Welcome to the Safer Radiotherapy (RT) E-bulletin, which provides key messages and learning from radiotherapy error (RTE) reports and the national patient safety initiative.

Representatives from the UK Health Security Agency (UKHSA), the Royal College of Radiologists (RCR), the Society of Radiographers (SoR), Institute of Physics and Engineering in Medicine (IPEM), NHS England (NHSE) and a lay representative form the Patient Safety in Radiotherapy Steering Group (PSRT) collaborate to support the coordination of efforts to improve patient safety in RT across the UK. This work includes the collation, analysis, and dissemination of learning from RTE reports.

Anonymised RTE reports are currently submitted on a voluntary basis through the National Reporting and Learning System (NRLS) and Learn from Patient Safety Events service (LFPSE) of NHSE; the Once for Wales (OfW) Concerns Management System and directly to UKHSA, to promote learning and to minimise recurrence of these events. Each Safer RT E-bulletin accompanies the Triannual RTE Analysis & Learning Report, which summarises learning from RTE reports submitted for the preceding 4-month period. The report is designed to disseminate learning from RTE to professionals in the RT community to positively influence local practice and improve patient safety.

Please email **radiotherapy@ukhsa.gov.uk** for advice on incident learning from RTE and with any suggestions for the E-bulletin. Published three times a year, the next issue will be shared in September 2024. To subscribe to future editions please follow this link.

Thank you to all RTE reporters who facilitate this work.

Advancing Safer Radiotherapy (ASR) – update

Work continues on ASR. All but 2 chapters have been drafted and peer reviewed. These chapters are currently being formatted for publication. The outstanding 2 chapters will be completed in May.

Thank you to all those who are taking part in this work. It is hoped the document will be published in summer 2024.

PSRT membership update

There have been some changes to the PSRT membership over this last period. One member stepped down from the PSRT as two new members joined the group.

SoR Clinical Representative
Martin Duxbury the SoR clinical representative, has stepped down from the PSRT after 12 years.

During this time Martin consistently advocated for patient safety and highlighted the perspective of clinical services, helping shape the national patient safety in radiotherapy initiative. In addition to peer reviewing all UKHSA Safer Radiotherapy publications Martin also made time to actively contribute to numerous UKHSA publications and meetings.

We wish Martin all the very best in his future endeavours, he will be greatly missed.

New SoR Clinical Representative

Neil Burley joins the group as the new SoR clinical representative.

Neil is a Radiotherapy Services Quality Manager at University College London Hospitals (UCLH), and a therapeutic radiographer by background. Neil comes with extensive knowledge and expertise in working to improve patient safety in radiotherapy.

The PSRT look forward to Neil's contribution to this work.

Lay Representative

Dr Sarah Allford joins the group as the new lay representative.

Sarah has a shared passion for improving patient safety in the healthcare setting.

Sarah's experience of working in the NHS and supporting loved ones with their cancer journeys will be hugely beneficial in shaping the work of the group.

The PSRT look forward to Sarah's contribution to this work

Eighth Biennial RT error data analysis and learning report

The eighth in a series of two-year reports, providing an overview of Radiotherapy Error (RTE) data reported voluntarily to UKHSA between January 2022 and December 2023 will be published in early summer 2024.

National aggregate RTE data

For a second year, UKHSA have collated the full dataset for all RTE reported across the UK, from January to December 2023. This data is available to reporting RT providers upon request, and may assist providers in comparing local trends to the national picture.

If you would like to receive this dataset, please email **RTEdata@ukhsa.gov.uk** with the following:

- Organization name
- How you propose to use the national aggregate RTE data

ARSAC notes for guidance

The 2024 version of the ARSAC Notes for Guidance has now been published and can be found here. Several notable updates are included; further clarification on the information required for therapeutic research trials involving the administration of radioactive substances, minimum requirements for therapeutic prescriptions for unsealed radioactive substances and updated guidance on the practice of authorising exposures under guidelines. Further details of all the changes can be found in the Notes.

Publication of guidance for incident learning within clinical imaging, MRI and nuclear medicine

The user guidance and coding taxonomy for the national incident learning system for clinical imaging, MRI and nuclear medicine has now been published. The refined coding taxonomy reflects the patient pathway from referral to clinical evaluation and has been expanded to include molecular radiotherapy and MRI within radiology.

