SoR 105 YEARS
THE SOCIETY OF RADIOGRAPHERS

Recommendations for a therapeutic radiographer workforce

Written by head therapeutic radiographers
and endorsed by the Society of Radiographers.

start

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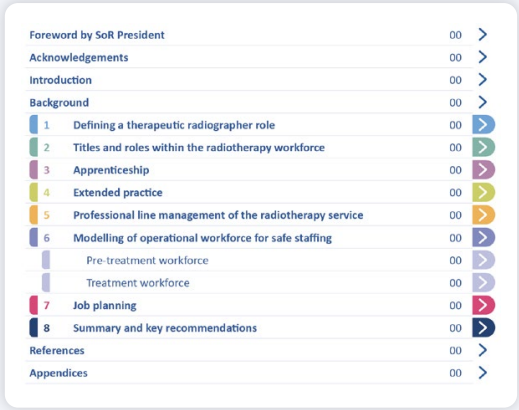

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Foreword by SoR President

The delivery of world-class cancer care depends on a resilient, highly skilled therapeutic radiography workforce. Therapeutic radiographers are the only professionals trained to plan and deliver radiotherapy treatment, combining technical expertise with compassionate, person-centred care. They are present with patients every step of the way – from initial consultation and treatment planning to daily delivery and survivorship support.

Yet across the UK services are under increasing pressure. Rising cancer incidence, advances in technology, workforce shortages and financial constraints threaten our ability to provide timely, equitable care. Therapeutic radiographers continue to demonstrate extraordinary commitment, but they cannot do this alone: they need robust staffing models, clear career pathways and strong professional leadership to sustain and grow the workforce of the future.

This guidance, developed by head therapeutic radiographers and endorsed by the Society of Radiographers (SoR), provides practical recommendations to support safe staffing, consistent job titles, apprenticeships, extended practice and effective workforce planning. It is underpinned by a vision of a profession that is confident, empowered and equipped to embrace innovation while safeguarding the highest standards of safety and quality.

I commend this document to service leaders, workforce planners, educators, commissioners and policymakers. It should serve both as a call to action and a framework for change. With the right support, therapeutic radiographers will continue to lead service transformation, champion innovation and deliver world-class cancer outcomes for patients across the UK.

Katie Thompson
President, Society of Radiographers

Acknowledgements

The Society of Radiographers (SoR) would like to extend its sincere thanks to all head therapeutic radiographers, workforce planners, educators and practitioners who contributed their expertise, insight and time to the development of this guidance.

In particular, we acknowledge the outstanding leadership of head therapeutic radiographers Angela Baker and Mark Gilham, whose vision, determination and commitment were central to driving this project forward. Their contribution ensured that the collective voice of head therapeutic radiographers was represented and that the recommendations set out in this document are both practical and forward-looking.

We are also grateful to colleagues across the UK radiotherapy community who provided evidence, shared best practice and reviewed drafts. Their input has strengthened this document and ensured it reflects the realities and aspirations of the profession.

Above all, we recognise the dedication of therapeutic radiographers everywhere, whose daily work continues to make an immeasurable difference to patients and families.

Introduction

This document has been developed by head therapeutic radiographers to complement the Society of Radiographers (SoR) *Principles of Safe Staffing for Radiography Leaders* (SoR, 2024a) and to advocate for the critical role of therapeutic radiographers in delivering sustainable, high-quality care.

Therapeutic radiographers are the cornerstone of safe, effective and person-centred radiotherapy. As the only healthcare professionals qualified to plan and deliver radiotherapy, they play a vital and evolving role throughout the entire patient pathway – from initial consultation and treatment planning to daily delivery, review and post-treatment care.

Combining advanced technical expertise with compassionate clinical practice, therapeutic radiographers operate sophisticated treatment systems, undertake complex planning and provide holistic support to patients during a highly challenging time. Their practice is underpinned by the four pillars of clinical care, leadership, education and research (see section 1), placing them at the forefront of both service delivery and innovation.

Technology has always been integral to radiotherapy and therapeutic radiographers have consistently embraced change, leading the safe and effective implementation of new systems and approaches, including the growing use of artificial intelligence (AI). Their deep understanding of imaging, data, treatment workflows and patient-centred care uniquely equips them to adopt and apply emerging technologies in ways that improve outcomes and maintain safety.

Safe and effective radiotherapy, however, is always the product of multiprofessional collaboration. Therapeutic radiographers work in close partnership with clinical oncologists, radiotherapy physics and engineering colleagues, alongside wider cancer care teams. At a leadership level, this collaboration is best realised through the triumvirate model, with the head therapeutic radiographer, the lead clinical oncologist and the head of radiotherapy physics working together to ensure that services are safe, strategically planned and continuously improving. This collective expertise ensures that complex treatment pathways are delivered with the highest standards of precision, safety and compassion.

Working collaboratively across these multidisciplinary teams, therapeutic radiographers are instrumental in shaping high-quality cancer services, as indicated for example in the Health Education England (HEE) Aspirant Cancer Career and Education Development (ACCEND) programme (HEE, 2022). Supported by appropriately skilled assistants, administrative teams and strong professional leadership – typically provided by a head therapeutic radiographer – they ensure that radiotherapy services remain responsive, resilient and safe.

When facing workforce shortages, service pressures and growing patient demand, our vision is of a radiotherapy workforce where therapeutic radiographers are consistently recognised, strategically supported and empowered to lead service transformation, ensuring the delivery of world-class cancer outcomes for every individual.

Background

The previous guidance for the therapeutic radiography workforce published in 2016 by the Society and College of Radiographers (SoR), *Achieving World-Class Cancer Outcomes: The Vision for Therapeutic Radiography*, is due an update to reflect the current climate. It is recognised that there are current challenges associated with national shortages of all radiotherapy staff groups (SoR, 2025a; RCR, 2023; IPEM, 2023) and that there is a difficult financial climate within the NHS (Ham, 2023). Where workforce capacity is reduced, services may need to align treatment capacity accordingly to ensure radiotherapy continues to be delivered safely.

The SoR has responded to requests for explicit guidance on minimum staffing numbers in this document. This is challenging, as many radiotherapy services have developed roles differently to reflect local needs, in line with national policies and frameworks. Nonetheless, SoR has developed a narrative for assessing staffing needs and examples of how this has been implemented are provided in the appendices. The document's title has been changed to reflect the focus of the updated guidance. Although it provides guidance on the number of therapeutic radiographers required to deliver a safe radiotherapy service, individual services should consider the skill mix in accordance with local work practices and circumstances. The safety of both staff and patients is paramount and therefore risk assessments should provide the basis of staffing and skill mix decisions, working within the multiprofessional team inclusive of clinical oncologists, physicists and clinical scientists.

