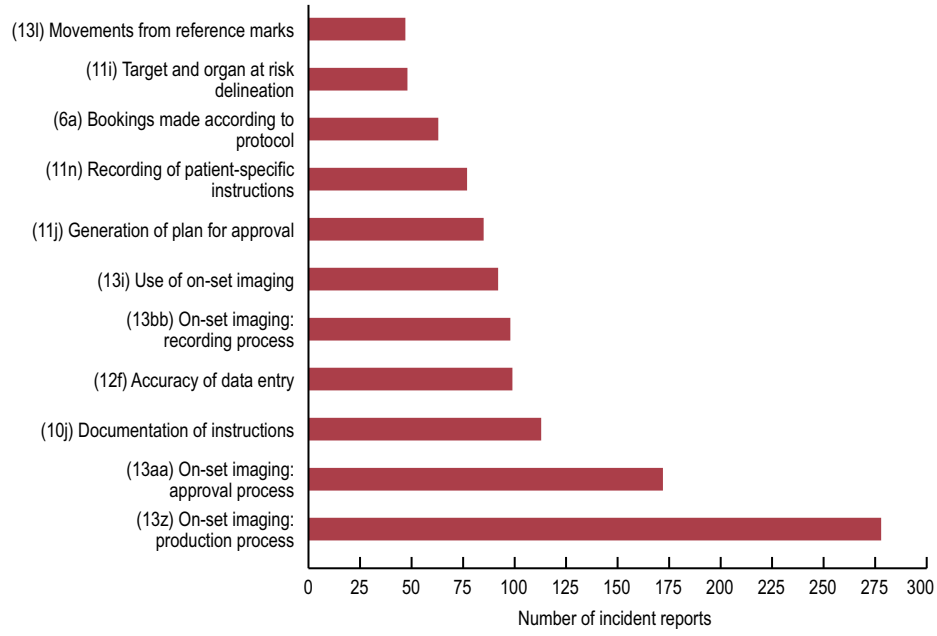
Figure 1 ***Classification breakdown of RTE reports using the TSRT9 trigger code, August to November 2015 (2460 reports)***



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. Imaging process codes contributed to 640 of the reports in the main themes (54.6%), making up 26.0% of all reports for this reporting period. Consistent with the previous analysis, 'on-set imaging: production process' is by far the most commonly occurring process code and equipment malfunctions that can often be the cause of this error are discussed further in this issue of *Safer RT*.

Figure 2 ***RTE main themes (1172 out of 2460 reports), for August to November 2015 (with process code indicated)***



The data analysed is submitted by the RT community. If you have any suggestions on how the analysis can be improved, please email the Radiotherapy Team at **radiotherapy@phe.gov.uk**.

On-set Imaging: Production Process

The treatment unit process code 'on-set imaging: production process' has been the most frequently reported process code in the last seven issues of *Safer RT*. In part, this reflects the increased uptake of IGRT. This process code is attributed to 278 (11.3%) of the RTEs in the analysis for August to November 2015 as the primary code.

A review of these reports revealed that a large proportion (148 or 53.2%) of these RTEs were attributed to equipment failure. Of these, the majority were level 3 RTEs (134 or 90.5%), resulting in an additional dose to the patient due to the requirement to repeat images. It should be noted that although 148 RTEs were reported, a proportion of these included several incidents on a single report, so the number is believed to be much higher. It is important to report each one of these RTEs separately to reflect what is happening in practice.

Common themes found were detailed as: CBCT fault; CBCT fault during acquisition; CBCT failed to save; CBCT failed to reconstruct; and image not captured.

The other 130 (46.8%) reported RTEs were associated with errors such as imaging panel not positioned or incorrectly positioned; blades or field sizes not set; incorrect pre-sets, scan or image selected; no filter or wrong filter used; software not ready or not selected before patient exposed; and an 'open' or expanded image taken before the planned image has been acquired.

It was clear in the review of the reports that these RTEs were spread across vendor systems and radiotherapy providers. Radiotherapy providers are encouraged to audit and report these events locally so appropriate and timely preventive measures might be implemented. In addition, the MHRA should be advised of all equipment failures. They can be reported at **www.gov.uk/report-problem-medicine-medical-device**.

Owing to the continuing increase in the application of IGRT it is important to report, audit and respond to these faults to understand where improvements can be made.

Development of learning from radiotherapy errors

A draft guidance document outlining the development of learning from RTEs, which proposes a causative factor and safety barrier taxonomy together with a refinement to the pathway coding is with the professional bodies for comment. Once comments have been returned and addressed, this document will be published by PHE in association with the professional bodies.

Guidance on reporting exposures much greater than intended (MGTI) related to radiotherapy imaging

It is clear that there is some inconsistency in the classification of RTEs associated with radiotherapy imaging as part of its planning and treatment. Providers have different local criteria for classifying whether repeat imaging exposures are notifiable to the competent authority for IR(ME)R.

