



# THERAPEUTIC RADIOGRAPHER



## Details of standard

### Occupation summary

This occupation is found in the health and care sector and includes the NHS and private healthcare providers.

The occupation's broad purpose is to provide excellent care to people diagnosed with cancer by delivering high quality and accurate radiotherapy, considering patients' emotional, psychological, and physical needs through the stages of their cancer treatment when at times they may be extremely vulnerable. They are responsible for the individual from the time of referral for radiotherapy by a cancer specialist and will prepare radiotherapy patients for treatment, including scanning and planning the patients' radiotherapy.

- external beam radiotherapy, a method for delivering a beam, or several beams, of high energy X-rays to cancer cells
- brachytherapy, a form of radiotherapy where a sealed radiation source, eg in a needle or tube, is placed inside or next to cancer cells
- stereotactic radiotherapy/radiosurgery which delivers multiple beams of focused radiation
- proton therapy, a type of particle therapy that uses a beam of protons to deliver a radiation dose to cancer cells
- superficial skin radiotherapy, which uses X-rays or electrons to deliver a radiation dose to cancer cells.

In their daily work, a therapeutic radiographer interacts with cancer patients, , their carer(s), members of the public and a range of healthcare professionals e.g. physicists, dosimetrists, doctors, nurses and dietitians, in a variety of settings such as hospitals and hospices.

A therapeutic radiographer is responsible for planning, checking and using imaging to deliver accurate radiotherapy in a compassionate and caring manner. As an autonomous practitioner, they are responsible for the individual from the time of referral, through to aftercare and on-going support after radiotherapy. They are professionally and legally accountable for their actions and the actions of those who they are supervising.

### Typical job titles include:

**Therapeutic radiographer**

## Entry requirements

Entry requirements will be stipulated by Higher Education Institutions

## Occupation duties

**DUTY****KSBS**

**Duty 1** Practise safely and effectively within the scope of practice and within the legal and ethical boundaries of the profession.

K1 K2 K3 K4 K5 K6 K7 K8

S1 S2 S3 S4 S5 S6 S7 S8 S9 S10 S11 S12  
S13

B1 B2

**Duty 2** Look after own health and wellbeing, seeking appropriate support where necessary.

K9 K10

S14 S15 S17

B3 B7

**Duty 3** Practise as an autonomous professional, exercising professional judgement.

K11

S16 S18 S19 S20 S21 S22

B6

**Duty 4** Practise in a non-discriminatory and inclusive manner recognising the impact of culture, equality and diversity.

K12 K13 K14 K15 K16

S23 S24 S25 S26

B4

**Duty 5** Communicate effectively, maintaining confidentiality and records appropriately.

K17 K18 K19 K20 K21 K22 K23

S27 S28 S29 S30 S31 S32 S33 S34 S35  
S36 S37 S38 S39

**Duty 6** Work appropriately with others.

K24 K25 K26 K27 K28 K29 K30 K31

S40 S41 S42 S43 S44 S45 S46 S47 S48  
S49 S50

B5

**Duty 7** Reflect on, review and assure the quality of own practice.

K32 K33 K34 K35 K36

S51 S52 S53 S54 S55

**Duty 8** Draw on appropriate knowledge and skills to inform practice and apply the key concepts of the knowledge base relevant to the profession.

K37 K38 K39 K40 K41 K42 K43 K44 K45  
K46 K47 K48 K49 K50 K51 K52 K53 K54  
K55 K56 K57 K58 K59 K60 K61 K62 K63

S56 S57 S58 S59 S60 S61 S62 S63 S64  
S65 S66 S67 S68 S69 S70 S71 S72 S73  
S74 S75 S76 S77 S78 S79 S80 S81 S82

S83 S84 S85 S86 S87 S88 S89 S90 S91  
S92 S93 S94 S95 S96

**Duty 9** Establish and maintain a safe practice environment.

K64 K65 K66 K67

S97 S98 S99 S100 S101 S102 S103

**Duty 10** Promote public health and prevent ill health.

K68 K69

S104 S105

## KSBs

### Knowledge

**K1:** The importance of continuing professional development throughout own career.

**K2:** The importance of safeguarding, recognising signs of abuse and the relevant safeguarding processes.

**K3:** What is required of them by the Health and Care Professions Council, including but not limited to the Standards of conduct, performance and ethics.