As well as offering guidance on staffing levels, this document seeks to align with the College of Radiographers (CoR) *Education and Career Framework (ECF) for the Radiography Workforce* (CoR, 2022a) and national recommendations for allied health professionals (AHPs), including the NHS Centre for Advancing Practice, focusing on how these should be applied to the therapeutic radiographer workforce. Additionally, the document contains new guidance on job titles to improve consistency, making it easier for those applying for new jobs to understand the requirements of the role and improving benchmarking between services.

Defining a therapeutic radiographer role

Therapeutic radiographers are registered healthcare professionals, regulated by the Health and Care Professions Council (HCPC), and uniquely qualified to plan, deliver and review radiotherapy treatment. Their professional scope includes comprehensive responsibilities spanning the entire patient journey, including pre-habilitation activities such as providing information, education and supportive preparation prior to treatment, alongside treatment planning, image-guided precision delivery, and patient support during and after therapy.

Their role is grounded in four pillars of professional practice that cover:

- clinical care, ensuring safe and effective radiotherapy delivery
- leadership and service development, driving innovation and multidisciplinary collaboration
- education, both for patients and the workforce
- research and evidence-based practice, advancing treatment quality

Each therapeutic radiographer develops an individual scope of practice, supported by their employer with a clear job description. This is shaped by their training, experience and workplace competencies, and may progress along a structured career trajectory from practitioner to enhanced, advanced and consultant levels or into service leadership, research or educator roles. This enables flexibility to meet evolving service needs while ensuring accountability and safe governance within multidisciplinary teams.

Their proficiency can also extend to areas traditionally outside of core delivery, including medicines and radiation prescribing and clinical decision-making under formal legal frameworks. By supporting advanced and consultant roles that integrate prescribing and governance responsibilities, therapeutic radiographers demonstrate their capacity for expanded professional contribution within clinical oncology.

This definition underpins the broader guidance offered in this document — ensuring clarity in role expectations, appropriate staffing skill mixes and consistent use of professional titles – so that each therapeutic radiographer is empowered to practise to the full extent of their education, training and registration. The scope of radiography practice in clinical imaging and oncology is set out in the Society of Radiographers (SoR) *Scope of Practice* (SoR, 2025b). The development of a specialty non-surgical oncology training curriculum for therapeutic radiographers — originally led through Health Education England and now being progressed within NHS England — also supports this guidance. While not yet published, it signals a continued commitment to structured role development and to the safe, consistent expansion of practice within clinical oncology.

Currently there are three routes available to qualify as a therapeutic radiographer:

- a traditional three-year undergraduate programme
- an accelerated pre-registration postgraduate programme (available for those who already hold a first degree)
- a Level 6 degree apprenticeship (currently England only)

The NHS Long Term Workforce Plan (NHSE, 2023a) expects apprenticeships to become the primary route for training therapeutic radiographers in England by 2031/32.

Therapeutic radiographers are extensively involved at all stages of the patient's radiotherapy journey. They are the only healthcare professionals qualified to plan and deliver radiotherapy treatments using a wide range of advanced technical equipment. They also have the unique expertise and skills required to care for patients before, during and after radiotherapy.

The four pillars of practice — clinical practice, leadership and management, education, and research — set out by Health Education England (HEE, 2017) should be embedded at all levels and within each role, from registration through to enhanced, advanced and consultant practitioners (see section 4 for further information on enhanced practice).

Under the National Health Service Reform and Health Care Professions Act 2002, therapeutic radiographers may be supported in the overall delivery of patient care by the radiography support workforce (for example, clinical support workers and senior clinical support workers) and assistant practitioners, alongside administrative and clerical staff. These staff groups undertake delegated activities appropriate to their role, competence and level of supervision, and which do not require the expertise of a Health and Care Professions Council (HCPC) registered professional (HM Government, 2002a).

It is essential that a radiotherapy department is led by a head therapeutic radiographer; this is a HCPC-registered therapeutic radiographer who is recognised as the professional lead within their organisation. This ensures representation of both the profession and individual therapeutic radiographers at a senior level within each organisation, and that the therapeutic radiographers' professional standards are maintained at the specified levels described in the HCPC's *Standards of conduct, performance and ethics* (HCPC, 2024). (See section 5 for further information on professional line management.)

Successful leadership and delivery of an effective radiotherapy service relies on effective collaborative working within an organisation. Together, the multidisciplinary teams delivering a radiotherapy service provide a high-quality and safe service that keeps more people alive and helps them live well for longer (NHSE, undated a; NHSE, undated b).

Titles and roles within the radiotherapy workforce

This section should be read in conjunction with the *College of Radiographers Education and Career Framework for the Radiography Workforce* (ECF) (CoR, 2022a), which provides guidance for the education and career development of the radiography profession, and the Society of Radiographers *Principles of Safe Staffing for Radiography Leaders* (SoR, 2024a).

There are three protected titles for radiographers in the UK: radiographer, diagnostic radiographer and therapeutic radiographer (GOV.UK, 2024). The 'radiographer' title is useful when describing the radiography profession, while the 'diagnostic' and 'therapeutic' radiographer titles are useful when specifying an individual speciality of the profession. Therefore, the 'therapeutic radiographer' title should be used when referring to those radiographers who are part of the radiotherapy radiographic workforce and should form the basis for every job title.

The SoR's *Radiotherapy Radiographic Workforce UK Census* reports (SoR, 2025a; 2023; 2021; 2021) have highlighted that the number of job titles used for therapeutic radiographers is increasing. In 2024 the census concluded that there were 290 different job titles in use. In part, the increase from 2022 is likely due the increasing scope of the therapeutic radiographer, particularly as part of advanced practice. However, this highlights the need for additional guidance on job titles within the therapeutic radiography workforce. The variety of job titles can cause confusion when comparing job roles in different radiotherapy services. The aim of this section is to provide guidance for the use of standardised job titles for the therapeutic radiography workforce.

Table 1 sets out suggested job titles in a typical radiotherapy department.