Radiotherapy dose fractionation, fourth edition

The RCR has published the fourth edition of Radiotherapy dose fractionation. The updated guidance includes evidence-based radiotherapy fractionation schedules for all anatomical sites. This supersedes all previous versions of the document which have now been withdrawn.

The document includes text outlining what should be included within a complete radiotherapy prescription. The requirements are included within the introduction of the document.

The retention of oncology records

The Records Management Code of Practice was updated by NHS England in 2023. This document contains specific advice on the retention period for the oncology records of any patient. In response, the RCR has reviewed and updated the statement on the retention of oncology records (amended November 2023).

Other regional records management documents include:
- Northern Ireland: Department of Health good management, good records – disposal schedule 2022
- Scotland: Scottish Government records management 2022
- Wales: Records management code of practice for health and social care 2022

Gynaecological cancer consensus statement, April 2024

The RCR has published new consensus statements for gynaecological cancer, these are available here.

International Atomic Energy Agency (IAEA) mission

The Integrated Regulatory Review Service (IRRS) follow-up mission from the IAEA was conducted at the request of the UK Government and took place in January 2024. Its purpose was to evaluate the implementation of 24 recommendations and 19 suggestions provided during the initial IRRS mission in 2019.

The mission said the United Kingdom has a strong commitment to nuclear and radiation safety and has made progress to reinforce its regulatory functions. The team also identified areas for further enhancements, including the need to effectively recruit and retain regulatory specialists and inspectors. Further details on the mission can be seen here.

Artificial intelligence advice note published

IPEM have published an advice note on artificial intelligence (AI) in radiotherapy. This includes guidance on the adoption of AI, education needs, current and potential applications, risks and issues and key recommendations. Further information on this can be seen here.

## Radiotherapy radiographic workforce UK census 2023 published

The radiotherapy radiographic workforce UK census 2023 has been published by the SoR and is available here. Data on the UK radiotherapy radiographic workforces was collected between November 2023 and January 2024 by an online questionnaire. According to the census, the total NHS radiotherapy radiographic workforce stood at 3,750.8 whole-time equivalent (WTE) staff, with a vacancy rate of 8.43%.

RTE data analysis – December 2023 to March 2024

The full detailed data analysis is available here and includes data on primary process subcoding, failed safety barriers, methods of detection, contributory factors, and the severity classification of the RTE. These taxonomies are described in the Development of Learning from RTE. A summary of findings is presented below.

Classification (Level) of RTE

Of those 3,938 RTE reported, 3,855 reports (97.9%) were classified as minor radiation incidents, near misses or other non-conformances (Level 3 - 5). These had no significant effect on the planning or delivery of individual patient treatments or their outcome.

