Job Description

Job title:	Senior Radiotherapy Physicist
Division:	Cancer Services
Board/corporate function:	Surgery and Cancer
Salary band:	Band 8A
Responsible to:	Group Lead for Radiotherapy Physics
Accountable to:	Head of Radiotherapy Physics
Hours per week:	37.5
Location:	Radiotherapy Physics, 5th Floor West, 250 Euston Road

University College London Hospitals NHS Foundation Trust

University College London Hospitals NHS Foundation Trust (UCLH) is one of the most complex NHS trusts in the UK, serving a large and diverse population. In July 2004, we were one of the first NHS trusts to achieve Foundation Trust status.

We provide academically-led acute and specialist services, to people from the local area, from throughout the United Kingdom and overseas.

Our vision is to deliver top-quality patient care, excellent education and world-class research. We provide first-class acute and specialist services across eight sites:

- University College Hospital (incorporating the Elizabeth Garrett Anderson Wing)
- National Hospital for Neurology and Neurosurgery
- Eastman Dental Hospital
- Royal National Throat, Nose and Ear Hospital
- Royal London Hospital for Integrated Medicine
- University College Hospital Macmillan Cancer Centre
- The Hospital for Tropical Diseases

We are dedicated to the diagnosis and treatment of many complex illnesses. UCLH specialises in women's health and the treatment of cancer, cardiac, infection, neurological, gastrointestinal and oral disease. It has world class support services including critical care, imaging, nuclear medicine and pathology.

The Surgery and Cancer Board comprises of Surgery, Cancer services and Imaging, led by the Medical Director.

The Radiotherapy Physics Department consists of Physicists, Planning Radiographers Physics practitioners (clinical technologists) and Radiotherapy Engineers. At any given time, there may also be several additional staff undertaking training in the Department, including STP and PTP Physics trainees, Radiographers rotating through Treatment Planning, Student Radiographers, Oncology Registrars and Medical Physics MSc students.

The Department is part of a multi-disciplinary team in the Department of Clinical Oncology, which sees about 2000 new patients and administers over 3000 new courses of radiotherapy treatment per year. There are 27 NHS clinical oncologists covering all Cancer Specialties. The Department of Clinical Oncology has a varied patient base suitable for the development of complex radiotherapy including total body irradiation, paediatric practice, head and neck, and sarcoma treatments. There are also close relationships with the academic department in nuclear medicine and the academic department of oncology, which has a major research interest in targeted radioisotope therapy.

The Radiotherapy Department is located on the UCH site and the estate includes six accelerator bunkers and ten protected ward rooms. The Radiotherapy Department is equipped with four Varian TrueBEAM linear accelerators.; capable of Respiratory Gating and On-Board Imaging. One of the four machines is a stereotactic linac and two are equipped with 6DoF couch. The department has one modern orthovoltage unit and a busy Elekta High Dose Rate Flexitron unit.. Planning equipment includes a Siemens Somatom confidence 64 CT simulator with full 4D imaging capabilities, including Respiratory Gating. The department also has access to PET/CT and PET/MR units for radiotherapy planning

The Radiotherapy Physics Department provides all Dosimetry, Quality Assurance and Engineering services needed to maintain the above equipment in good and safe working order. It follows all national and international protocols and codes of practices and participates in regional, national and international audits to ensure its dosimetry is consistent with accepted standards. The Department is actively engaged in developing and implementing new technologies to enhance the safety, accuracy and efficacy of cancer treatment.

The Radiotherapy Physics Department supplies Treatment Planning services to Radiotherapy. Treatment planning is performed using Eclipse planning system and brachytherapy planning on Oncentra. The Department offers a variety of specialised treatment services and is continually developing advanced treatment techniques. Treatments offered include: Dynamic IMRT and VMAT, SABR(lung and GI primary, and oligometastatic disease), SRS, IGRT, CT-based TBI; Ultrasound–guided and CT-planned HDR brachytherapy and high precision conformal radiotherapy, utilising MR/PET/CT fusion. The Department has an integrated ARIA Radiotherapy Network to transfer treatment parameters and images between the various pieces of equipment, as well as to streamline the patient flow. This network enables easy and fast Recording and Verification of complex treatments. The Radiotherapy Department as a whole has a policy of Quality Assurance for Radiotherapy and is accredited to ISO 9000-2000.

The Trust has been identified as one of the first two NHS centres to offer proton beam therapy (PBT) through an integrated service with the existing radiotherapy and radiotherapy physics departments. The Trust is currently working with the DH and our partner site, the Christie, to deliver service and is located in the Grafton Way building. The site has direct access to the Trust's existing radiotherapy department and close to the new University College Hospital Macmillan Cancer Centre. The UK proton service brings together some of the world's leading specialists in complex cancers. Together, the Christie and UCLH will see more children and teenagers with cancer than almost any other centre in the world, and more adults with brain cancers than any other centre in the UK.