	Suggested title(s)	Brief description of role	Suggested banding
Support and pre-registration	Clinical support worker	Pre-registration assistant	Bands 2–3
	Senior clinical support worker		Bands 3–4
	Trainee assistant practitioner	Assistant practitioner	Band 3
	Assistant practitioner		Band 4
	Apprentice therapeutic radiographer	Apprentice	Band 5 (Annex 21)
Registered	(Practitioner) therapeutic radiographer	New graduate/early career	Band 5
	Senior (practitioner) therapeutic radiographer	Supervises other therapeutic radiographers and non-registered roles	Band 6
	Team lead therapeutic radiographer	Supervises a small team of other therapeutic radiographers and non-registered roles	Bands 6–7
	Team manager therapeutic radiographer	Responsible for a team of therapeutic radiographers in a discrete unit/technical expert	Band 7

Table 1 continued

	Suggested title(s)	Brief description of role	Suggested banding
	Section manager therapeutic radiographer OR Operational manager therapeutic radiographer	Responsible for a section of the radiotherapy department (e.g. pre-treatment or treatment) or area of specialism (e.g. quality/ governance, on-treatment review)	Band 8a
	Deputy head therapeutic radiographer OR Associate head therapeutic radiographer	Deputy to the head therapeutic radiographer	Bands 8a–8b
	Head therapeutic radiographer	Manager of the radiotherapy department and professional lead therapeutic radiographer for the trust	Bands 8c–8d
Advancing practice	Specialist therapeutic radiographer	Enhanced practitioner	Bands 6–7
	Advanced therapeutic radiographer	Advanced practitioner	Bands 7–8a
	Consultant therapeutic radiographer	Consultant practitioner	Bands 8a–8c

Table 1: Job roles and suggested titles.

Alternative suggested job titles have been included for some roles, recognising that local restrictions may prevent the adoption of certain titles. Table 1 includes indicative banding for each role; however, these are 'suggested bands' only and may not always apply.

While there is a clear ambition to standardise therapeutic radiography roles and banding across the UK, standardised job descriptions are not yet in use. As a result, banding is determined locally, based on individual job descriptions evaluated by Agenda for Change job evaluation panels (NHS Employers, 2025a). For example, a team lead role may be Band 6 in one department but Band 7 in another, depending on whether responsibilities such as line management and technical expertise are included or not. Additionally, due to variations in departmental structures, not every role listed in Table 1 will be required in every radiotherapy department.

In some cases, it will be necessary to supplement a job title with a suffix to clarify a role.
Examples of job title suffixes include:

- Clinical support worker – Radiotherapy
- Senior therapeutic radiographer – Dosimetry
- Specialist therapeutic radiographer – Practice educator
- Team manager therapeutic radiographer – CT
- Section manager therapeutic radiographer – Treatment
- Advanced therapeutic radiographer – Breast cancer
- Consultant therapeutic radiographer – Urological cancer

Job title suffixes need not be included in responses to any future SoR census of the UK radiotherapy radiographic workforce.

Recommendations

- Radiotherapy services are encouraged to use a limited number of job titles, as outlined in this guidance.
- Radiotherapy services are encouraged to consider adopting the job titles outlined in this guidance for existing roles.

Apprenticeship

The traditional pre-registration training pathway for therapeutic radiographers involves students being engaged by higher education institutions (HEIs) and having placements in practice. The Society of Radiographers (SoR) maintains a list of current pre-registration programmes (SoR, 2024b). For post-registration training, services have had access to continuing professional development (CPD) funds within their NHS trusts. More recently, Level 6 apprenticeships have also provided routes into the profession alongside Level 7 progression opportunities for existing staff. Figure 1 outlines how apprenticeships can be utilised in all roles.

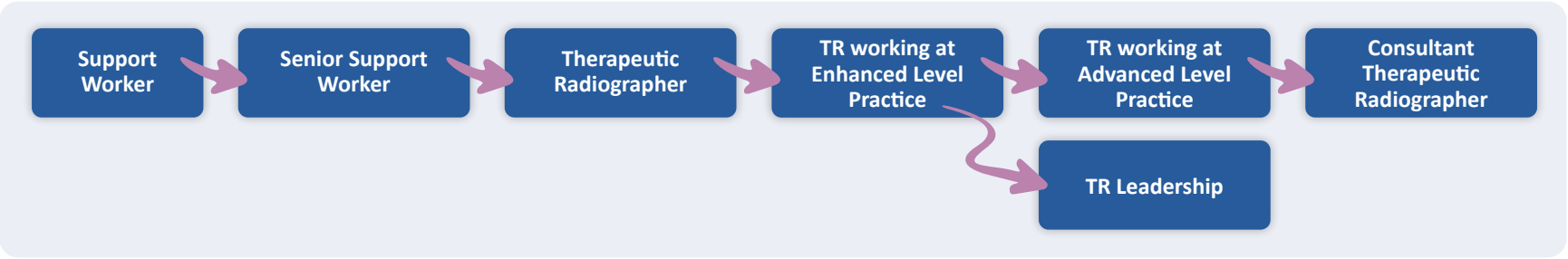

Figure 1: Apprenticeship pathways for therapeutic radiographers.

Apprenticeships available at difference levels of practice:

- Senior healthcare support worker apprenticeship (Level 3) (Skills England, 2024a)
- Business administration apprenticeship (with cancer care) (Level 3) (PMA, undated)
- Therapeutic radiographer apprenticeship (Level 6) (Skills England, 2023)
- Enhanced clinical practitioner apprenticeship (Level 6)
- Advanced clinical practitioner apprenticeship (Level 7) (Skills England, 2022)
- Senior leader apprenticeship (Level 7) (Skills England, 2024b)

Apprentices spend at least 20% of their normal working hours away from the workplace, on either 'off the job' training or education. Apprenticeships can be funded through their trust's apprenticeship levy, which will support training costs but does not account for employment costs.

If a trust has already used its entire levy, apprentices should speak with other local trusts, as organisations are able to transfer up to 25% of their levy to another organisation to prevent this funding being lost. It may be worth radiotherapy services talking to other trusts within their population catchment area to explore transfer options.

It is acknowledged that Level 6 apprentice therapeutic radiographer posts are difficult for services to fund. At the time of publication, services might need to sacrifice one or more established therapeutic radiographer posts to support these apprenticeships.

A more effective funding mechanism is called for. Embedded educational support for Level 6 apprentices is also recommended, such as a dedicated practice educator role. With the possibility of multiple undergraduate educational programmes being undertaken, consideration should be given to the total number of learners within the department as part of an annual education placement audit (HCPC, 2017; SoR, 2022b).