**K4:** The importance of valid consent.

**K5:** The importance of capacity in the context of delivering care and treatment.

**K6:** The scope of a professional duty of care.

**K7:** Legislation, policies and guidance relevant to own profession and scope of practice.

**K8:** The legislative, policy, ethical and research frameworks that underpin, inform and influence the practice of radiography.

**K9:** The importance of own mental and physical health and wellbeing strategies in maintaining fitness to practise.

**K10:** How to take appropriate action if own health may affect own ability to practise safely and effectively, including seeking help and support when necessary.

**K11:** The need for active participation in training, supervision and mentoring in supporting high standards of practice, and personal and professional conduct, and the importance of demonstrating this in practice.

**K12:** Equality legislation and how to apply it to own practice.

**K13:** The duty to make reasonable adjustments in practice.

**K14:** The characteristics and consequences of barriers to inclusion, including for socially isolated groups.

**K15:** That regard to equality, diversity and inclusion needs to be embedded in the application of all HCPC standards and across all areas of practice.

**K16:** The emotions, behaviours and psychosocial needs of people undergoing radiotherapy imaging, as well as that of their families and carers.

**K17:** When disclosure of confidential information may be required.

**K18:** The principles of information and data governance and be aware of the safe and effective use of health, social care and other relevant information.

**K19:** The need to ensure confidentiality is maintained in all situations in which service users rely on additional communication support, such as interpreters or translators.

**K20:** That the concepts of confidentiality and informed consent extend to all mediums, including illustrative clinical records such as photography, video and audio recordings and digital platforms.

**K21:** The characteristics and consequences of verbal and non-verbal communication and recognise how these can be affected by difference of any kind including, but not limited to, protected characteristics, intersectional experiences and cultural differences.

**K22:** The need to support the communication needs of service users and carers, such as through the use of an appropriate interpreter.

**K23:** The need to provide service users or people acting on own behalf with the information necessary in accessible formats to enable them to make informed decisions.

**K24:** The principles and practices of other health and care professionals and systems and how they interact with own profession.

**K25:** The need to build and sustain professional relationships as both an autonomous practitioner and collaboratively as a member of a team.

**K26:** The qualities, behaviours and benefits of leadership.

**K27:** That leadership is a skill all professionals can demonstrate.

**K28:** The need to engage service users and carers in planning and evaluating therapeutic interventions to meet own needs and goals.

**K29:** Information from other healthcare professionals and service users, in order to maximise health gain whilst minimising risks to the service user, such as from radiation dose.

**K30:** The need to involve service users in service design, service delivery, education and research.

**K31:** The need to engage service users and carers in radiotherapy pre-treatment planning treatment and follow up and where relevant in planning and evaluating their interventional procedures.

**K32:** The value of reflective practice and the need to record the outcome of such reflection to support continuous improvement.

**K33:** The value of multi-disciplinary reviews, case conferences and other methods of review.

**K34:** The value of gathering and using data for quality assurance and improvement programmes.

**K35:** The principles and regulatory requirements for quality control and quality assurance as they apply to their profession.