Breakdown of RTE reports by classification level
(Dec 23 – Mar 24, n = 3,938)
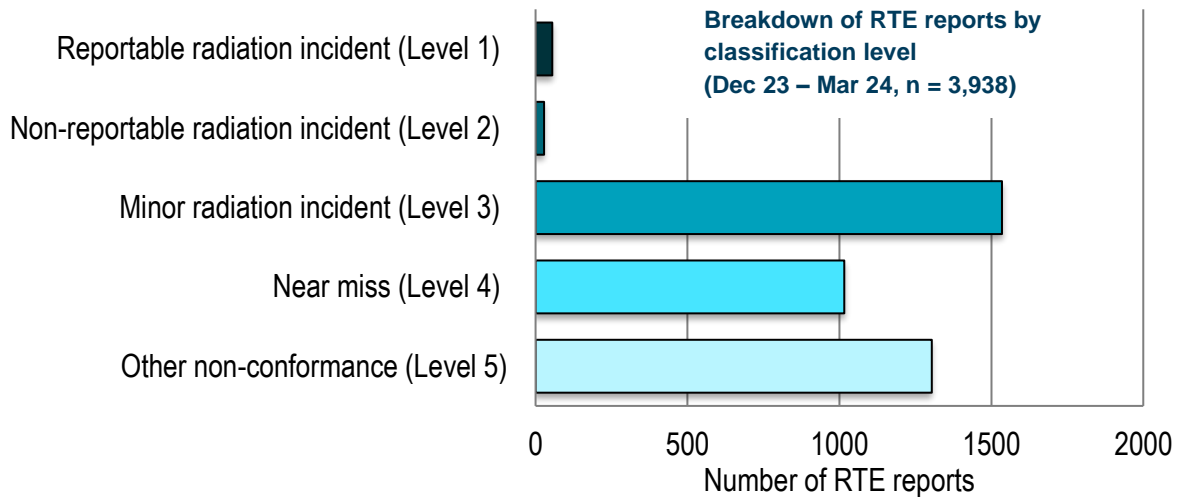
Primary process subcode
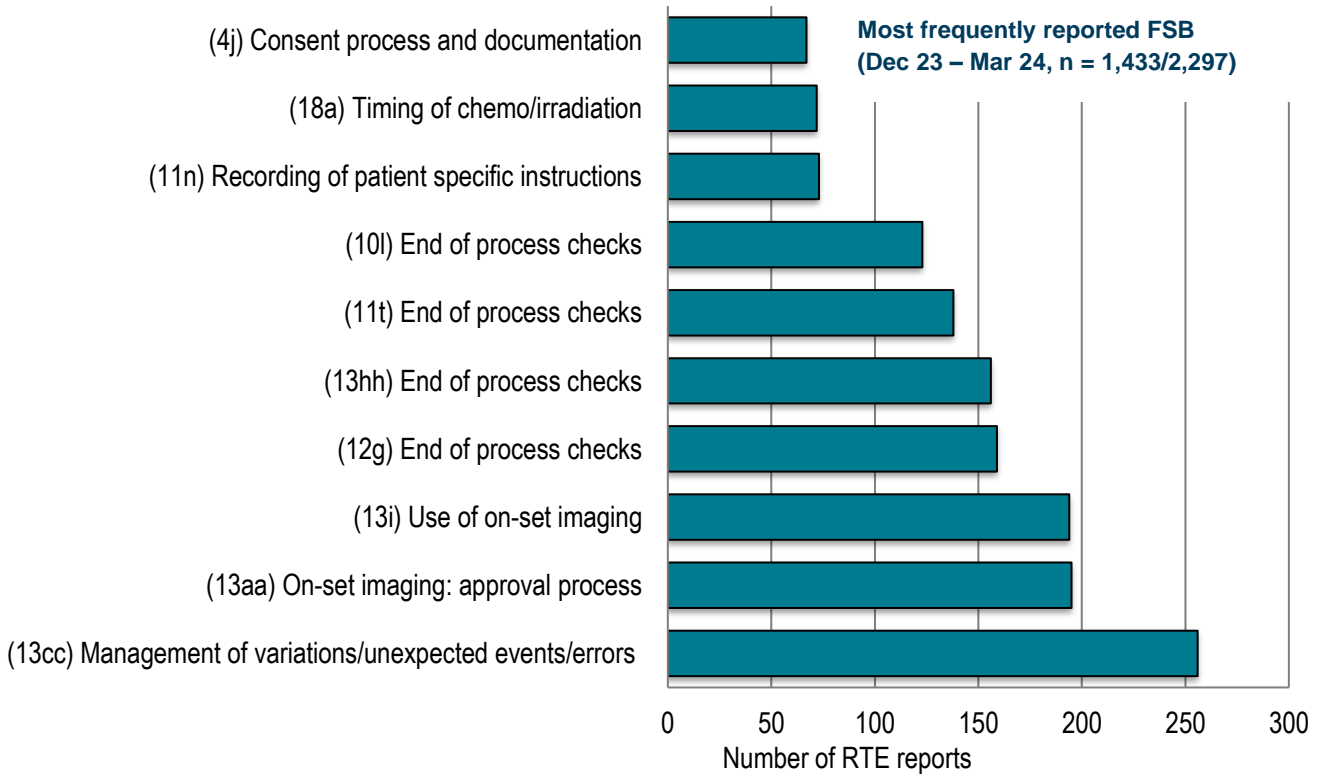
The most frequently reported points in the patient pathway where the RTE occurred are shown below. This is broken down by classification level. Consistent with the previous analysis 'on-set imaging: production process' was the most frequently reported process code (13.0%, n = 512/3,937).