Recommendations

- Apprenticeships need to be built into radiotherapy workforce strategies.
- The head therapeutic radiographer should report levy requirements to the trust finance team when budgets are being set.
- Levy transfer options should be explored if all of the trust's levy has been used.
- Practice educators should have time within their job plans to support Level 6 apprentice therapeutic radiographers.
- Annual practice placement audits should consider the total number of learners that a department can support effectively.

Extended practice

This section outlines what extended practice is and how it aligns with the needs of the radiotherapy service, with key references provided for more in-depth reading. This section highlights the possible roles that can be established within radiotherapy services and provides recommendations on how services can embed extended practice into their service.

The NHS Long Term Plan (NHS, 2019) acknowledges the essential role allied health professionals (AHPs), including therapeutic radiographers, play in supporting NHS demand. It outlines the need to release the full potential of all trained members of the workforce and to ensure there are meaningful career pathways to retain these staff members in clinical roles.

The AHP Strategy for England: AHPs Deliver (NHS, 2022) steers the commitment towards continued development of the AHP workforce through service redesign, training and education, creating training pathways to enable therapeutic radiographers to progress and meet changing service needs. This commitment is developed with the *College of Radiographers' Education and Career Framework for the Radiography Workforce* (CoR 2022a), which defines the various levels of radiography practice and the requirements for each of them. The career framework wheel in Figure 2 summarises the levels of practice and their educational requirements.

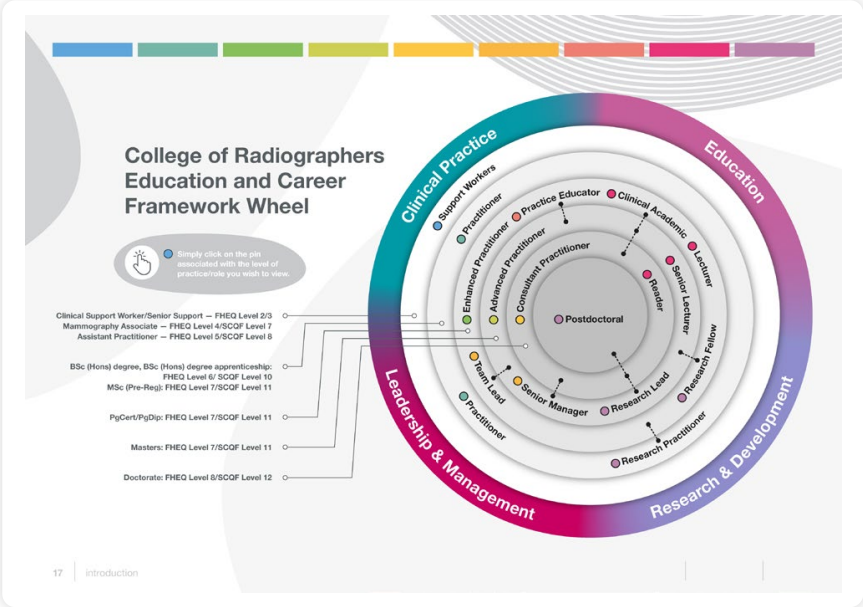

Figure 2: Education and Career Framework (ECF) wheel (CoR, 2022a).

Extended practice for therapeutic radiographers is any level of practice beyond the scope of a practitioner. In clinical practice, this will usually be defined as enhanced, advanced or consultant level practice, but other roles, such as management, academic and research posts, are also extended practice, and must be considered in department staffing requirements.

The Health Education England (HEE) *Multi-professional framework for advanced practice in England* (HEE, 2017) sets out a definition of advanced clinical practice (ACP) and the capabilities required of those using 'advanced' as part of their job title. It directs advanced practitioners to the two routes to gain formal accreditation for their roles — successfully completing an accredited MSc programme or evidencing advanced level practice via a formal portfolio route. It is likely that some therapeutic radiographers who have 'advanced' in their titles will not satisfy the current requirements to become accredited advanced clinical practitioners (ACPs). This is because the scope of advanced practice has developed and changed over a number of years. Head therapeutic radiographers in England should audit their advanced therapeutic radiographer teams and, where applicable, support individuals to gain ACP accreditation. Some advanced therapeutic radiographer roles may need to be reassessed to enhanced level. Further support will be needed for therapeutic radiographers affected by this change.

Accredited ACP roles should be embraced by the therapeutic radiography profession, as they clearly demonstrate that accredited therapeutic radiographer ACPs work at the same level as other professionals with the same accreditation.

Therapeutic radiographers may move into extended roles with reduced, or no, patient contact, but are still essential to service delivery and patient care. Examples of these roles include:

Practice educator

Practice educator roles are essential for continued development of the future workforce and current practitioners. Such roles will support practitioners at all levels in the clinical setting by leading and facilitating practice education. Primarily, they will support undergraduates and apprentices while in clinical practice; however, they can also be responsible for, or have oversight of, the signing of competencies and the writing of assessment criteria for these. Practice educators should have dedicated time in their job plans to satisfy these responsibilities. They should maintain communication between the clinical department and higher education institutions (HEIs) to ensure academic offerings continue to meet service needs. It is recommended that therapeutic radiographers in these roles are formally educated and accredited using the CoR Practice Educator Accreditation Scheme (PEAS) (CoR, 2022c), or similar. See the CoR *ECF* for more detail.

Quality and clinical governance

Quality assurance (QA) and governance permeate through every clinical task undertaken by a therapeutic radiographer. Although quality and governance are each individual therapeutic radiographer's responsibility, it is recommended that every radiotherapy department has a named professional responsible for co-ordinating all quality and governance related issues, including risk and audit. This may also include responsibility for the department's quality management system (QMS). It is acknowledged that an externally accredited QMS is a requirement for each department, as defined in the NHS England (NHSE) radiotherapy service specification (NHSE, 2019).

Data management and informatics

The provision of high-quality accurate data is a requirement to comply with mandated national data gathering — e.g. a radiotherapy dataset (RTDS) — and locally for business planning and financial management. The radiotherapy service is best placed to manage and quality control the data flow from the department. Therapeutic radiographers are integral to ensuring that accurate data is inputted at source (i.e. the recording and verification systems connected to the treatment units). The management of these data items is often best supported by a dedicated therapeutic radiographer who has the knowledge and skills to verify data across the patient pathway.

