



Safer Radiotherapy

e-Bulletin #3

January 2021

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

In 2010, PHE brought together representatives from The Royal College of Radiologists (RCR), the Society and College of Radiographers (SCoR), Institute of Physics and Engineering in Medicine (IPEM), NHS England & Improvement (NHSEI) and a lay representative to form a steering group to support the coordination of efforts to improve patient safety in RT across the UK. This work includes the collation, analysis and promulgation of learning from RTE reports.

Anonymised RTE reports are submitted on a voluntary basis through the National Reporting and Learning System (NRLS) of NHSEI or directly to PHE, to promote learning and to minimise recurrence of these events. Safer RT accompanies the **Triannual RTE Analysis & Learning Report**, designed to disseminate learning from RTE to professionals in the RT community to positively influence local practice and improve patient safety.

Published three times a year, the next issue will be shared in May 2021. All previous e-bulletins can be found [here](#). To subscribe to future editions of the e-bulletin please follow this [link](#). Please email radiotherapy@phe.gov.uk for advice on reporting and learning from RTE and with comments or inclusions in the e-bulletin.

Thank you to all RTE reporters who facilitate this work.

PHE update

On the 18th August 2020, the Government announced the creation of a new **National Institute for Health Protection** (NIHP). All the radiation protection services currently provided by the Centre for Radiation, Chemical and Environmental Hazards (CRCE) within PHE, including this work are planned to transfer into NIHP. It is expected the administrative process to complete the establishment of this new body will continue until autumn 2021.

Radiotherapy errors and near misses – the unseen pathway

The RT pathway includes a number of safety critical activities usually unseen by the patient. These relate to the safety of the infrastructure, room design, equipment, machine QA, mould room and workshop activities.

Much of the focus on the RTE analysis over the last 10 years has been on frequently reported RTE which have been associated with referral, planning and treatment activities. Following a discussion with members of IPEM a review and analysis of the unseen pathway was undertaken. A document will shortly be published summarising findings of the review and will include a study of risk. This will be available [here](#). To subscribe to future updates please follow this [link](#).

IPEM guidelines on information on equipment

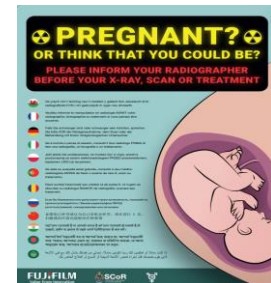
In April 2020 IPEM created the **MPE Community of Interest (COI)**. The purpose is for UK MPEs and aspiring MPEs to discuss aspects of their MPE responsibility under IR(ME)R with other MPEs. This allows discussion with other experts who may have dealt with the similar situations. It should also be useful to aspiring MPEs who can learn from more experienced colleagues. The community is open to all UK MPEs whether they are IPEM members or not as well as those who are working towards MPE registration. There are currently 260 community members.

If you would like to join the MPE COI: Send adam@ipem.ac.uk an email with:

- Your full name and work email address
- Whether you are an IPEM member or not
- If you are already an MPE, your MPE list number
- If you are not already an MPE, an email from an MPE (with contact details and MPE list number) confirming that you are working towards being an MPE.

SCoR pregnancy poster

The SCoR have updated their **pregnancy poster**. The new poster is designed to raise awareness of the effects of ionising radiation amongst individuals capable of childbearing as required by IR(ME)R. The new version of this poster has been adapted for use in RT.



MHRA update

The **MHRA** are working to improve services for healthcare professionals who report medicines and medical device safety concerns using yellow cards. Following an initial review to improve reporting services, a review of what safety information is accessed and what providers would like to see has commenced. If you'd like to hear more about the changes planned or get involved please contact the MHRA at CIVS@mhra.gov.uk.

Understanding the dosimetry workforce

Within the last decade the Dosimetrist job title has been emerging as a popular title for the professional role within RT. Members of the **BIR Oncology & Radiotherapy Special Interest Group** would like to understand and increase recognition of this specialist workforce.

To help identify the training and profession needs a short survey has been created with an aim to improve and support professional awareness, create specialist training opportunities and provide a profession forum for engagement. Access the survey [here](#).