Most frequently reported process subcode by classification level
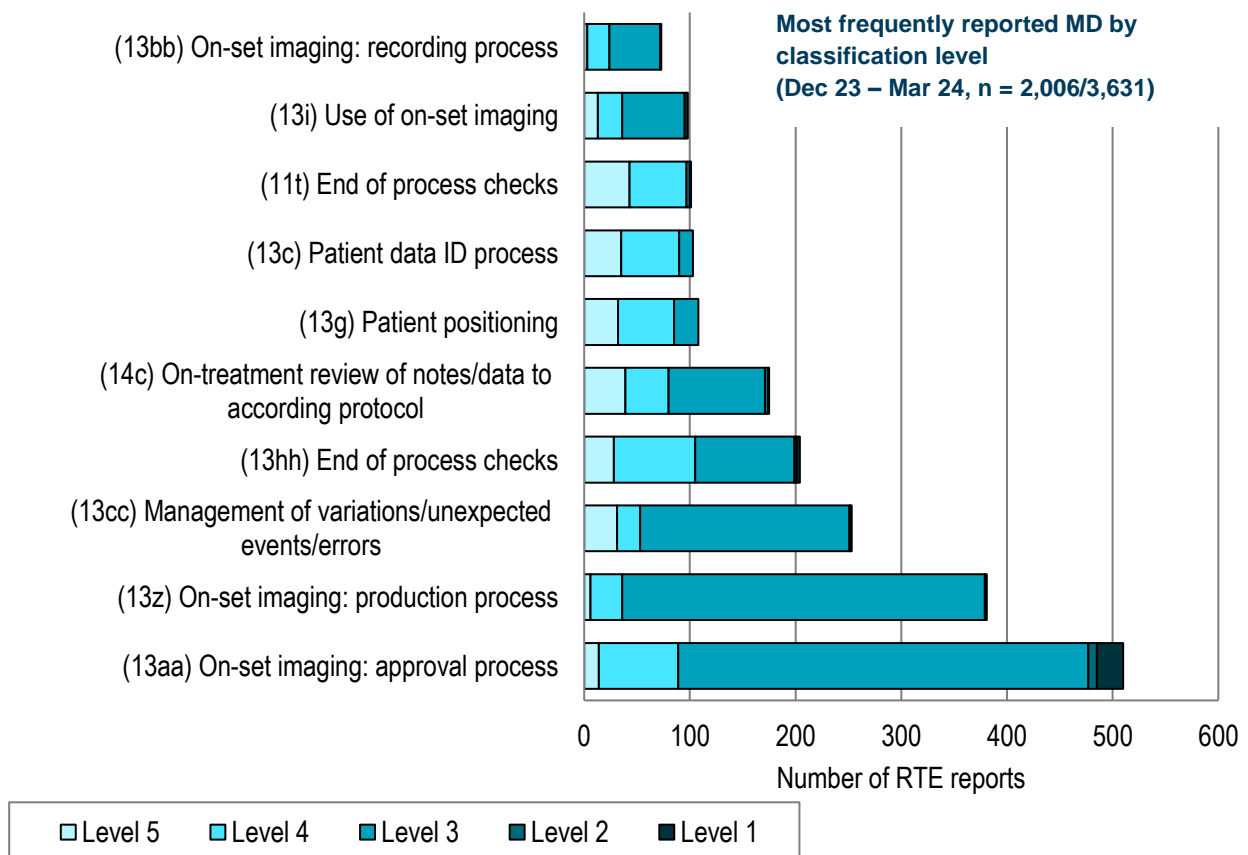(Dec 23 – Mar 24, n = 1,752/3,937)
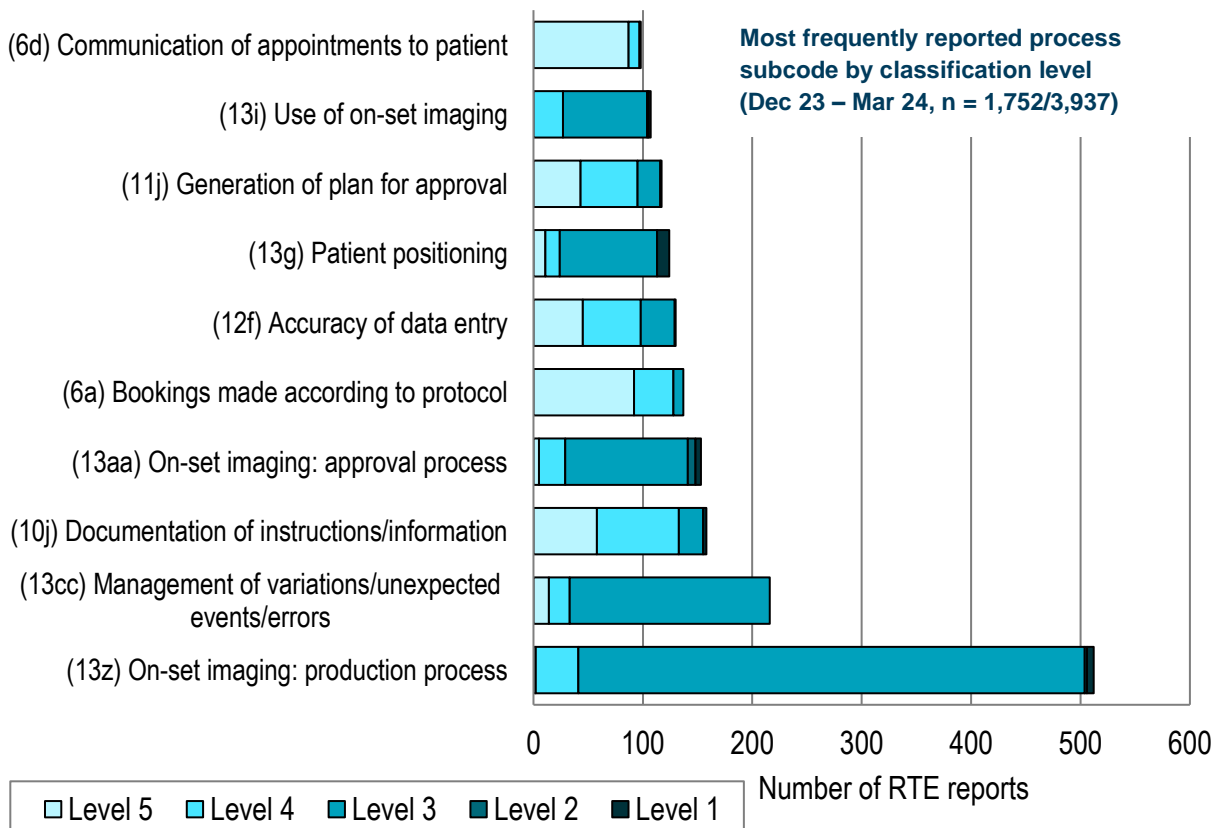
Failed safety barriers (FSB)

