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***“Our vision is to provide safe, high quality seamless service delivered with courtesy and respect. To achieve our vision we expect all our staff to uphold our Trust Values”***

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| **JOB DETAILS**  |
| **Job Title**  | Specialist Clinical Scientist / Medical Physics Expert |
| **Reports to**  | Head of Radiotherapy Physics |
| **Band**  | 8a |
| **Department/Directorate**  | Medical Physics Department / Specialist Services Division |

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| **JOB PURPOSE**  |
| Provide highly specialised clinical and technical advice to maintain and enhance radiotherapy services Contribute to external beam quality control, dosimetry, treatment planning and duty physics tasks and other areas of radiotherapy physicsContribute to the implementation and commissioning of new radiotherapy techniques and equipment Supervise and/or train staff/students/trainees on the safe radiotherapy treatments* The post holder will be a Medical Physics Expert (MPE) and be able to advise in off protocol situations.
* Responsible for line management and supervision of clinical, scientific and technical staff, and will liaise with other staff on managing risk, resources and performance across the department.
* Contribute to the development and implementation of relevant policies, protocols, processes and procedures, and for adopting and sharing best practice.
* Help Lead Physicists to ensure compliance with relevant protocols, legislation, guidance and best practice.
* Deputise for QC/Dosimetry/Equipment Specialty Lead Physicist, as required
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| **KEY WORKING RELATIONSHIPS**  |  |
| (Examples below are not exhaustive)* + Healthcare scientists and trainees
	+ Other clinical professions, incl. medical, nursing, pharmacy and allied health professionals
	+ Specialist, technical and technical support staff, incl. infection control, recruitment, finance, estates, IM&T and procurement
	+ Clinical and general managers
	+ Patients
	+ Peer group and the wider scientific community
	+ External clients, partners and suppliers
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| **ORGANISATIONAL CHART**  |
| Head of Radiotherapy PhysicsOperational Lead Radiotherapy PhysicsSpecialty TeamSpecialist Clinical Scientist / MPESpecialty TeamSpecialty TeamLead Clinical Scientist(QC/Dosimetry/Equipment)Lead Clinical Scientist(Treatment Planning)Lead Clinical Scientist(Brachytherapy)**Specialist Clinical Scientist / MPE** **(THIS POST)**Specialist Clinical Scientist / MPE |
| **KEY RESULT AREAS/PRINCIPAL DUTIES AND RESPONSIBILITIES**  |
| Specific duties include but are not limited to:* **Undertake all responsibilities and duties associated with a Radiotherapy Medical Physics Expert under IR(ME)R 2017**
* **The post holder is expected to act in the broader sense; as Specialist Clinical Scientist in ALL three specialism of radiotherapy physics.**
* **The post holder will have a special interest/higher expertise in QC/Dosimetry and RT equipment which may bias their involvement in service development projects and clinical advice, but not to the detriment other specialities**
* **Deputise for QC/Dosimetry/Equipment Specialty Lead Physicist, as required**

**In addition:**Contribute to the routine radiotherapy service including treatment planning, plan checking, QC, brachytherapy, imaging and dosimetry activitiesContribute to routine treatment planning service, including advice, adaptive RT and maintenance of infrastructureBe responsible for management and development of IMT and medical devicesParticipate in the Duty Physicists roster including where sporadic weekend work is required, on call duties and bank holiday coverPlan, propose and undertake CPD, as required by the HCPC so that professional competency is maintained and developed. Attend suitable seminars and courses as part of training and personal development to keep abreast of the latest scientific and technical developments and their application.The post holder is required to be up to date with current legal requirements and national guidance relating to ionising radiationsAdvising on off-protocol treatments or situations and adaptive radiotherapyCommissioning new equipment/techniquesParticipate and drive ongoing service developmentIn conjunction with lead physicists help to ensure service compliance with relevant legislation |
| **COMMUNICATION/RELATIONSHIP SKILLS**  |
| * Communicate highly complex scientific information, within the department and with any/all other staff groups, patients and carers as required.
* Communicate highly complex radiation safety and regulatory advice with medical and other staff, patients and carers as required.
* Communicate highly complex governance, performance and improvement information, including the results of audit, peer review, quality improvement (QI) and research.
* Present work at professional and scientific meetings and conferences and in peer reviewed literature, collaborating with colleagues within and out with the Trust.