Dates for the diary

SRP annual conference	16 – 18 March 2021, Virtual
BIR annual RT and Oncology meeting	18 – 19 March 2021, Virtual

Reporting and learning survey results

A national reporting of radiotherapy errors and near miss survey was deployed in July 2020 for an 8-week period. The purpose of this survey was to identify current trends in reporting to the voluntary national reporting and learning system and learning opportunities attained from these events. It was also used to better understand how the **Safer RT** publications are used locally to inform practice. There was a positive response rate of 59.4% (n = 41/69). However, not all respondents completed all questions in the survey.

The following table shows which taxonomies are included within the local reporting system and which are applied to all levels of RTE:

	Included within the local reporting system	Applied to all levels of RTE
Classification from TSRT	25	35
DoL pathway taxonomy	24	33
Causative factor (CF) taxonomy	23	34
Method of detection (MD)	14	20

The following table indicates when all levels (levels 1-5) of RTE are reported:

	No of respondents
Report all levels locally	35
Report all levels to trust risk management team or similar	10*
Report all levels to the NRLS or PHE	17*
All levels of RTE included in local analysis	29

*A number of different reasons were given from the respondents who did not report all of their RTE. These included the use of multiple reporting systems and lack of resource to report and close all levels of RTE.

17 of 34 respondents stated they used trend analysis. The most frequently reported method of learning from RTE were group discussions and sharing learning as stated from 24 respondents. This learning then led to a review of processes, practice and documentation. This learning was shared most frequently at meetings on a monthly basis. 16 respondents had in place a system for learning from excellence.

27 of the respondents reported that learning from error analysis has improved patient safety locally. Of the 34 respondents who answered the question regarding utilising the Safer RT publications, 9 did not use them as a learning tool. When asked if the respondents shared RTE analysis at a network level 24 respondents stated they currently did not.

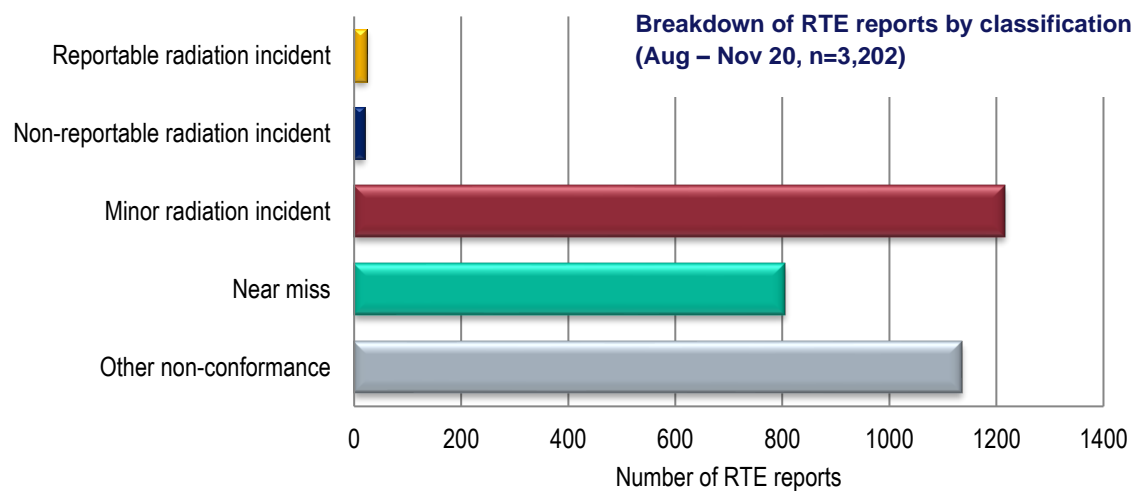
This survey has allowed the PSRT to gain an updated overview of the reporting and learning culture across the UK. Utilising all of the RTE taxonomies allows a national approach to learning from RTE. It should also be remembered that high reporting numbers of RTE is indicative of an awareness of safety issues. Those centres reporting all levels of RTE represent providers with mature reporting cultures and should be encouraged to continue reporting. Reporting of RTE will only be effective if there is a willingness to learn from errors and to alter practice accordingly.

RTE Data analysis: August to November 2020

The full detailed data analysis is available [here](#) and includes data on primary process subcoding, safety barriers including methods of detection, causative 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.