Multiple FSB can be attributed to each individual RTE. A total of 2,297 FSB were identified across all the RTE reported. The most frequently reported FSB can be seen below. Treatment unit process 'management of variations/ unexpected events/ errors' was the most frequently reported FSB (11.1%, n = 256).

Most frequently reported FSB
(Dec 23 – Mar 24, n = 1,433/2,297)

Chart: Number of RTE reports (x-axis 0–300)

- (4j) Consent process and documentation
- (18a) Timing of chemo/irradiation
- (11n) Recording of patient specific instructions
- (10l) End of process checks
- (11t) End of process checks
- (13hh) End of process checks
- (12g) End of process checks
- (13i) Use of on-set imaging
- (13aa) On-set imaging: approval process
- (13cc) Management of variations/unexpected events/errors

Method of detection (MD)

For this reporting period 3,631 reports included MD coding or data. The most frequently reported MD was 'on-set imaging: approval process' (14.0%, n = 510).

Most frequently reported MD by classification level
(Dec 23 – Mar 24, n = 2,006/3,631)

Chart: Number of RTE reports (x-axis 0–600)

- (13bb) On-set imaging: recording process
- (13i) Use of on-set imaging
- (11t) End of process checks
- (13c) Patient data ID process
- (13g) Patient positioning
- (14c) On-treatment review of notes/data to according protocol
- (13hh) End of process checks
- (13cc) Management of variations/unexpected events/errors
- (13z) On-set imaging: production process
- (13aa) On-set imaging: approval process

Legend: ☐ Level 5   ☐ Level 4   ☐ Level 3   ☐ Level 2   ■ Level 1

Contributory Factors (CF)

Each RTE can be assigned multiple CF codes. A total of 4,723 CF were reported in this period. The most frequently reported CF was individual 'slips and lapses' at 24.4% (n = 1,152).