Clinical trials and research

It is expected that each radiotherapy department will support patients to access suitable clinical trials and to increase the range of trials available to patients (NHSE, 2019). As such, there is a need for coordination of trials activity, along with education and training to ensure staff deliver activity to a specific trial protocol, which may be different from local protocols. In addition, every therapeutic radiographer should be involved in research to a greater or lesser extent, depending on their role and experience. In some services coordination of clinical trials and research will be the responsibility of a defined role or roles; in others these responsibilities will be incorporated into existing extended practice roles. Therefore, the staffing required to meet this responsibility should be modelled on an individual department's structures and strategies. This staffing requirement should routinely be incorporated into annual research funding requests to local research networks to ensure suitable allocation of funds.

Recommendations

- To meet service needs, consideration should be given to service redesign as well as extending therapeutic radiographer roles with appropriate training and education.
- Services should support advanced practice accreditation to promote parity of practice with other professions.
- Services should have an acknowledged lead for quality and governance.
- Services should have an accredited practice educator to ensure continued development of the current and future workforce.
- Services should have a role (or roles) with responsibility for coordination of trials and research.
- Other extended roles should be used to support the radiotherapy service and therapeutic radiographer workforce.

Note: Any significant service redesign that leads to job redesign should be accompanied by job re-evaluation.

Extension to roles must be considered alongside current job load and risk assessment.

Professional line management of the radiotherapy service

The head therapeutic radiographer is essential for the safe and effective provision of the radiotherapy service. They maintain standards of practice in the therapeutic radiography workforce and lead the long-term strategic planning of service delivery, service transformation and developments by taking account of governance and legal requirements, technical innovation and advances in high-cost equipment and techniques. Activity modelling, business planning and financial management of the service also feature as a key part of this role.

Head therapeutic radiographers cover all aspects of management, clinical and professional practice, leadership, workforce and patient experience. They represent the service both within the organisation and externally, for example to commissioners, the Care Quality Commission (CQC), integrated care boards (ICBs) (NHSE, undated b), cancer alliances (NHSE, undated a), the Society and College of Radiographers (SoR) and radiotherapy networks. They have extensive knowledge of legislation, national guidelines, professional standards and more, and will continue to maintain their Health and Care Professions Council (HCPC) registration. The job descriptions for head therapeutic radiographer roles are often matched to the professional manager (clinical, clinical technical services) national job profile (NHS Employers, 2025b). It is expected that head therapeutic radiographers will be educated at a postgraduate level and have further leadership or management qualifications (SoR, 2022a).

In larger radiotherapy services, the role of deputy head therapeutic radiographer (or associate head therapeutic radiographer) is an important addition to the management structure. The deputy provides essential support to the head therapeutic radiographer, ensuring continuity of leadership, effective delegation of responsibilities and resilience within the management team. This role is particularly valuable in services with complex operational demands, multiple sites or a large workforce, where the scale and scope of activity require additional senior leadership capacity. Services are encouraged to consider the appointment of a deputy head therapeutic radiographer to strengthen professional line management, succession planning and service sustainability.

It is expected that in each radiotherapy service the head therapeutic radiographer, the head of radiotherapy physics and the radiotherapy clinical service director work together as a triumvirate. For head therapeutic radiographers to fully represent the profession within their individual trusts, it is recommended that they report directly to their divisional director or to the trust's chief or lead allied health professional (AHP).

Recommendations

- Each radiotherapy department should have a head therapeutic radiographer to be an advocate for the therapeutic radiographers and lead the service.
- Head therapeutic radiographers should work closely with the lead clinical oncologist and head of radiotherapy physics.
- The head therapeutic radiographer should report to either to a divisional director or to the trust's chief/lead AHP.
- Having a radiotherapy manager is pivotal in ensuring the safe, effective and compliant delivery of radiotherapy services.

According to *Advancing safer radiotherapy: Guidance for radiotherapy providers on improving patient safety*, published by the UK Health Security Agency (UKHSA, 2025), a robust safety culture is essential in radiotherapy, where the margin for error is minimal and the consequences of mistakes can be severe. The UKHSA guidance emphasises the need for a dedicated safety management system and a systems approach to safety — both of these require strong, consistent leadership, which is precisely the remit of the radiotherapy manager. It is important to note that the radiotherapy manager should be a qualified therapeutic radiographer.

Modelling of operational workforce for safe staffing

The purpose of this section is to provide guidance to assist with workforce planning and associated business cases, and to ensure safe staffing levels that enable radiotherapy services to comply with:

- the NHS England (NHSE) radiotherapy service specification (NHSE, 2019)
- the Ionising Radiation (Medical Exposure) Regulations 2017 (HM Government, 2017a)
- *Towards Safer Radiotherapy* (RCR et al., 2008)
- *Advancing safer radiotherapy: Guidance for radiotherapy providers on improving patient safety* (UKHSA, 2025)
- the Ionising Radiation (Medical Exposure) (Amendment) Regulations 2024 (HM Government, 2024)
- the Ionising Radiations Regulations 2017 (HM Government, 2017b)
- other relevant health and safety legislation, including the Control of Substances Hazardous to Health (COSHH) Regulations 2002 (HM Government, 2002b) and Health and Safety at Work etc. Act 1974 (HM Government, 1974)
- data protection regulations, as radiotherapy services often act as the data owner for data submitted to radiotherapy datasets (RTDS) etc.

It is beyond the scope of this guidance to be prescriptive about local workforce requirements for an entire radiotherapy service, as configurations will depend on a variety of factors and need to meet local circumstances. The guidance in this document has been provided to assist head therapeutic radiographers to make informed decisions about their local therapeutic radiography workforce requirements. It will be up to each individual radiotherapy service to implement the exact number, range and mix of therapeutic radiographers required, according to local circumstances and based on multiple factors, including specialist patient needs, case load and succession planning. It is recommended that this guidance is considered when making changes to the staffing structure and that a formal review of the complete staffing structure should be undertaken every two years.

Safe staffing levels are essential to ensure high-quality patient care is delivered within a technically demanding and often pressurised environment and to allow radiotherapy staff to balance the competing demands of their roles. This section provides guidance on the numbers of operational staff required to safely staff radiotherapy services of varying sizes. Without being prescriptive, it also provides some guidance on the skill mix needed to operate a radiotherapy department, including satellite working, and the requirements for different techniques and equipment. An example modelling method has been provided (see *Appendices*) that can be used to model the number of therapeutic radiographers required for a radiotherapy service. This guidance should be used in conjunction with the *Education and Career Framework for the Radiography Workforce* (SoR, 2022a) and *Job planning the clinical workforce – allied health professionals: A best practice guide* (NHS Improvement, 2019).