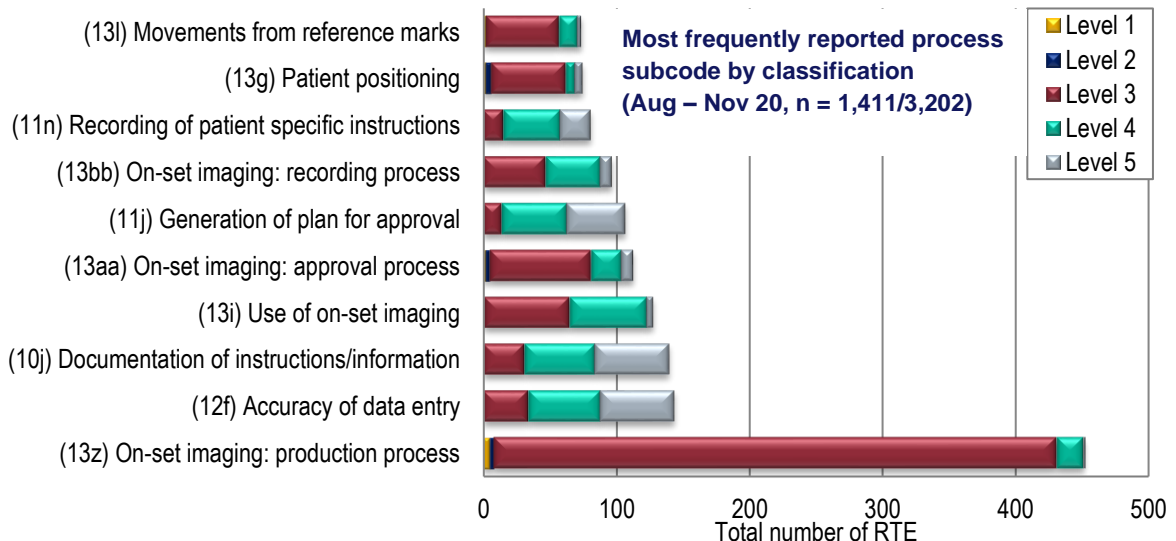
Classification of RTE

Of those 3,202 RTE reported, 3,158 reports (98.6%) were classified as minor radiation incidents, near misses or other non-conformances. These are lower-level incidents which would have no significant effect on the planning or delivery of individual patient treatments.