**K36:** The quality improvement processes in place relevant to their profession.

- K37:** The structure and function of the human body, together with knowledge of physical and mental health, disease, disorder and dysfunction relevant to their profession.
- K38:** The role(s) of other professions and services in health and social care and understand how they may relate to the role of the therapeutic radiographer.
- K39:** The structure and function of health and social care systems and services in the UK.
- K40:** The role of the therapeutic radiographer and other operators in the promotion of health and health education in relation to public health, healthy living and health screening for disease detection.
- K41:** The harms and benefits of population and targeted health screening.
- K42:** The radiobiological principles on which the practice of radiography is based.
- K43:** The concept of risk vs benefit with regards to ionising radiation and non-ionising radiation, acknowledging this will differ depending on modality, and communicate this with service users, taking into consideration service user judgement.
- K44:** The philosophy and principles involved in the practice of their profession.
- K45:** The principles of ionising radiation production, interaction with matter, beam modification, administration of radionuclides and radiation protection.
- K46:** The physical and scientific principles on which image formation using ionising and non-ionising radiation is based.
- K47:** Radiation dosimetry and the principles of dose calculation.
- K48:** The theoretical basis underpinning service user assessment prior to and during their procedure.
- K49:** The capability, applications and range of equipment used in their profession.
- K50:** The concepts and principles involved in the practice of their profession and how these inform and direct clinical judgement and decision making.
- K51:** The pharmacology of drugs used in their profession.
- K52:** The legislation, principles and methods for the safe and effective administration of drugs used in their profession.
- K53:** The mechanisms for the administration of drugs, including intravenous and oral contrast agents.
- K54:** The principles of the safe storage, transportation and disposal of medicinal products used in relation their profession.
- K55:** The different communication needs, anatomy and disease processes and their manifestation in children.
- K56:** The structure and function of the human body in health and disease, including:- regional and cross-sectional anatomy of the head, neck, limbs, thorax, pelvis and abdomen- common pathologies and mechanisms of disease with a concentration on cancer, histology, haematology and the lymphatic and immune systems.

**K57:** Oncology, the pathophysiology of solid and systemic malignancies– epidemiology– aetiology– the management and effect of cancer.

**K58:** The physiological signs and symptoms, clinical investigations and diagnostic procedures that result in referral for radiotherapy.

**K59:** The biochemical science of radiation pathophysiology.

**K60:** The influence of adjuvant and neoadjuvant treatment including surgery and chemotherapy on radiotherapy dose prescription, timing of radiotherapy and post radiotherapy complications.

**K61:** The principles of nuclear medicine and radionuclide procedures in radiotherapy guided planning and radionuclide therapies and theragnostics.

**K62:** A range of research methodologies relevant to own role.

**K63:** The value of research to the critical evaluation of practice.

**K64:** The need to maintain the safety of themselves and others, including service users, carers and colleagues.

**K65:** Relevant health and safety legislation and local operational procedures and policies.

**K66:** Appropriate moving and handling techniques.

**K67:** The correct principles and applications of disinfectants, methods for sterilisation and decontamination, and for dealing with waste and spillages correctly.

**K68:** The role of the profession in health promotion, health education and preventing ill health.

**K69:** How social, economic and environmental factors, wider determinants of health, can influence a person's health and well-being.

## Skills

**S1:** Identify the limits of own practice and when to seek advice or refer to another professional or service.

**S2:** Recognise the need to manage own workload and resources safely and effectively, including managing the emotional burden that comes with working in a pressured environment.

**S3:** Keep own skills and knowledge up to date.

**S4:** Maintain high standards of personal and professional conduct.

**S5:** Engage in safeguarding processes where necessary.

**S6:** Promote and protect the service user's interests at all times.

**S7:** Respect and uphold the rights, dignity, values, and autonomy of service users, including own role in the assessment, treatment or therapeutic process.

**S8:** Recognise that relationships with service users, carers and others should be based on mutual respect and trust, and maintain high standards of care in all circumstances.