When working in other departments and on other sites, the post holder will behave professionally and courteously at all times and will observe local policies, rules and working practices. |
| **ANALYTICAL/JUDGEMENTAL SKILLS** |
| * Analyse complex clinical requirements making judgements regarding treatment parameters, often under time pressure/with incomplete information, within clinical and resource limitations
* Design treatment protocols to meet highly complex clinical needs stipulated by medical staff, either standard treatment scenarios or unique designs for individual patients
* Perform external beam/brachytherapy planning, treatment calculations, checks and treatment authorisation for a range of sites and techniques
* Apply dose volume constraints to organs at risk, minimising such doses where practicable so that treatments can be delivered as safely as possible.
* Manipulate CT, MRI, planar X-ray and US using IT equipment and software for treatment volumes, organs at risk and radiation distributions within Treatment Planning Systems.
* Assist in the performance, analysis and review of QC checks and advise on out of tolerance results and QC required following machine breakdown or planned maintenance
* Assist in critical patient dosimetry measurements and calculations for external beam radiotherapy treatments. This includes adaptive advice, BED calculations.
* Check complex radiotherapy and brachytherapy plans to ensure accuracy and clinical appropriateness of the technique.
* Carry out and assess pre-treatment external beam plan verifications
* Assessment of in vivo dosimetry results
* Advise on choice of modality, energy, applicators for electron, superficial treatments
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| **PLANNING/ORGANISATIONAL SKILLS** |
| Participate in the evaluation and procurement process for new equipment and participate in their installation, acceptance testing and commissioning so that the service is the best obtainable within resource constraints.* Coordinate with the lead physicists to support the effective and safe delivery of Radiotherapy and HDR brachytherapy.
* Coordinate with the lead physicists to maintain and support the radiation dosimetry services ensuring that equipment is calibrated in accordance with national codes of practice
* Plan, organise and run meetings.
* Responsible for prioritisation of own work and that of others.
* Adjusts plans and strategies in response to changing circumstances and organisational priorities.
* Line management of staff, including routine workload and coaching/mentoring
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| **PHYSICAL SKILLS**  |
| * Highly-developed physical skills are required, to carry out testing procedures and scientific measurements where a high degree of precision and accuracy is essential.
* Perform minute adjustments to medical equipment or instrumentation.
* Execute and coordinate equipment-based clinical measurements.
* Perform analysis of complex pieces of information and take prompt action as required to maintain safe and effective clinical operations.
* Advanced keyboard skills.
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| **PATIENT/CLIENT CARE**  |
| * Participate in the duty roster for radiotherapy physics, including on call and bank holidays
* Speak directly with patients, in conjunction with radiographer and clinician colleagues to answer technical questions relating to treatment or equipment
* Consult on patient treatment setups in a linac, pre-treatment or mould room context for all modalities
* Follow principles of data protection
* Post holder will be expected to act flexibly in approach and working hours to cover clinical requirements of the service
* Provide highly specialist healthcare science services for own area.
* Act as an MPE as part of a networked system.
* Advising medical staff or other healthcare professionals on highly specialised clinical technologies and their application.
* Act as an “Operator” as defined under IRMER 17 as required.
* Work with and assist trust appointed Radiation Protection Advisors in their duties.
* Use and develop the ISO9001 quality management system (QMS), or equivalent governance controls, to ensure that services are provided to the appropriate standards and are subject to external scrutiny.
* Work with ionising and non-ionising radiation and other hazardous resources, taking all precautions to minimise risk to oneself and others.
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| **POLICY/SERVICE DEVELOPMENT**  |
| Provide radiation protection advice for patients and hospital staff, within scope of practice* Interpret national and international guidance and implement protocols to keep services in line with recommended practice.

Contribute to clinical protocol development and associated workstreams* Ensure that all radiotherapy practices comply with Statutory Regulations, Approved Codes of Practice and local Safety rules, particularly IRR and IR(ME)R and other relevant legislation.
* Uphold DICOM standard and TPS data integrity
* Participate in key MDT meetings including Governance and Errors groups, where appropriate.
* Use benchmarking and QI techniques to seek out and implement best practice.
* Embrace 'continuous improvement' as described by QMS standards such as ISO9001.
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| **FINANCIAL/PHYSICAL RESOURCES**  |
| * Oversee the installation, validation and commissioning of new hardware and software, including introducing new software upgrades into clinical use.
* Assist in specifying and assessing new equipment including technical and financial
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| **HUMAN RESOURCES**  |
| * Communicate with medical staff, providing advice regarding the clinical effects of complex treatment plan options referring to key statistical indicators