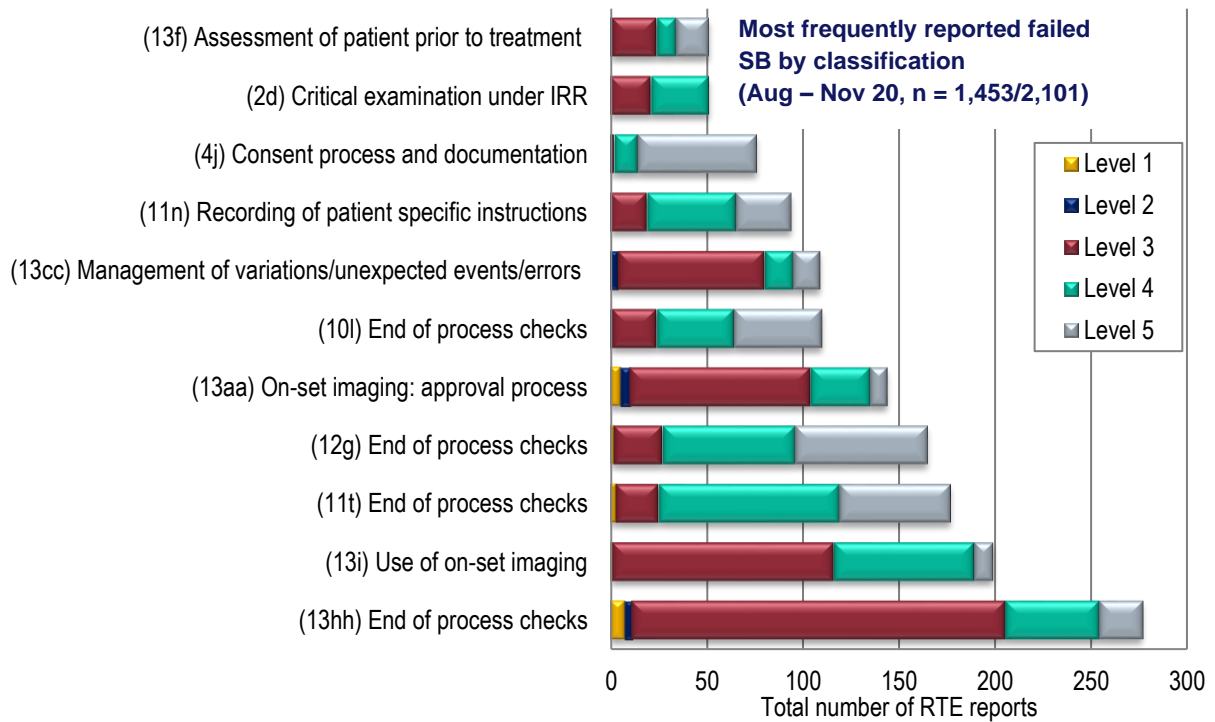
Primary process subcode

The most frequently reported points in the patient pathway where the RTE occurred are shown below. Consistent with the previous analysis 'on-set imaging: production process' was the most frequently occurring process code (14.1%, n = 452).

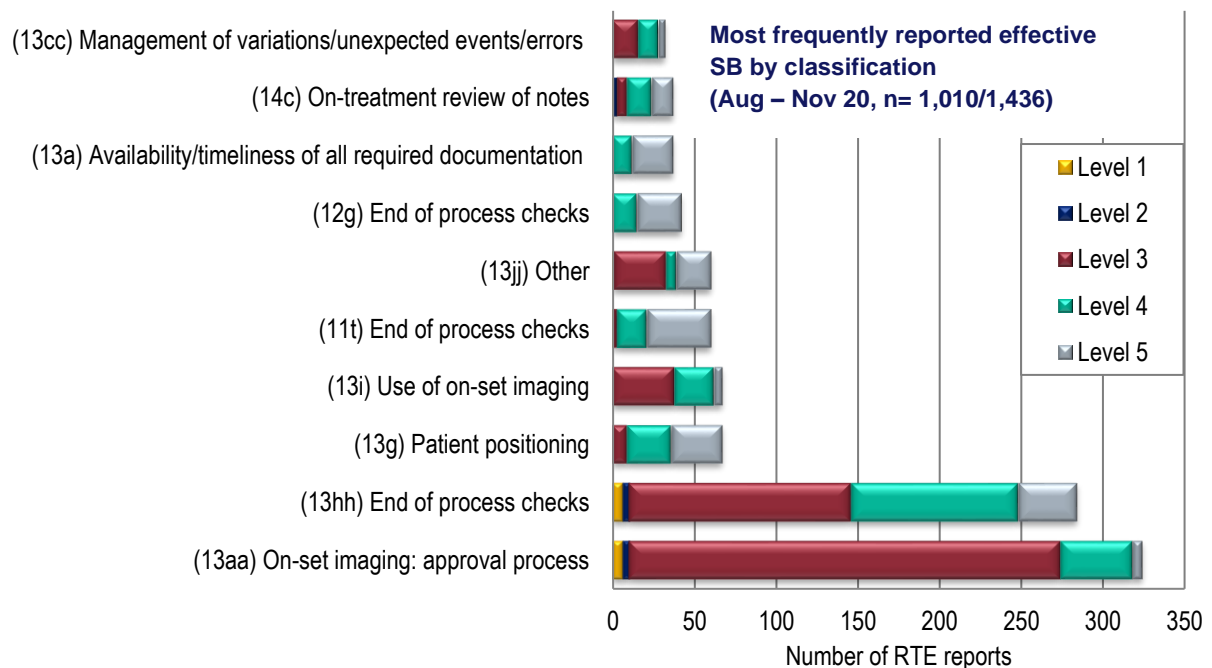


Safety Barriers (SB)

A total of 2,101 failed SB were identified in the RTE reported. The most frequently reported failed SB can be seen below. Treatment unit process 'end of process checks' was the most frequently reported failed SB (13.2%, n = 277).