**Most frequently reported CF (Dec 23 – Mar 24, n = 4,361/4,723)**
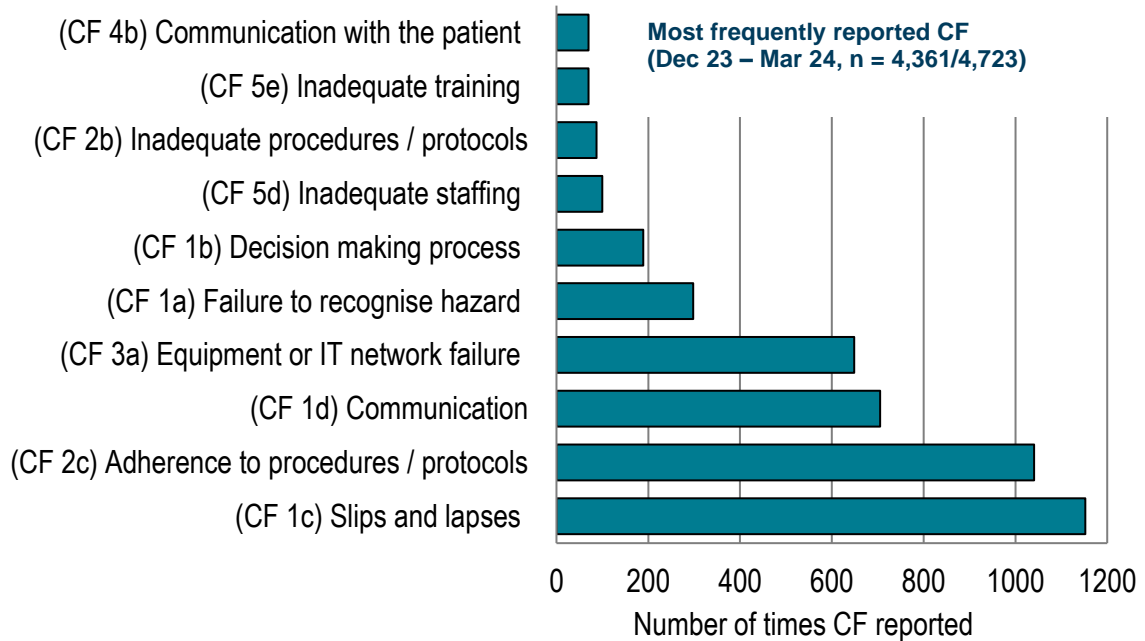
Monitoring of RTE coding by RT providers

All providers are asked to apply a trigger code, classification, pathway (including failed safety barriers), method of detection and contributory factor coding to their RTE reports to facilitate both local and national analysis. These should be included in the local incident learning system in the following format:

TSRT9/ Level 1/ 11i/ 11l/ 11t/ 13aa/ 13hh/ MD13aa/ CF1c/ CF1a/ CF2c/ CF1d

The application of taxonomies by provider for RTE reported between December 2023 and March 2024 (n = 3,953) can be seen below.
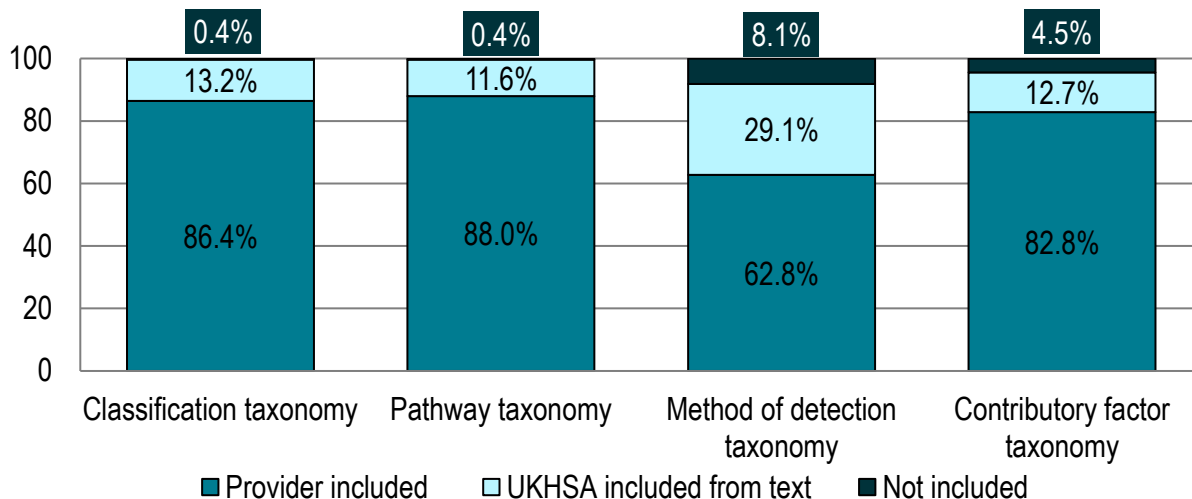
There has been a large decrease in the inclusion of all taxonomies across the reports for this reporting period. There were 15 reports which did not contain enough detailed information within the text to assign any taxonomies.