Provide training to STP trainees and junior staff covering a range of brachytherapy, radiotherapy, treatment planning and radiation protection.* Day to day and line management of staff, including recruitment, managing attendance and performance and supporting personal professional development.
* Supervise staff under the post holder’s direction and sign off work and reports as required.
* Use coaching and mentoring techniques to support staff.
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| **INFORMATION RESOURCES**  |
| * Maintain and enhance databases, software and networking for radiotherapy and brachytherapy assets.
* Be involved in the maintenance, upgrades of 3rd party radiotherapy systems, TPS, OMS and associated infrastructure and networks
* Specify, procure, commission, use, test and manage computer systems and software including systems which are used to record and process data.
* Configure and/or write software to process, analyse and report highly complex datasets.
* Effectively manage data availability, integrity and confidentiality.
* Use and develop the ISO9001 QMS, or equivalent governance controls, to effectively manage document control.
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| **RESEARCH AND DEVELOPMENT**  |
| Undertake and participate in clinical and professional audit, so that professional and safety standards may be maintained. Audits may be organised on a local, regional and national basis.Implement nationally and locally agreed policiesPromote the implementation of novel radiotherapy/brachytherapy clinical protocols* Promote continuous innovations and developments within the radiotherapy and brachytherapy services, in line with changing clinical practice

Assist in the planning of new or modified facilities for radiation equipment in relation to providing expert advice on equipment specification, radiation safety and radiation shielding requirements; and assess the adequacy of engineering controls and radiation safety arrangements prior to a facility’s introduction into clinical service.* Present work at professional and scientific meetings and conferences and in peer reviewed literature, collaborating with colleagues within and out with the Trust.
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| **FREEDOM TO ACT**  |
| * Act as a Medical Physics Expert (MPE) in all aspects of radiotherapy and a highly experienced Clinical Scientist - therefore working with a high degree of autonomy.
* Responsibility to act within their scope of practice to ensure patient, staff and public safety and manage/develop work practices.
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| **OTHER RESPONSIBILITIES**  |
| * Ability to stand for Long periods (hours)
* Manipulate (push) heavy pieces of equipment and radiation shielding (assisted by trollies and tables on wheels)
* Ability to sit for long (hours) period of time in front of computer monitors
* To undertake any training required in order to maintain competency including mandatory training, e.g. Manual Handling
* Advice on treatment and patient set-up making judgements under time pressure immediately prior, during and post treatment often with incomplete information.
* Able to concentrate for prolonged periods (hours)
* Able to extract relevant clinical information from complex datasets.
* The post-holder must be able to deal with unexpected patient-related emotional distress

Reduce as much as practicable possible his/her radiation exposure as well as the radiation exposure to patients, staff and members of the public to ionizing radiation* To take part in regular performance appraisal.
* The post holder is expected to comply with Trust Infection Control Policies and conduct at all times in such a manner as to minimise the risk of healthcare associated infection
* As an employee of the Trust, it is a contractual duty that you abide by any relevant code of professional conduct and/or practice applicable to you. A breach of this requirement may result in action being taken against you (in accordance with the Trust’s disciplinary policy) up to and including dismissal.
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| **APPLICABLE TO MANAGERS ONLY** |
| Evidence that supporting employee health and wellbeing is included in any documents outlining the skills and knowledge that line managers need.Proportion of line managers whose job descriptions include supporting employee health and wellbeing. |
| **THE TRUST- VISION AND VALUES**  |
| Our vision is to provide safe, high quality seamless services delivered with courtesy and respect. To achieve our vision we expect all our staff to uphold our Trust values. Our Trust values are:Honesty, Openness & IntegrityFairness,Inclusion & CollaborationRespect & DignityWe recruit competent staff that we support in maintaining and extending their skills in accordance with the needs of the people we serve. We will pay staff fairly and recognise the whole staff’s commitment to meeting the needs of our patients.We are committed to equal opportunity for all and encourage flexible working arrangements including job sharing. We are committed to recruiting and supporting a diverse workforce and welcome applications from all sections of the community, regardless of age, disability, gender, race, religion, sexual orientation, maternity/pregnancy, marriage/civil partnership or transgender status. We expect all staff to behave in a way which recognises and respects this diversity, in line with the appropriate standards. |
| **GENERAL**  |
| This is a description of the job as it is now. We periodically examine employees' job descriptions and update them to ensure that they reflect the job as it is then being performed, or to incorporate any changes being proposed. This procedure is conducted by the Manager in consultation with the jobholder. You will, therefore, be expected to participate fully in such discussions. We aim to reach agreement on reasonable changes, but if agreement is not possible, we reserve the right to insist on changes to your job description after consultation with you.The RD&E is a totally smoke-free Trust. Smoking is not permitted anywhere on Trust property, including all buildings, grounds and car parks. For help to quit call: 01392 207462. |
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| **POST**  | Specialist Clinical Scientist |
| **BAND**  | 8a |