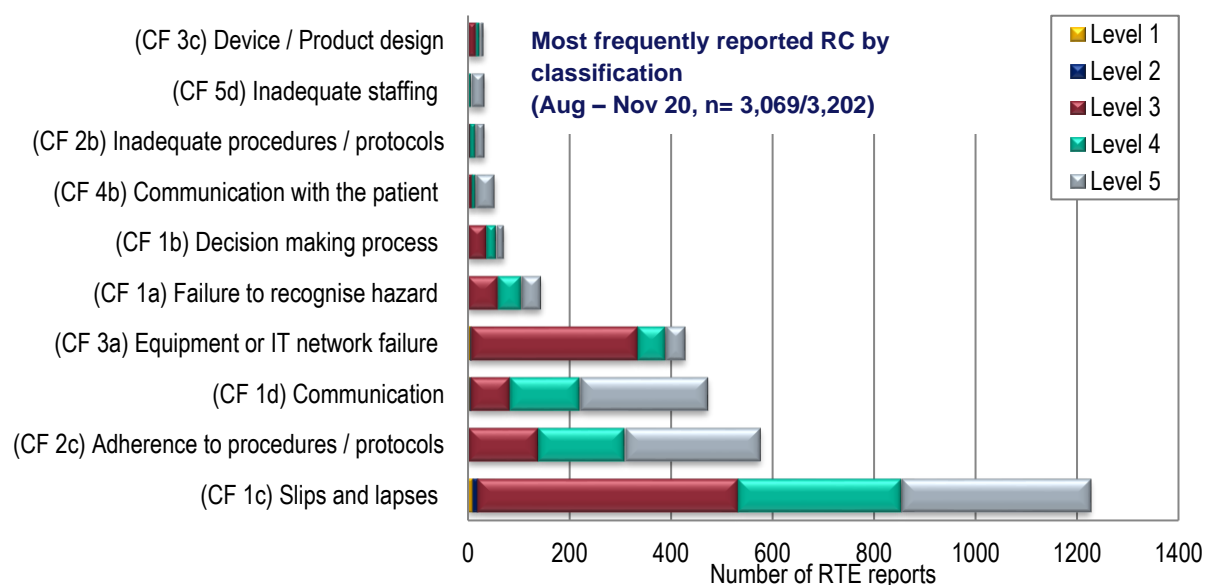


For this reporting period 1,436 reports contained effective SB or method of detection (MD). The most frequently reported effective SB was ‘on-set imaging: approval process’ (22.6%, n = 324).



Causative Factors

Causative factors were applied to 2,471 (77.2%) RTE reports by 43 (89.6%) providers for this reporting period. Using the free text shared in reports, PHE coded a further 731 reports, resulting in all RTE reports containing causative factor coding for analysis. The primary factor is the root cause (RC) and the subsequent factors are contributory factors (CF) associated with an RTE. The most frequently reported RC was individual ‘slips and lapses’ (38.3%, n = 1,227). CF were indicated across 696 reports; 107 of these contained multiple factors leading to 767 CF. The most frequently reported CF was ‘adherence to procedures/protocols’ (42.9%, n = 329).



Monitoring of RTE coding by RT providers

Consistency checking was undertaken by PHE staff on the application of the RTE coding by RT providers. The coding was reviewed for all RTE classified as reportable through to near miss (levels 1 to 4) and 10% of non-conformances (level 5) RTE were audited.

A total of 2,407 RTE reports contained the trigger code, classification, pathway code, including failed safety barriers and causative factor taxonomies. Of these, 344 were amended. These amendments were made to ensure consistent allocation of the taxonomies.

The classification was amended across 132 reports, of which 63 were amended from a level 4 or level 5 report to a level 3 report. These amendments were due to the text describing additional radiation exposure to a patient.

The pathway code was amended across 233 reports. 123 of these were originally allocated a pathway code 'other'. It is recommended that all pathway codes are reviewed before the allocation of 'other'. 25 amendments from the pathway code 'use of on-set imaging' to 'on – set imaging: production process' were made. Further guidance on coding on-set imaging RTE is [available](#).

Only 26 amendments were made to the allocation of causative factors (CF). 9 of these were amendments from the CF 'other'.

Further guidance on the application of the coding is available in the [Development of Learning](#) from RTE.