- S9:** Obtain valid consent, which is voluntary and informed, has due regard to capacity, is proportionate to the circumstances and is appropriately documented.
- S10:** Exercise a duty of care.
- S11:** Apply legislation, policies and guidance relevant to own profession and scope of practice.
- S12:** Recognise the power imbalance which comes with being a health care professional, and ensure it is not for personal gain.
- S13:** Practise in accordance with current legislation governing the use of ionising and non-ionising radiation for medical and other purposes.
- S14:** Identify own anxiety and stress and recognise the potential impact on own practice.
- S15:** Develop and adopt clear strategies for physical and mental self-care and self-awareness, to maintain a high standard of professional effectiveness and a safe working environment.
- S16:** Recognise that they are personally responsible for, and must be able to, justify their decisions and actions.
- S17:** Use own skills, knowledge and experience, and the information available, to make informed decisions and/or take action where necessary.
- S18:** Make reasoned decisions to initiate, continue, modify or cease treatment or the use of techniques or procedures, and record the decisions and reasoning appropriately.
- S19:** Make and receive appropriate referrals, where necessary.
- S20:** Exercise personal initiative.
- S21:** Demonstrate a logical and systematic approach to problem solving.
- S22:** Use research, reasoning and problem-solving skills when determining appropriate actions.
- S23:** Respond appropriately to the needs of all different groups and individuals in practice, recognising this can be affected by difference of any kind including, but not limited to, protected characteristics, intersectional experiences and cultural differences.
- S24:** Recognise the potential impact of own values, beliefs and personal biases, which may be unconscious), on practice and take personal action to ensure all service users and carers are treated appropriately with respect and dignity.
- S25:** Make and support reasonable adjustments in own and others' practice.
- S26:** Actively challenge barriers to inclusion, supporting the implementation of change wherever possible.
- S27:** Adhere to the professional duty of confidentiality.
- S28:** Respond in a timely manner to situations where it is necessary to share information to safeguard service users, carers and/or the wider public and recognise situations where it is necessary to share information to safeguard service users, carers and/or the wider public.
- S29:** Use effective and appropriate verbal and non-verbal skills to communicate with service users, carers, colleagues and others.



- S30:** Communicate in English to the required standard for the profession.
- S31:** Work with service users and / or own carers to facilitate the service user's preferred role in decision-making, and provide service users and carers with the information they may need where appropriate.
- S32:** Modify own means of communication to address the individual communication needs and preferences of service users and carers, and remove any barriers to communication where possible.
- S33:** Use information, communication and digital technologies appropriate to own practice.
- S34:** Formulate and provide information and support for service users about their treatment and/or imaging process and procedures, with regular reappraisal of their information needs as appropriate.
- S35:** Advise other healthcare professionals about the relevance and application of radiotherapy and, where relevant, imaging modalities to the service user's needs.
- S36:** Provide appropriate information and support for service users throughout their radiotherapy treatment and care.
- S37:** Keep full, clear and accurate records in accordance with applicable legislation, protocols and guidelines.
- S38:** Manage records and all other information in accordance with applicable legislation, protocols and guidelines.
- S39:** Use digital record keeping tools, where required.
- S40:** Work in partnership with service users, carers, colleagues and others.
- S41:** Contribute effectively to work undertaken as part of a multi-disciplinary team.
- S42:** Identify anxiety and stress in service users, carers and colleagues, adapting own practice and providing support where appropriate.
- S43:** Identify own leadership qualities, behaviours and approaches, taking into account the importance of equality, diversity and inclusion.
- S44:** Demonstrate leadership behaviours appropriate to own practice.
- S45:** Act as a role model for others.
- S46:** Promote and engage in the learning of others.
- S47:** Demonstrate awareness of the need to empower service users to participate in the decision-making processes related to their profession.
- S48:** Demonstrate awareness of the need to encourage, support and mentor staff at all practitioner levels.
- S49:** Demonstrate awareness of roles and responsibilities where work is delegated and how this applies in practice.
- S50:** Interpret and act upon information from other healthcare professionals and service users, in order to maximise health gain whilst minimising risks to the service user, such as from radiation dose.
- S51:** Engage in evidence-based practice.