The Proton service commenced clinical treatment in 2021. The provision of Physics services to the PBT facility, at UCLH, will be provided by the radiotherapy physics group.

The Proton service is equipped with four Varian ProBEAM gantries serviced by a single cyclotron source. Proton pencil-beam scanning is standard and a single networked ARIA and Eclipse system in use across PBT and radiotherapy. The ProBEAM gantries have full imaging capabilities including planar and cone-beam CT. Pre-treatment imaging includes a dedicated MR scanner and Dual-energy CT.

The department is expected to treat up to 1000 new highly complex cases per year across the four treatment gantries. Staffing for the proton department includes clinical scientists, dosimetrists and a team of technologists. Maintenance is be under a full service contract with Varian Medical systems.

The Radiotherapy Physics group has a close collaborative relationship with UCL Medical Physics and Bioengineering group with several PhD projects in related areas of proton radiotherapy, Image-guided Radiotherapy and Adaptive radiotherapy.

Job Purpose

- The main role of this post is to provide senior support to all aspects of the work of the Radiotherapy Physics group.
- To act as, or work towards acting as, a Medical Physics Expert, as defined in IR(ME)R 2000 and future legislation, to ensure that Trust complies with all safety legislation in the remit of the radiotherapy physics department.
- The postholder will work over a range of areas in Radiotherapy Physics and will undergo continual professional development in Radiotherapy Physics and associated techniques.
- The post requires handling of highly complex dosimetry equipment to perform and supervise routine calibration and monitoring of highly complex radiation producing equipment.
- To undertake activities in the delivery of the treatment planning service for the range of casemix seen by the radiotherapy department.
- Provision of a molecular radiotherapy service
- Provision of a Brachytherapy service
- The post requires the provision of highly specialised advice and guidance, where necessary, to the Radiotherapy Department in matters relating to treatment plans, dosimetry and radioactive isotope treatments.
- The post requires the presentation of clinical data to medical staff and the upholding of legal requirements.
- The postholder will be responsible on a day-to-day basis to the Group Lead and relevant Principal Physicist in charge of the areas in which work is currently being performed.
- Personal initiative and a keen sense of responsibility with a high degree of accuracy are expected.