For this guidance, the operational service of a radiotherapy department is defined as:

- patient preparation and patient information
- pre-treatment, to include computed tomography (CT) and magnetic resonance (MR), virtual simulation and calculation room
- treatment, to include all treatment delivery platforms, including linear accelerators (LINACs), superficial units and brachytherapy
- dosimetry
- mould room
- direct operational team management (team manager of therapeutic radiographers)

The European Federation of Radiographer Societies (EFRS) has also published a position statement describing radiographer practice across the full radiotherapy pathway. The statement outlines the breadth of radiographer contribution from simulation and imaging, through treatment planning and verification, to treatment delivery and post-treatment support, alongside core enabling functions such as safety, quality assurance, service improvement, leadership, education, audit and research. This provides an additional European reference point that supports workforce planning and service design across the end-to-end radiotherapy pathway (EFRS, 2019).

The principles used for this latest guidance build on previous Society and College of Radiographers (SoR) guidance (SoR, 2016), which states that four radiotherapy staff are required per eight-hour working day for both LINACs and CT machines. This new guidance expands into other areas, such as superficial treatment and brachytherapy, as well as considering the capacity required to effectively staff a radiotherapy service.

Operational roles include both patient-facing direct clinical care (DCC) and non-patient-facing DCC. Examples of non-patient-facing DCC are dosimetry planning tasks, image review, dose calculations, writing in patient notes, monitoring patient health (including telehealth), process checks, safety checks, audit, risk management, data functions and maintenance of the quality management system. Some DCC requirements, such as several advanced clinical practice tasks, on-treatment review and late effects clinics, will vary in different services and therefore should be modelled according to individual requirements using job planning. For example, one radiotherapy department may have clinical nurse specialists (CNSs) undertaking on-treatment review, but another may use therapeutic radiographers.

The various roles generally found within an operational radiotherapy service and ways to model related staffing are outlined here.

Pre-treatment workforce

CT simulation (CTsim) and MR simulation (MRsim)

For the CT/MR planning workforce, the model will vary depending on demand and the number and range of scanners available within the department. In addition, demand and access to MR or positron emission tomography (PET) outside the department, and the associated requirement for patients to be scanned in the radiotherapy treatment position, will affect the therapeutic radiographer staffing requirement.

The requirement to provide staffing expertise for external MR or PET tasks should be accounted for in job planning. There may be other possible variations between services, with certain tasks — such as patient information giving and cannulation — being conducted in scanning rooms in some services, while others do this prior to the planning scan appointment to conserve available scanning capacity. The latter model is a more efficient use of the scanning resource but may require additional support staff. The requirement for these support staff should be calculated via job plans. There is a requirement for one pair of therapeutic radiographers to scan each patient (RCR et al., 2008; NHS Improvement, 2019). Throughout the working day, a second pair are needed to enable safe manual handling and supportive patient care, maintaining the flow of patients, as well as conducting non-patient-facing DCC tasks. Working as a four-person, two-pair team, facilitates this. It also allows for full utilisation of the scanner during scheduled breaks.

The skill mix of this workforce will depend on the complexity and range of pre-treatment tasks being undertaken. It is expected that each pairing will include at least one experienced therapeutic radiographer (usually a team manager), who will have heightened problem-solving skills to account for the unpredictable nature of the tasks presented in this work area. In smaller centres, the planning scanner(s) may not be working to capacity, in which case a reduced staffing level is appropriate. Conversely, some scanners will be operating for longer than an eight-hour day and therefore have an increased staffing requirement.

Virtual simulation (Vsim)

The staff who carry out Vsim may be incorporated with scanning staff in some services and dosimetry staff in others. With each of these models, an uplift of the respective staffing establishment is required. In addition to this variation, the activities undertaken as part of Vsim are not consistent across radiotherapy services. Some services use Vsim exclusively for palliative planning. Others go beyond this and incorporate activities such as planning image registration, organ-at-risk contouring and radical breast field placement. Different modelling is required according to which model is used and the volume of workload for each of the tasks. This is reflected in the modelling method example found in the *Appendices*.

As demand for Vsim is primarily dictated by patient numbers, workforce requirement should be calculated using the total booked scanning time. The total scanning time is the amount of time available for the combination of CTsim and MRsim and is an accurate measure of planning demand. Should the activity undertaken by Vsim staff go beyond simple field placement, this additional activity should be accounted for using job planning.

Dosimetry and mould room

The workforce required for dosimetry roles (complex computer planning) and mould room staff (commonly therapeutic radiographers) is included in the Institute of Physics and Engineering in Medicine (IPEM) Recommendations for the *Provision of a Physics Service to Radiotherapy* (IPEM, 2017). These roles are often included within the establishment for radiotherapy physics services. The 2017 IPEM staffing recommendations are useful but do not define the number of operational staff required for dosimetry and mould room separately. For radiotherapy services that have either dosimetry or mould room staff as part of the radiotherapy establishment, this latest guidance has considered both areas independently. As both dosimetry and mould room are pre-treatment activities, the workforce requirement should be calculated using the total booked scanning time. Should activity undertaken in the mould room or dosimetry go beyond core tasks (e.g. volume definition), this activity should be accounted for using job planning.

Treatment workforce

Modelling the treatment workforce requirement depends on the clinical hours of each treatment area. There is a requirement for two therapeutic radiographers to treat each patient (RCR et al., 2008; NHS Improvement, 2019). Their skill mix will depend on the complexity and range of treatment tasks being undertaken. However, it is expected that each treating pair will include at least one experienced therapeutic radiographer, usually a team manager, who has heightened problem-solving skills to account for the unpredictable nature of tasks. To ensure safe practice, the staffing of each treatment machine must be structured to allow the treating radiographers to be free from distraction so they can

focus solely on the patient undergoing treatment. Staffing requirements should be adjusted proportionally for those services not working a standard eight-hour day.

Linear accelerators (LINACs)

The high cost of LINACs and the requirement to minimise patient waiting times for treatment necessitates high machine utilisation and patient throughput. To achieve this, a treatment machine delivering radiotherapy across a standard eight-hour day requires a radiotherapy workforce of four, working in pairs in their capacity as 'entitled' operators under the Ionising Radiation (Medical Exposure) Regulations (HM Government 2017a; 2024). Throughout the working day, one pair of therapeutic radiographers enables safe manual handling and supportive patient care of the patients, maintains the flow of patients and conducts non-patient-facing DCC tasks (see *section 7*). Having two pairs of therapeutic radiographers allows for full utilisation of the LINAC during scheduled breaks.