A subgroup of the Radiotherapy Board has been tasked with producing guidance to help clarify as and when an exposure or set of exposures for radiotherapy imaging might be reported to the appropriate authority. It is hoped that this guidance will be endorsed by the UK competent authorities and adopted by radiotherapy providers.

This should improve the consistency of the classification of errors regarding concomitant exposures which will further learning from these events.

ERROR OF THE MONTH

Communication of intent

TSRT Process Code: Authorisation to irradiate (5k)

This code accounted for 19 (0.8%) RTEs in this reporting period. It was one of the most frequently reported process subcodes for level 1 incidents (6 reports or 10.9%).

This RTE is associated with failing to have authorisation before irradiating the patient, which is a legal requirement under IR(ME)R. The main themes highlighted within these reports included a CT scan being performed without an appropriate signature on the referral form and patients being treated with VMAT having been authorised by a practitioner not entitled to do so.

How can we minimise the risk of this RTE occurring?

Points to consider

1. Clearly define individual roles and responsibilities
2. Produce and follow clearly defined, up-to-date employer's procedures and treatment protocols
3. Ensure the employer's procedures, including IR(ME)R schedule 1(b) identity of practitioners and operators, are accessible to all staff, and backed up by staff lists and signatures or electronic identities at local planning and treatment sites
4. Ensure operators and practitioners are adequately trained and competent, with training records maintained, which should be detailed and specific to particular procedures, tasks and equipment, as appropriate
5. Ensure all requests for treatment are justified by an appropriately entitled practitioner
6. Ensure authorisation is clearly documented by the appropriately entitled individual ***before*** exposure
7. Ensure appropriate staff availability to authorise procedure within realistic timescales
8. Ensure the MDT or other governance forum discusses all aspects of implementation of new techniques, including justification and authorisation
9. Monitor locally reported RTEs to identify further preventive action
10. Audit staff compliance with these agreed protocols and procedures

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GUEST EDITORIAL

Effective Safety Investigation in Healthcare

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Head of Patient Safety Investigation, NHS England

The term 'root cause analysis' describes a systems-based approach to investigation. Currently this is widely referred to in the NHS as 'RCA'.

The aim of systems-based safety investigation is to ***learn*** from incidents, ie to determine:

1. What happened and why
2. What can be done to significantly reduce the likelihood of recurrence
3. Whether resultant recommendations and solutions are implemented and prove effective

The aim is ***not*** to apportion blame. (If, during an investigation, concerns of capability, recklessness, maliciousness etc arise, these should be referred on. They should not form part of an investigation for learning.)

There is widespread international agreement among high risk industries on what constitutes best practice in safety investigation. The RCA methodology launched by the National Patient Safety Agency in 2004 remains well aligned with international, cross-industry best practice.

Sadly, however, evidence tells us that this good practice guidance is not always being followed. NHS investigations are often condensed or rushed (due to limited resources); they are not always well led (many are conducted by relatively junior staff); and good investigation practice is not always well understood (due to insufficient training and experience).

The rewards from robust adoption of the non-negotiable principles and well-proven techniques that characterise any good practice investigation are well worth pursuing – across all care settings.

Thorough, credible investigations generate actionable recommendations which – when properly implemented – can achieve measurable reductions in recurrence. The additional ability to demonstrate to patients, staff, boards, commissioners and regulators that we are learning organisations is immeasurable.

The elements of effective patient safety investigation are remarkably similar to those required for medical investigations*, ie

1. Triggers for investigation must be correctly identified – to avoid delayed 'diagnosis' or wasted resource
2. Patients, relatives and staff must have a clear stake in the investigatory process – when included as active participants (rather than passive recipients), trust, value, acceptance and understanding increase
3. Data must be gathered by those properly trained in the investigation procedure – to obtain a good quality, accurate picture of the problem (interviewing skills and 'error wisdom' are key)
4. Findings from the investigation must be robustly interpreted by those with analytical skills and an understanding of the 'anatomy, physiology and pathology' of the issue – to ensure correct conclusions are reached on the 'diagnosis'/root causes (skills in 'human factors' are key)
5. Expert selection and application of effective, targeted remedial action is required – to ensure measurable improvement is secured (skills in 'improvement science' are key)
6. Organisational culture, infrastructure and resources must support good practice

Good practice guidance to underpin safety investigation training can be found at **www.nrls.npsa.nhs.uk/resources/collections/root-cause-analysis/**.

To drive improvement, work is currently underway to set up the first ever no-blame investigation unit for the NHS: see **https://t.co/xY0aDJc8jA**.

* Forsyth D and Thusu S (2014). In Patient Safety and Healthcare Improvement at a Glance (Panesar S et al, Eds). Wiley Blackwell Publishing, pp 24 and 25.

DATES FOR THE DIARY

18 March	BIR, On-treatment Imaging in Radiotherapy
29 April	ESTRO 35
6 June	UKRO
May	*Safer Radiotherapy,* Issue 19