Thank you to all providers who report using the full RTE taxonomies. Further detail on the application of the taxonomies can be seen in the RT learning resources available on the Medical Exposures Group webpages.

National RTE report data quality

There were 10,651 RTE reports received between January and December 2023. Of these only 7,011 were fully coded with RTE taxonomy, including classification, pathway, MD and CF.

The percentage of incomplete RTE reports with one or more of the required taxonomy coding missing can be seen as teal in the chart below. On average 34.0% of all reports received per month were incomplete.

UKHSA were able to complete coding for a proportion of the incomplete reports based on text contained within each RTE report (orange line on the chart). However, it should be noted that the proportion of RTE reports which did not contain sufficient text to assign the required taxonomies has increased over the year (the difference between the teal and orange lines shown on the chart). The percentage of incomplete reports which did not contain sufficient information to assign taxonomies has increased from 3.4% between Jan and Jun 2023 to 7.7% for the final 6 months of the year.

Breakdown of Incomplete reports as percentage of all received reports (Jan – Dec 23)
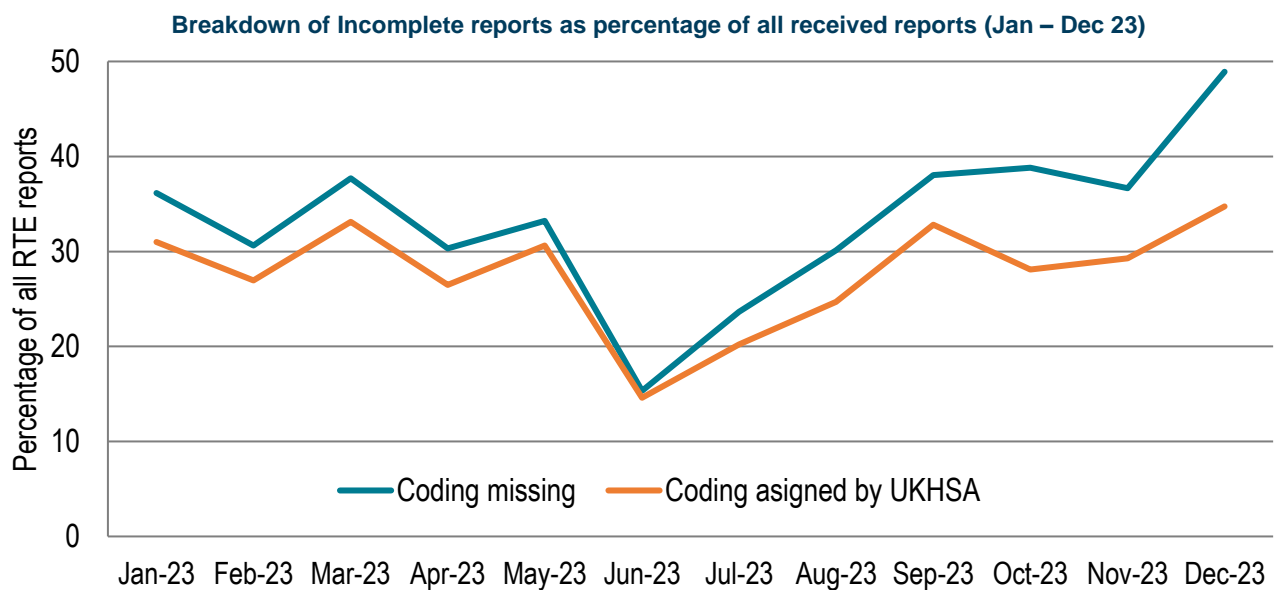
Each RTE report should contain sufficient information to facilitate local and national application of the appropriate classification and coding taxonomy. This should include:

- Anatomical site involved in the RTE
- Prescribed dose and fractionation of treatment
- If appropriate, intended dose for exposure and actual dose delivered
- If appropriate, magnitude of geographic misplacement
- A brief description of the circumstances surrounding incident which could include
  - contributory factors leading to the RTE,
  - how the error was detected, any preceding points at which the RTE should have been detected,
  - implications for the patient and any correct/preventative action taken,
  - where applicable, equipment related information

If you have any further queries in regard to the assignment of the taxonomies, please email **radiotherapy@ukhsa.gov.uk.**

Guest editorial:

AAPM TG288 Recommendations for Guiding Radiotherapy Event Narratives

Dr. Anita O'Donovan is a radiation therapist and Assistant Professor in the Discipline of Radiation Therapy at Trinity College Dublin, Ireland. She is a member of the ESTRO Radiation Oncology Safety and Quality Committee (ROSQC), and. was appointed to the AAPM TG288 as the ESTRO ROSQC representative.