Online adaptive technologies

When modelling the workforce for online adaptive treatment machines, it is important to consider the additional skills required for decision-making. Dosimetric knowledge and experience are also essential when considering the skill mix for online adaptive treatments. An example model would include a senior therapeutic radiographer, a team lead therapeutic radiographer and an experienced (team lead or team manager) dosimetrist. However, should the team lead therapeutic radiographer have appropriate, and recent, dosimetry experience, an additional dosimetrist may not be required. The traditional pair of therapeutic radiographers required for treatment may be replaced by additional staff for online adaptive treatment machines. Modelling patient numbers also needs to be considered as treatment delivery is likely to require up to one hour per patient.

Superficial treatment machines

Superficial radiotherapy is often viewed as simple and less demanding than other radiotherapy treatment, but it is the one area where the electronic transfer, calculation and checking of data is often lacking. Superficial treatment pathways often require manual calculations, checks and data entry. Set-up of the equipment requires manual selection of applicators and filters that directly affect the dose delivered to the patient, meaning there is a greater risk of human error, with more significant consequences for the patient. Consequently, it is an area at higher risk of radiation incidents so its staffing must be carefully considered.

The provision of staffing for superficial units depends on multiple factors, including:

- demand
- workload complexity
- the requirement for making patient-specific devices e.g. lead masks, applicator cut-out
- clinical oncologist job plans, cover and availability
- staff experience, training and competence.

The decline in the prevalence of superficial radiotherapy delivery and the increase in fully computerised, automated radiotherapy processes means that therapeutic radiographers often lack the undergraduate or early career experience in superficial radiotherapy preparation, calculation and delivery. Even therapeutic radiographers with more general experience may not have recent experience in this specialised area, particularly if there is a low volume of patients. As a result, safely staffing superficial units may be challenging, even when overall radiotherapy services are fully staffed. While the prevalence of superficial treatment machines has reduced over recent years, as the incidence of skin cancer increases so too does the workload suitable for treatment on these machines. Machine numbers will possibly rise in future to free up pressurised capacity on LINACS. Therefore, staffing requirements still need to be considered in this guidance.

Two therapeutic radiographers with the skill mix described in this section are needed for superficial treatment delivery (as in other treatment delivery activities). However, unlike other clinical areas, the staff working in superficial units are often responsible for the whole patient pathway, including patient mark-up, calculation, data input, safety checking and treatment delivery.

When planning the workforce for superficial units the following must be considered:

- the scheduling of activities
- the competence of the therapeutic radiographers working on the unit
- the volume of non-patient-facing DCC workload
- the provision of therapeutic radiographer training to ensure a sustainable and robust service
- the provision of undergraduate and specialist registrar training
- the availability of expert advice and support when required
- medical physics expert (MPE) availability

Staffing models may include therapeutic radiographers working both on superficial units and in other clinical areas, such as brachytherapy. Or, due to lower demand, patients may be scheduled for just mornings or afternoons on specific days. However, if a superficial unit is delivering treatment for an eight-hour day it should be staffed as described in the LINAC section above. Due to the greater risk of errors occurring in this clinical area, staff must be given appropriate time, training and support to safely manage the workload, despite superficial treatment being regarded as 'simple' radiotherapy.

Brachytherapy workforce

Workforce requirement for brachytherapy can be difficult to determine. Patient numbers are low compared with external beam treatment so small fluctuations in demand can dramatically affect requirements. Other factors that affect brachytherapy workforce requirements are the complexity of treatment and the proximity of the planning CT scanner and/or MR scanner. In addition, if anaesthetics are required, the location of the theatre and the provision of theatre staff (anaesthetist or operating department practitioner), as well as the proximity of the ward and availability of nurse escorts can also have an impact. This guidance assumes that theatre staff are resourced separately. Advanced and consultant therapeutic radiographers, who deliver brachytherapy procedures, are included within these operational staffing guidance numbers.

Specified supporting professional activities (SPA) (NHS Improvement, 2019) (see *section 7*) to be carried out by these advanced/consultant staff members should be calculated separately using their job plans. To create a culture of continuous learning and improvement, it is advised that the brachytherapy service is led by a therapeutic radiographer working at advanced or consultant level, or a section manager therapeutic radiographer. To comply with the Ionising Radiation Regulations 2017 (HM Government, 2017b), therapeutic radiographers may need to be 'classified' workers. The number of classified workers required is determined by the radiation protection advisor; it depends on local procedures and should be risk assessed.

Often services will offer brachytherapy treatment on specific days of the week to ensure efficient utilisation of the service and the associated workforce. Individual, simple treatments that do not need anaesthetic can be carried out by a pair of therapeutic radiographers (with the skill mix outlined previously). When complex treatments are booked — particularly those requiring anaesthetic — or when there are multiple simple treatments booked, an additional pair of therapeutic radiographers may be needed to carry out non-patient-facing DCC and to maintain workflow and efficient use of the brachytherapy service. Consideration should be given to other staff that can support the patient flow, such as clinical support workers and nurses. Due to the complexity or number of procedures, a brachytherapy unit can often be operational for an eight-hour day and therefore should be

staffed as described in the LINAC section. To ensure suitable workforce availability, the workforce assessment should be made based on the higher workforce requirement.

Satellite models

The workforce requirements for safe staffing of satellite centres need to be carefully considered. Key points to think about when assessing the staffing model for a satellite centre are:

- the leadership requirements at a satellite centre
- the workforce skill mix needed to facilitate safe operation of the whole centre, inclusive of (but not exhaustively) support services, pre-treatment, treatment, data preparation and on-treatment review
- the requirement for adequate staffing levels and skill mix to ensure applicable support is available for the duration of the working day
- the impact slight fluctuations in staffing levels (for example due to annual leave or sickness) can have on the smaller team often required for a satellite staffing model
- the training a small team needs to obtain and maintain a wide range of competencies
- acknowledgement of the support services available within a satellite setting and what this translates to in additional staff requirements.

Team management support

Each pre-treatment and treatment machine requires support — specifically technical and managerial support. It is recommended that each machine or discrete area is immediately supported by a team manager. Team manager therapeutic radiographers are included within the operational staffing requirements. In addition to this, each distinct section of the department (e.g. pre-treatment, treatment, brachytherapy, on-treatment review) should have a section manager who has strategic oversight. Section manager roles should be accounted for using job planning.