- S52:** Gather and use feedback and information, including qualitative and quantitative data, to evaluate the responses of service users to own care.
- S53:** Monitor and systematically evaluate the quality of practice, and maintain an effective quality management and quality assurance process working towards continual improvement.
- S54:** Participate in quality management, including quality control, quality assurance, clinical governance and the use of appropriate outcome measures.
- S55:** Evaluate care plans or intervention plans using recognised and appropriate outcome measures, in conjunction with the service user where possible, and revise the plans as necessary.
- S56:** Demonstrate awareness of the principles and applications of scientific enquiry, including the evaluation of treatment efficacy and the research process.
- S57:** Demonstrate awareness of the philosophy and the development of the profession of radiography to inform understanding of current practice.
- S58:** Apply the principles of ionising radiation production, interaction with matter, beam modification, administration of radionuclides and radiation protection.
- S59:** Distinguish between normal and abnormal appearances on images.
- S60:** Demonstrate awareness of the current developments and trends in the science and practice of radiography.
- S61:** Recognise and respond to adverse or abnormal reactions to medications used in relation to their profession.
- S62:** Demonstrate awareness of the principles of Artificial Intelligence (AI) and deep learning technology, and its application to practice.
- S63:** Change own practice as needed to take account of new developments, technologies and changing contexts.
- S64:** Gather appropriate information.
- S65:** Analyse and critically evaluate the information collected.
- S66:** Select and use appropriate assessment techniques and equipment.
- S67:** Undertake and record a thorough, sensitive, and detailed assessment.
- S68:** Undertake or arrange investigations as appropriate.
- S69:** Conduct appropriate assessment or monitoring procedures, treatment, therapy or other actions safely and effectively.
- S70:** Critically evaluate research and other evidence to inform own practice.
- S71:** Engage service users in research as appropriate.
- S72:** Formulate specific and appropriate management plans including the setting of timescales.
- S73:** Assess, monitor and care for the service user across the pathway of care relevant to their profession.

- S74:** Undertake and record a thorough, sensitive and detailed clinical assessment, selecting and using appropriate techniques and equipment.
- S75:** Use physical, graphical, verbal and electronic methods to collect and analyse information from a range of relevant sources including service user's clinical history, diagnostic images and reports, pathological tests and results, dose recording and treatment verification systems.
- S76:** Interrogate and process data and information gathered accurately in order to conduct the procedures most appropriate to the service user's needs.
- S77:** Appraise image information for clinical manifestations and technical accuracy, and take further action as required.
- S78:** Manage complex and unpredictable situations including the ability to adapt planned procedures.
- S79:** Operate radiotherapy equipment safely and accurately.
- S80:** Check that equipment is functioning accurately and within the specifications, and to take appropriate action in the case of faulty functioning and operation.
- S81:** Select and explain the rationale for radiographic techniques and immobilisation procedures appropriate to the service user's physical and disease management requirements.
- S82:** Position and immobilise service users correctly for safe and accurate procedures.
- S83:** Plan appropriate radiotherapy procedures.
- S84:** Assist in the construction of appropriate immobilisation, including beam modifying, devices, individualised to the specific needs of each service user and the treatment regime prescribed.
- S85:** Identify organs at risk (OAR) on images to provide information for radiotherapy treatment planning.
- S86:** Calculate dose across a range of radiation modalities, including photons, protons and electrons, utilising a treatment planning system and verify this accordingly with a record and verification system.
- S87:** In relation to radiotherapy planning :-- support service users in understanding radiation exposure, risk and benefit associated with radiation exposure and doses in relation to their imaging examination.- perform multimodality imaging techniques and the image registration process, and where appropriate contrast agent examinations, demonstrating appropriate care to service users and their carers.- manipulate exposure and image recording parameters to optimal effect- perform standard Computed Tomographic (CT) and assist in performing Magnetic Resonance (MR) planning procedures- use to best effect the processing and related technology supporting imaging systems.
- S88:** Generate a treatment plan and verify treatment parameters ensuring optimal radiotherapy prescription delivery.
- S89:** Use to best effect the image processing and related technology, including computer-based imaging systems for radiotherapy purposes.
- S90:** Perform the full range of radiotherapy processes and techniques accurately and safely.
- S91:** Manage and assist with fluoroscopic procedures, including those requiring the use of contrast agents.