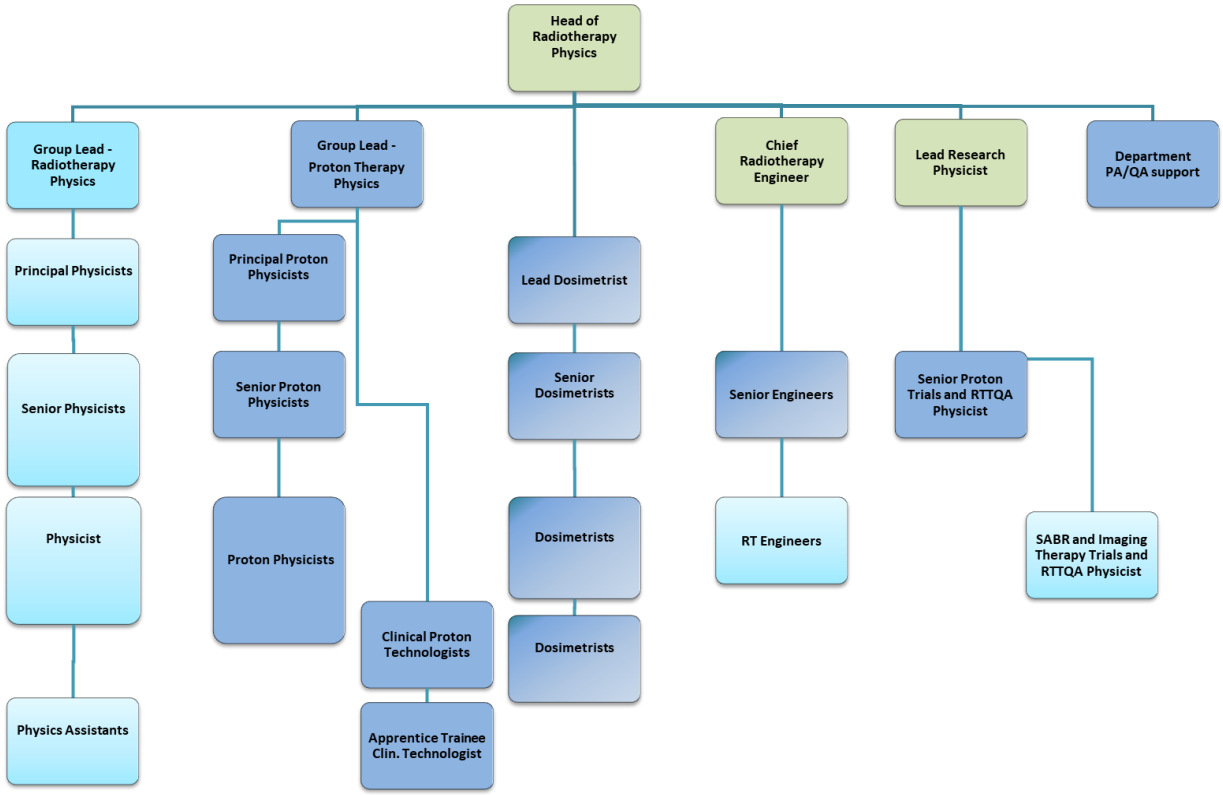
Key Working Relationships

The post holder will be responsible to the Group Lead for Radiotherapy Physics.

On a day-to-day basis the post holder will report to the Group Lead for Radiotherapy Physics

The post holder is expected to liaise closely with the Lead physicists in the radiotherapy group, the Chief engineer, the Lead dosimetrist in the provision of the service radiotherapy.

The post holder will also be expected to work closely with radiotherapy radiographers and clerical staff; consultant clinical oncologists and specialist radiotherapy registrars; ward staff and play specialists



Key Results Areas

The services provided by the postholder to Radiotherapy, including Equipment Quality Assurance, Treatment Planning, Brachytherapy and Molecular Radiotherapy will be discharged in a timely fashion, with an independent approach and at a high professional level, ensuring the safety and accuracy of Radiotherapy treatments while minimising waiting times.

All activities of the postholder will be compliant with relevant national Radiation Protection legislation.

Main Duties and Responsibilities

1. CLINICAL SCIENTIFIC

Produce routine and complex treatment planning for external beam radiotherapy. Use computerised planning systems to design and customise treatment plans. Analyse requirements and make complex judgements regarding treatment parameters and patient dose effects to produce the required dose distribution over the treatment volume. Take responsibility for the accurate production of individualised treatment plans and associated dosimetry calculations.

Supervise, advise, check and approve highly complex treatment plans produced by other members of staff.

Advise clinical staff on the effects of various treatment plan options on patient dose distributions. Discuss, negotiate and agree approaches with clinical staff to create optimum treatment plans and advise on aspects of the treatment and patient set-up, as required. Often these negotiations take place under time pressure, directly affecting immediate patient management.

Perform, advise on and supervise, complex tasks involved in brachytherapy treatments and molecular RT administration. Explain aspects of this stressful procedure to patients and liaise with other groups such as radio-pharmacy and ward staff as required. Independently resolve problems with the procedures, including those arising with the patient present.

Perform, advise on and supervise, complex tasks involved in the Total Body Irradiation service for Bone Marrow Transplant patients. Produce and check highly complex treatment plans.

Perform, advise on and supervise, complex tasks involved in dosimetry and quality control in radiotherapy, according to established protocols. Perform and analyse quality control and other measurements and procedures on highly-complex patient-critical equipment. Often perform corrective actions independently based on results.

To deputise for the principal physicists with particular responsibility for one of: Treatment Planning; QA and dosimetry; Brachytherapy and Molecular RT, Technical development, IGRT

Take a leading unsupervised role in the commissioning of specific highly specialised equipment or special techniques, to a high degree of accuracy with suitable equipment. Introduce and implement these specialised techniques into clinical use.

Take a leading role in co-ordinating the use of such highly specialised equipment or special techniques with colleagues both within the Trust, and at a national and international level.

Provide complex advice to clinical staff.

Take a lead in developments in radiotherapy as identified by the Head of radiotherapy Physics and Group Lead.

Take a lead in the maintenance, application and development of the Section's treatment planning computer systems, including commissioning techniques or systems, back-up, archiving and quality assurance.

Provide complex scientific and technical advice to radiotherapy consultants and other staff regarding the treatment of patients.

Take a lead in multi-disciplinary working parties to negotiate changes to patient treatment protocols affecting both Radiotherapy Physics and Radiotherapy.

Perform, advise on and supervise, complex tasks involved in monitoring and decontaminating ward rooms after radioisotope patients have been discharged.

Perform, advise on and supervise, complex tasks involved in monitoring, control and storage of radioactive waste, some of which may contain clinical waste and biohazard.

Participate and supervise in the operation of complex radiotherapy equipment in the specialised theatre environment. Responsible for staff radiation safety during the treatments in operating theatres.

Act as an operator and Medical Physics Expert under the definitions of the IR(ME)R regulations in accordance with Trust Policies and Practices. The post holder will be expected to work towards MPE registration if not already achieved.

2. MANAGERIAL

Prioritise and manage own work to meet agreed outcomes.

Keep careful records of all work performed and complete other appropriate records.

Supervise the professional work of other radiotherapy physics staff working in areas or on projects being managed by the postholder.