On-treatment review

The workforce requirement to support therapeutic radiographer-led on-treatment review, follow-up and late effects clinics can be calculated by adding together the clinical time required to see all patients and time allowed for necessary preparation. An audit of unplanned ad hoc reviews should also be undertaken to determine average numbers per day, thus allowing for sufficient workforce to accommodate these as well. Job plans for these roles should be used to determine the time required for both DCC and supporting professional activities (SPA) (NHS Improvement, 2019). On-treatment review is an operational part of radiotherapy departments. This part of the radiotherapy service can, however, be staffed by therapeutic radiographers and/or clinical oncologists/nurses to varying degrees. Due to this variation between departments, this part of the service is best modelled by job planning.

Therapeutic radiographers in training

There are multiple different areas for therapeutic radiographers to work in — such as linear accelerators, superficial treatment, brachytherapy treatment, pre-treatment CT, Vsim and mould rooms. When a therapeutic radiographer first qualifies, they are expected to be competent to deliver radiotherapy treatment using a linear accelerator and to acquire a CT scan. A newly registered therapeutic radiographer is likely to need training time to familiarise themselves with the equipment and protocols of their new department. Additional training will be required when they move to a different part of the radiotherapy service. This extra training will probably be required at any stage of the therapeutic radiographer's career. To maintain a robust and adaptable staffing establishment, services routinely rotate therapeutic radiographers to different areas of the department, ensuring they develop and maintain a range of competencies. Supernumerary training time is required while they are not yet competent in a new area. This requirement may differ between services and should be accounted for in the weekly summary section of the modelling spreadsheet (see *Appendices*).

Recommendations

- Models to ensure patient safety and staff development should be maintained and updated at regular intervals; every two years is suggested.
- Job planning should be used to understand the staffing requirements for non-core activity.
- Each pre-treatment and treatment machine requires team management. This also applies to other areas, including Vsim and calculation/checking.
- Section manager or operational manager roles are required for each distinct section of a department.
- A department using online adaptive technologies may need to consider more robust staffing models to include therapeutic radiographers with both treatment and dosimetry competencies.
- Satellite and smaller centres may need additional consideration, and staffing needs to be weighted towards higher-banded operational roles to ensure appropriate cover is maintained.

Job planning

Job planning is a recognised tool to maximise resources while delivering optimum treatment outcomes and has been widely used in the clinical oncologist workforce since 2022 (RCR, 2022).

The NHS Long Term Plan (NHS, 2019) committed to having an electronic tool for job planning for all allied health professionals (AHPs). The aim is that anyone who requires job planning has an annual one-to-one discussion with their line manager to develop or refresh their job plan in relation to the four pillars of professional practice (see *section 1*). The plan should have clear, achievable goals, maximising resources and positively impacting on clinical care.

Job planning will vary based on individual roles and may not apply in full to all operational staff. However, the operational workforce does need time for specified supporting professional activities (SPA) allocated as part of their role and this should be included in operational models (see *section 6*). Time for SPA, additional NHS responsibilities (ANR) and externally funded duties (ED) may be included for those roles with individual job plans. Advanced and consultant tumour site-specific roles should incorporate direct clinical care (DCC) administration in the job plan, as is the case for consultant clinical oncologists.

To provide head therapeutic radiographers with assurance and for individuals to keep on track, job plans may need to be reviewed at intervals during the annual plan period. The purpose of job planning is to ensure the right skills are in the right place at the right time to deliver the best possible care (NHS Improvement, 2019).

Job planning has four defined allocations: DCC, SPA, ANR and ED; these can be subcategorised further, specifying time for different activities within each category. For example:

Direct clinical care (DCC)

- Specific location, e.g. computed tomography (CT), data preparation, linear accelerator (LINAC)
- Outpatient clinics
- Telephone/virtual clinics
- Multidisciplinary teams (MDTs)
- Public health work

Specified supporting professional activities (SPA)

- Appraisals
- Teaching/training
- Continuing professional development (CPD)
- Audit
- Clinical management
- Quality documentation management/reading updates

Additional NHS responsibilities (ANR)

- Union duties
- National Institute for Health and Care Excellence (NICE) committees
- Freedom to Speak Up arrangements
- Mental health first-aider
- Internally funded research

Externally funded duties (ED)

- Paid guest lecturing
- Paid research

Services will need a consistent approach to manage time for these four categories in every job plan and ensure the minimum standards are met (NHS Improvement, 2019). Effective job planning will give therapeutic radiographers structure and goals to meet their service's vision for the year. It is recommended that an electronic tool supports this, as it is evidenced that e-job planning can enable service redesign and efficiencies in pathways (NHSE, 2023b).

Job planning the clinical workforce – allied health professionals: A best practice guide (NHS Improvement, 2019) makes recommendations on the allocation of clinical (DCC) and non-clinical (SPA/ANR/ED) time. In addition, a job planning calculator has been produced that supports the calculation of staffing capacity for those services without e-job planning in place (NHSE, undated c).

Summary and key recommendations

To maintain patient and staff safety, modelling of the therapeutic radiographer workforce is required to ensure minimum safe staffing levels.

A limited profile of job titles is provided to provide clarity between services.

The NHS Long Term Workforce Plan (NHS, 2019) is acknowledged with the requirement for apprenticeship roles to increase the number of therapeutic radiographers in practice.

Extended practice roles are discussed in detail in the College of Radiographers' *Education and Career Framework for the Radiography Workforce* (CoR, 2022a). Extended practice should be embraced to retain staff in the profession and provide continuing development.

The head therapeutic radiographer role is key, working as a triumvirate with the clinical oncologist lead and head of radiotherapy physics.

The head therapeutic radiographer should regularly model services based on this workforce model—every two years is recommended, due to increases in patient numbers and technique complexity.

Job planning — including time for direct clinical care, specified supporting professional activities, additional NHS responsibilities and externally funded duties — should be considered for all therapeutic radiographers within the departmental workforce.

Further work is recommended to provide a framework for development of the operational technical workforce to ensure safe delivery of advanced techniques.

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Appendices

Appendix 1: Working party members

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Appendices

Appendix 2: Excel workbook

These recommendations are supported by an Excel workbook containing three spreadsheets, titled:

- **Instructions:** This explains how to complete the modelling spreadsheet based on the practices of different services. It includes images showing examples of completed spreadsheets with commentary.
- **Staffing requirements:** This provides a blank template for individual services to complete, enabling them to calculate daily and weekly operational workforce and job planned workforce hours.
- **Factors:** This provides a template for recording staffing calculation figures based on activity within specific areas during an eight-hour day.

Recommendations for a therapeutic radiographer workforce

Written by head therapeutic radiographers and endorsed by the Society of Radiographers.

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