Number of providers reporting

Submissions from 48 NHS UK providers contributed to this issue's full data analysis. Twelve providers have not reported RTE for this reporting period. The PSRT had set ambitious targets to improve specific areas of RTE reporting by September 2020. These included 100% of providers reporting on a monthly basis. Can we reach these targets in 2021?

PHE may be in touch with those providers who have not reported for this edition of Safer RT. If you believe you may be one of these providers please do not hesitate to contact PHE at radiotherapy@phe.gov.uk for advice and support.

Cardiac implanted electronic device (CIED) related RTE

The Radiotherapy Board has commissioned a review of **Management of cancer patients receiving radiotherapy with a cardiac implanted electronic device: A clinical guideline**. PHE undertook a search of the radiotherapy error and near miss (RTE) data to identify any learning points to support the review. Reported RTE that mention or are related to the presence of CIED make up 0.8% of all reported events, the majority of which were near miss events or non-conformities. No clinically significant events were identified.

The most frequently reported primary pathway subcode was consideration of patient condition/co-morbidities. This was also the most frequently reported primary failed safety barrier (SB). Assessment of patient prior to treatment was the most frequently reported effective SB. The most frequently reported root cause of the RTE was communication (CF 1d). The majority of RTE reports related to lack of communication about the presence of a CIED at referral, between planning and treatment areas or with the local cardiology department.

The following mitigations were identified to minimise these events:

- Local procedure in place outlining steps to be taken to consider CIED
- Prompt on patient consent form to consider presence of CIED
- Prompt on referral form to consider and record presence of CIED
- Patient information leaflets include information about management of CIED in radiotherapy
- Prompt on CT checklist for consideration of presence of CIED
- Prompt on day 1 treatment checklist for consideration of presence of CIED
- Local agreed procedure for engagement with the cardiology department.

CQC IR(ME)R annual report 2019/2020

The CQC have published their annual IR(ME)R report, this provides a breakdown of the number and types of notifications they receive. The document also shares findings from the CQC inspections. The report can be seen [here](#).

HCPC standards of proficiency

The HCPC standards of proficiency set out what the HCPC consider necessary for safe and effective practice, describe what professionals must know, understand and be able to do at the time they apply to join the register. There have been some proposed changes to these standards. Further information can be seen [here](#).

Links to international patient safety resources

ASTRO and AAPM RO-ILS [Case Studies](#)

Autorité De Sûreté Nucléaire (French Nuclear Safety Authority) [Publications for Professionals](#)

IAEA, SAFRON [Updates on Patient Safety in Radiotherapy](#)

Emerging theme in RTE - Treatment or imaging in QA/service mode

As part of a wider review of safety critical activities related to the department infrastructure, room design, equipment, machine QA, mould room and workshop, a subset of RTE associated with treatment or imaging of patients in QA or service mode were identified as a potential emerging theme in RTE.

These exposures are not automatically recorded in the patient record within the oncology management system resulting in the potential risk of repeat treatment or verification exposures. In addition, couch tolerance tables are not included in QA/service mode which may lead to patient set-up inaccuracies.

Also, it may not always be clear when a patient has been treated/imaged in QA/service mode, so these may go unreported. With the increased use of QA or service mode for plan QA consideration should be given to the risk of this type of RTE.

Preventative actions for this type of RTE include:

- Train treatment staff in use and functionality of QA/service mode
- Ensure individual passwords are used to access the OMS and profiles are user specific
- Ensure work in QA/service mode closed at end of each session and users log out
- Review handover of equipment procedures and logs from different staff groups
- Review ID of dataset process to ensure treatment is not completed in QA/service mode
- Have in place contingency plans in case of treatment in QA/service mode, rehearse this contingency plan
- Have in place a procedure for recovering any lost data and maintenance of the patient record
- Have in place a way to trace these errors and learn from them

These RTE were attributed to different subcodes, these included; 'recording of delivered treatment data', 'patient data ID process', 'setting of treatment machine parameters', 'planned QA programme checks' and 'communication between treatment unit and V&R'.

It is recommended RTE associated with the exposure not being recorded due to working within QA or service mode should be coded using the subcode (13ff) 'recording of delivered treatment data'.

Guest Editorial

Workforce wellbeing during a pandemic – feeling the burn?