Organise and manage the use of specific specialised treatments or specialised equipment across different Departments in the Trust.

Manage the record keeping of activities of a sub-section of the work of the Department.

3. TEACHING, TRAINING AND RESEARCH

Participate in training other staff, as required.

Supervise trainee clinical scientists on placement.

Present lectures and courses to colleagues and others within the Radiotherapy Department.

Present original work at meetings and conferences, and in publications. Present seminars and feedback on meetings.

Lead in several research and development projects and participate in other projects and clinical audit.

4. PROFESSIONAL

Take positive steps to develop personal competence in Radiation Physics

Participation in Continuing Professional Development is compulsory

To maintain State Registration with the HPC

Keep abreast of the latest technical and scientific developments and their applications in medical and associated fields. Attend suitable seminars and courses as part of training and personal development and to further the work of the Department.

Maintain a thorough knowledge of relevant current legislation.

Ensure all activities are carried out within a quality framework and conform to Statutory Regulations, approved Codes of Practice and Local Safety Rules.

To maintain own training records.

5. MISCELLANEOUS

Ensure compliance with accredited Quality Systems in the areas of work in which the postholder carries responsibility. Participate in, and actively contribute to the operation and development of Quality Systems.

Carry out all duties in accordance with the requirements of the Health & Safety at Work Act, relevant Statutory Regulations, Approved Codes of Conduct and Local Rules.

Take personal responsibility for promoting a safe environment and safe patient care by identifying areas of risk and following the Incident, Serious Incidents and Near Misses reporting policy and procedures.

Work hours necessary for the proper and efficient performance of the work. In practice, the postholder will often be required to perform duties outside the normal working hours of the Department.

Perform other appropriate duties which may be required from time to time by the Head of Radiotherapy Physics.

Other

The job description is not intended to be exhaustive and it is likely that duties may be altered from time to time in the light of changing circumstances and after consultation with the post holder.

You will be expected to actively participate in annual appraisals and set objectives in conjunction with your manager. Performance will be monitored against set objectives.

Our Vision and Values

The Trust is committed to delivering top quality patient care, excellent education and world-class research.

We deliver our vision through values to describe how we serve patients, their families and how we are with colleagues in the Trust and beyond.

We put your safety and wellbeing above everything

Deliver the best outcomes	Keep people safe	Reassuringly professional	Take personal responsibility

We offer you the kindness we would want for a loved one

Respect individuals	Friendly and courteous	Attentive and helpful	Protect your dignity

We achieve through teamwork

Listen and hear	Explain and involve	Work in partnership	Respect everyone's time

We strive to keep improving

Courage to give and receive feedback	Efficient and simplified	Develop through learning	Innovate and research

Person Specification

Requirements	Essential	Desirable	Assessment Criteria			
			A	I	R	T/P
Knowledge and Qualifications	Good First Degree in a Physical Science or equivalent		A			
	Relevant Masters or higher degree		A			
	STP Training Exit Certificate or equivalent		A			
	State Registered Clinical Scientist or eligible		A			
		Corporate Membership of Professional Institute or eligible	A			
		Eligible for MPE Registration	A	I		
Experience	Relevant post-graduate experience in Radiotherapy Physics	Experience in SABR planning and delivery techniques	A	I		
	Relevant experience in Radiotherapy Dosimetry and Quality Assurance, including patient specific checks		A	I		
	Relevant experience in Treatment Planning including VMAT and IMRT techniques and principles		A	I		
	Experience in the clinical environment		A	I		
	Clear understanding of current Codes of practice and dosimetry chain		A	I		
	Understanding of patient and staff risks arising from treatment planning computer system errors, equipment failure, treatment errors and incorrect dosimetry		A	I		
	Knowledge of					

	appropriate legislation [eg IRR, IR(ME)R, ISO 9001:2000, BSI and ISO standards, professional and regulatory body reports and guidelines	Relevant experience in Treatment plan checking	**A**	**I** **I**		
Skills and Abilities	Ability to work under pressure Experience of a variety of computing systems, programming languages and application packages.	Able to deal with complex and unpredictable situations	**A**	**I** **I** **I**		
Communication	Ability to communicate technical material to colleagues and other professionals Ability to communicate complex information to patients and carer's in an informative and sensitive manner			**I** **I**		
Personal and People Development	Evidence of Continuing personal development (CPD) Willingness to attend courses and keep abreast of developments in the service	Experience of training junior Staff including doctors and radiographers	**A** **A** **A**			
Specific Requirements	Able to vary working hours to meet needs of the department Able to work shifted hours/unsociable hours Able to concentrate frequently when subject to unpredictable working patterns Flexibility and ability to use own initiative and be innovative		**A** **A** **A** **A**	**I** **I** **I** **I**		

A= Application Form

I= Interview
R-References
T/P=Test/Presentation