**S92:** Interpret and evaluate images obtained during radiotherapy planning and treatment, taking appropriate action to optimise accuracy dose delivery to the target volume.

**S93:** Check that the OAR dose is as planned/prescribed during treatment.

**S94:** Localise the target volume precisely in relation to external surface and anatomical reference markings using a range of techniques including computed tomography and magnetic resonance imaging for the purpose of radiotherapy planning and delivery.

**S95:** Critically evaluate and interpret the radiation prescription in such a way that radiotherapy is delivered accurately and reproducibly.

**S96:** Recognise changing signs, symptoms and progression of disease, and make appropriate decisions not to treat or to review further before proceeding with treatment, including reviewing treatment imaging information.

**S97:** Demonstrate awareness of relevant health and safety legislation and comply with all local operational procedures and policies.

**S98:** Work safely, including being able to select appropriate hazard control and risk management, reduction or elimination techniques in a safe manner and in accordance with health and safety legislation.

**S99:** Select appropriate personal protective equipment and use it correctly.

**S100:** Establish safe environments for practice, which appropriately manages risk.

**S101:** Apply appropriate moving and handling techniques.

**S102:** Ensure the physical safety of all individuals in the therapeutic work environment, especially with regard to radiation safety and high-strength magnetic fields.

**S103:** Use basic life support techniques and be able to deal with clinical emergencies.

**S104:** Empower and enable individuals, including service users and colleagues, to play a part in managing own health.

**S105:** Engage in occupational health, including being aware of immunisation requirements.

## Behaviours

**B1:** Act with honesty, integrity, openness, and respect at all times.

**B2:** Act with empathy and compassion by being considerate of others' feelings, especially when making decisions.

**B3:** Remain calm and resilient when dealing with distressing and emotionally challenging situations and be able to manage own emotional responses.

**B4:** Behave respectfully and be non-judgemental by engaging with people in non-discriminatory ways.

**B5:** Be willing to share knowledge, be self-motivated, proactive, adaptable and reliable to deliver the best possible care.

**B6:** Be decisive and act with confidence when interacting with patients, staff and the public.

**B7:** Practise self-awareness by understanding own emotions, limitations, strengths, weaknesses, and recognising the impact of personal interactions on others.

## Qualifications

### English and Maths

Apprentices without level 2 English and maths will need to achieve this level prior to taking the End-Point Assessment. For those with an education, health and care plan or a legacy statement, the apprenticeship's English and maths minimum requirement is Entry Level 3. A British Sign Language (BSL) qualification is an alternative to the English qualification for those whose primary language is BSL.

### Other mandatory qualifications

**BSc (Hons) Therapeutic Radiography or (where the apprentice already holds a level 6 honours degree) a pre-registration MSc in Therapeutic Radiography approved by the Health and Care Professions Council.**

Level: 6 (integrated degree)

## Additional details

### Regulated standard

This is a regulated occupation.

### Regulator body:

Health and Care Professions Council

Training Provider must be approved by regulator body

EPAO must be approved by regulator body

### Occupational Level:

6

### Duration (months):

36

## Review

This apprenticeship standard will be reviewed after three years

### Example progression routes

Enhanced clinical practitioner

Advanced clinical practitioner (integrated degree)

## Version log

VERSION	CHANGE DETAIL	EARLIEST START DATE	LATEST START DATE	LATEST END DATE
1.3	Standard, end-point assessment plan and funding band revised but funding remained the same	01/09/2023	Not set	Not set
1.2	Funding band revised and remained. End-point assessment plan revised	22/11/2021	31/08/2023	Not set
1.1	Funding band revised	09/11/2020	21/11/2021	Not set
1.0	Approved for delivery	15/04/2019	08/11/2020	Not set

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