Patient Safety in radiotherapy steering group

Julia Abernethy (NHSE&I), Helen Best (PHE), Martin Duxbury (SCoR Clinical rep), Petra Jankowska (RCR), Tony Murphy (Lay rep), Maria Murray (SCoR), Carl Rowbottom (IPEM) and Una Findlay (PHE & Chair)



In this extraordinary period, the UK radiotherapy community has come together to ensure the ongoing delivery of safe, high-quality care for patients. Our workforce has been fully engaged in approaching service delivery with vigour and dedication, in the face of the personal impact of COVID-19. This has been widely **recognised**. As providers implement **recovery, restoration and reconfiguration plans**, thoughts turn to the wellbeing of our colleagues.

Although we are now in the midst of another lockdown, there is now a 'light at the end of the tunnel' with the administration of new vaccines, there is still potential for individuals to feel a little overwhelmed.

Physical, cognitive and emotional exhaustion from rapid change and new ways of working may impact our workforce and lead to burnout^{1,2}. Pre-pandemic studies^{3,4}, concluded there is a higher risk of emotional exhaustion in the radiotherapy workforce than other areas of healthcare. Burnout is associated with serious risks to both our workforce and our patients. Burnout needs to be recognised, acknowledged and assessed within organisations. Both individual-focused and organisational interventions are required to reduce workforce burnout⁵.

NHS England and NHS Improvement recommend 8 high impact actions for leaders to improve the working environment for junior doctors which are applicable to all healthcare workers.

1. Tackle work pressure – line managers to know how to assess burnout in their teams^{5,6}, where to signpost staff for wellbeing support & clinical supervision and where risk of burnout identified, undertake staff group/ service risk assessments to ensure the risk is visible to senior managers
2. Promote rest breaks and safe travel home
3. Improved access to food and drink 24/7, especially for those services working extended hours and on-call
4. Better engagement between staff and board
5. Clearer communication between staff and managers
6. Rotas that promote work-life balance – where possible, managers to undertake rota coordination in consultation with their staff and sufficiently in advance
7. Rewarding excellence – immediate rewards through Excellence reporting system, Going the Extra Mile (GEM) Awards, GR8X awards; planned rewards through supporting staff sabbaticals and career development opportunities out with the usual T&Cs

8. Wellbeing, support, mentoring

To support individuals in looking after their own wellbeing, PHE have produced **guidance on mental health and wellbeing** in addition to the **every mind matters** platform. The NHS has also produced a range of **tools** freely available to NHS workers to support their wellbeing. These initiatives aim to help deal with stress, anxiety, improve sleep, boost mood and find ways to feel more in control.

As illustrated by the Wellbeing Tree*, our spiritual, cognitive, moral, social, aspirational, emotional and physical wellbeing all affect our engagement, the antithesis of burnout. These attributes are reliant on resilience, core values, mindset and compassion.

As we anticipate and prepare for what might come next for our patients it is also important, we do the same for ourselves and our colleagues.

A lay perspective from Tony Murphy:

Be honest. You may be drained. As highly motivated as you are, you have been affected by COVID-19. This may be through fear for self and others; pressures at work and at home; reduced staffing; delayed treatments; change to protocols and media coverage of access to cancer care. However, your commitment, professionalism and team working has ensured ongoing delivery of radiotherapy services and that there was no spike in radiotherapy errors and near misses, keeping our patients safe.

Keep up the good work and stay safe.

*Wellbeing Tree illustration from Dr Anna Baverstock (Consultant Paediatrician and Wellbeing Lead at Somerset Foundation Trust)

1. Psychological insights for cancer services recovery planning |BRE33g |24.06.2020
2. Wilkinson, 2015. UK NHS staff: stressed, exhausted, burnt out. The Lancet. Vol 385 March 7, 2015
3. Probst et al, 2012. Burnout in therapy radiographers in the UK. The British Journal of Radiology. 85, e760-e765.
4. West et al, 2016. Interventions to prevent and reduce physician burnout: a systematic review and meta-analysis. Lancet, 388, 2272-81.
5. Hadzibajramović E, et al 2020. A Rasch analysis of the Burnout Assessment Tool (BAT). PLoS ONE 15(11): e0242241. <https://doi.org/10.1371/journal.pone.0242241>
6. Maslach, 2000. Maslach Burnout Inventory Manual. 3rd edition.