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| **Requirements** | **Essential** | **Desirable** |
| **QUALIFICATION/ SPECIAL TRAINING**BSc/MPhys/MSci good honours degree in physics/engineeringMSc and/or PHD in Medical Physics or related subjectCompletion of Clinical Scientist Training Programme, or equivalentHCPC-registered Clinical Scientist Medical Physics Expert registration (RPA2000)Corporate member of IPEMSignificant post (HCPC) registration experienceRadiation Protection Supervisor (RPS) Certificate of Competence | EEEEEEE | D |
| **KNOWLEDGE/SKILLS**Specialist theoretical knowledge and experience of radiation protection legislation in healthcare. Advanced knowledge of procedures and techniques within radiotherapy physics, including in relation to brachytherapySpecialist knowledge of the techniques employed to measure radiation sources in a healthcare environmentHigh level of understanding of patient and staff risks arising from exposure to ionising radiation.In-depth understanding of relevant legislation, national standards, professional and other guidelines.Knowledge of programming languages such as IDL, Visual Basic, C, Matlab coding. Knowledge of national standards, professional and other guidelines relevant to the specialist areaAble to devise methods of analysing complex data.Able to work off-site alone and to use initiative in non-standard conditionsAble to use Microsoft Office applications in order to set up documents & spreadsheets, extract information, calculate results and prepare reports. | EEEEEEEEE | D |
| **EXPERIENCE** Extensive post registration experience such to act as an MPE and able to accept high level of autonomy.Sufficient specialist experience to act as a Radiation Protection Supervisor in Radiotherapy Able to solve complex problems using analytical skills and clinical judgement.Experience in interpreting different situations and judging and communicating measures required to ensure compliance in areas that relate to the legislation and uses of radiation in medicine.Experience in writing and using software to analyse data and extract information.Able to concentrate when subject frequently to unpredictable working patterns.Understanding of quality systems.Able to communicate complex information to a range of audiences | EEEEEEE | D |
| **PERSONAL ATTRIBUTES** Able to exercise own initiative when dealing with issues within own area of competenceAble to deal with complex, unpredictable situations.Able to train and supervise clinical scientists and techniciansAbility to prioritise workAble to work effectively as a member of a teamGood verbal and written communication skills.Able to communicate complex information to many different groups of staff at a range of levels and across professional boundaries. Negotiation skillsAble to present scientific papers at local / national conferences.Able to deal with distressing or stressful circumstances.Able to use a VDU more or less continuously on most days. | EEEEEEEEEE | D |
| **OTHER REQUIREMENTS** Full driving licence / able to travel to different working locations with equipment. | E |  |

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|  | **FREQUENCY****(Rare/ Occasional/ Moderate/ Frequent)** |
| **WORKING CONDITIONS/HAZARDS** | **R** | **O** | **M** | **F** |
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| **Hazards/ Risks requiring Immunisation Screening** |  |  |  |  |
| Laboratory specimens | N |  |  |  |  |
| Contact with patients | Y |  |  |  |  |
| Exposure Prone Procedures | N |  |  |  |  |
| Blood/body fluids | Y |  |  |  |  |
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| **Hazard/Risks requiring Respiratory Health Surveillance** |  |  |  |  |  |
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| Solvents (e.g. toluene, xylene, white spirit, acetone, formaldehyde and ethyl acetate) | N |  |  |  |  |
| Respiratory sensitisers (e.g isocyanates) | N |  |  |  |  |
| Chlorine based cleaning solutions (e.g. Chlorclean, Actichlor, Tristel) | N |  |  |  |  |
| Animals | N |  |  |  |  |
| Cytotoxic drugs | N |  |  |  |  |
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| **Risks requiring Other Health Surveillance** |  |  |  |  |
| Radiation (>6mSv) | N |  |  |  |  |
| Laser (Class 3R, 3B, 4) | N |  |  |  |  |
| Dusty environment (>4mg/m3) | N |  |  |  |  |
| Noise (over 80dBA) | N |  |  |  |  |
| Hand held vibration tools (=>2.5 m/s2) | N |  |  |  |  |
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| **Other General Hazards/ Risks** |  |  |  |  |
| VDU use ( > 1 hour daily) | Y |  |  |  |  |
| Heavy manual handling (>10kg) | Y |  |  |  |  |
| Driving | Y |  |  |  |  |
| Food handling | N |  |  |  |  |
| Night working | N |  |  |  |  |
| Electrical work | N |  |  |  |  |
| Physical Effort  | Y |  |  |  |  |
| Mental Effort  | Y |  |  |  |  |
| Emotional Effort  | Y |  |  |  |  |
| Working in isolation | Y |  |  |  |  |
| Challenging behaviour | N |  |  |  |  |