In relation to radiotherapy event reporting and learning systems (RLSs), a narrative is an account of connected events; it is the story of what happened. Many RLSs have predefined categorisations for various aspects of radiotherapy events, in keeping with local taxonomies and regulatory/reporting obligations. However, the narrative is a valuable opportunity for the initial reporter to summarise what actually happened in their own words. It is important, because it serves as an original account of the event and guides subsequent efforts in terms of causal analysis, follow-up and implementation of preventative measures.

TG288 was convened to develop consensus guidelines for use in a radiation oncology RLSs, to guide initial reporters through recording relevant narrative information clearly and more uniformly than using simple free text. The group, chaired by Professor Bruce Thomadsen, was multidisciplinary in nature, with representatives from a broad range of patient safety organisations in radiotherapy. It was convened in recognition of the large variation in the detail and data quality of narrative information in radiation oncology RLSs, and the notable absence of existing guidelines covering the narrative. Its scope covers the initial report for internal/external, national/international and regulatory reporting and learning systems, and includes all events i.e. incidents and near misses.

Some might say that the narrative, by its very nature, should be free style. However, there can be a number of issues with this open and broad approach. For example, submitted reports can be too brief and omit vital details relevant to how or why the event happened. They can also be too long, confused and muddled in detail and data quality. They can attempt to analyse causes, which is not the purpose of this initial report, causal analysis comes later. There are many other potential issues, such as reporter bias, attempting to assign blame, being unprofessional in nature, lacking chronology of associated events, use of language that is ambiguous and not easily understood outside of the department/organisation.

Discussions within TG288 led to some important indicators of data quality that the group felt should be included in the narrative and the final consensus guidelines. These included: clarity, detail & brevity, chronology of events, the identification of safety barriers that were effective/ineffective, the impact on the patient (if relevant) and details allowing for the subsequent selection of appropriate corrective actions.

TG288 recommended the use of a short synopsis of the event (1-2 sentences) preceding the narrative, in addition to the following components (as applicable) in the narrative itself:

1. Occurrences during the incident and individuals involved by role
2. Relevant circumstances and actions leading up to the incident and individuals involved by role
3. Method by which the incident was identified
4. Equipment related details if relevant
5. Responses immediately following the incident by individuals involved by role (Recovery actions by role)
6. Relevant time span between responses
7. How staff members or other individuals were affected during or immediately after the incident

Further information and some examples of both good and bad narratives from radiotherapy clinical practice will be presented in the final report. Links to the report will be shared in future Safer RT publications once published.

Safer Radiotherapy resources
Safer RT: **triannual error analysis and learning** reports contain analysis and learning from RTE reported voluntarily by UK RT providers and the relevant reporting authorities.
Safer RT: **E-bulletins** provide key messages from the national patient safety initiative
Safer RT: **biennial error analysis and learning** reports contain 2 years analysis and learning from RTE reported voluntarily by UK RT providers and the relevant reporting authorities.
A series of 15 minute RT **learning resources** developed to support RT healthcare professionals in learning from RTE are included on the **Medical Exposures Group webpages**
Towards Safer Radiotherapy contains the classification taxonomy for use when assigning a RTE severity level
Development of Learning from Radiotherapy Errors provides the pathway coding safety barrier, method of detection and causative factor taxonomies

Links to key publications
IR(ME)R: implications for clinical practice in radiotherapy
Guidance for compiling training records for clinical oncologists
IR(ME)R notification codes, categories and criteria

Dates for the diary	
BIR/IDUG, Molecular Radiotherapy Dosimetry	27 June 2024, Oxford
IPEM, Linac QA Automation	2 July 2024, Leeds
BIR, IRMER update 2024	18 September 2024, London
CoR Annual Radiotherapy conference	4-5 October 2024