

## JOB DESCRIPTION

<b>JOB TITLE:</b>	Principal Physicist	
<b>DIVISION:</b>	Medical Specialities	
<b>SALARY BAND:</b>	8A	
<b>RESPONSIBLE TO:</b>	Head of Radiotherapy Physics	
<b>ACCOUNTABLE TO:</b>	Senior Operations Manage, Medical Specialties Division	
<b>HOURS PER WEEK:</b>	37.5	
<b>MANAGES:</b>	<b>Directly:</b>	
	<b>Indirectly:</b>	2 posts

### JOB SUMMARY:

The Radiotherapy Physics Service is responsible for providing clinical, technical and scientific support to the Radiotherapy Department at the Royal Free London NHS Foundation Trust.

The Service is a multi-disciplinary team consisting of Clinical Scientists, Therapy Radiographers and Clinical Technologist.

The Clinical Scientists are responsible for the scientific aspects of this patient critical service, including patient radiotherapy treatment planning and checking, advising clinical staff on the physics of radiotherapy, measuring patient doses, implanting radioactive sources, ensuring that equipment is operating safely and effectively, calibrating therapeutic equipment, ensuring the safety of patients and staff in a hazardous environment that includes exposure to high levels of ionising radiation, selecting, procuring and acceptance testing of equipment, introducing new techniques, applied research and development and teaching.

The post-holder will be responsible on a day-to-day basis to the Head of Radiotherapy Physics.

The post holder will carry out the roles and responsibilities of a Medical Physics Expert as defined in IR(ME)R 2017 within the radiotherapy service.

The post-holder is responsible for:

- Taking the Lead responsibility for aspects of the day-to-day operation of the Service's scientific, technical and clinical work, providing expert advice on own areas of expertise.
- Providing senior scientific and technical support to all aspects of the work of the Radiotherapy Physics Service, undertaking a wide range of highly specialist and complex scientific and technical services.
- Introducing new scientific and technical techniques into clinical use within the Radiotherapy Physics Service and the Radiotherapy Department. Coordinating and participating in applied research and development.

- Training clinical scientists, consultants, specialist registrars, radiographers, engineers, trainees and other Radiotherapy Department staff in own areas of expertise.
- Liaising with a wide range of medical, clinical, scientific and technical staff within the Radiotherapy Physics Service, the Radiotherapy Department, other Trust departments and with external equipment manufacturers and service suppliers.

**Date of the JD review:** Nov 2022

## MAIN DUTIES AND RESPONSIBILITIES

### Royal Free World Class Values

The post holder will offer World Class Care to service users, staff, colleagues, clients and patients alike so that everyone at the Royal Free can feel:

- **Welcome** all of the time
- **Respected** and cared for
- Confident because we are clearly **communicating**
- **Reassured** that they are always in safe hands

### Specific duties and responsibilities:

Exact duties will change as the needs of the service and the structure of the Radiotherapy service develop. Principal Physicists post's duties presently comprise aspects of the following:

### Management responsibilities

- a) Taking the lead responsibility for the day-to-day operation of aspects of the Service's scientific, technical and clinical work and developing these in line with the appropriate local, national and international standards, recommendations, guidelines, policies and procedures, consulting with the Head of Radiotherapy Physics where appropriate.
- b) Aspects where lead responsibility may be delegated include:
  - (i) equipment dosimetry,
  - (ii) equipment quality assurance,
  - (iii) treatment planning
  - (iv) special treatment techniques.
- c) Equipment dosimetry responsibilities:
  - (i) Maintaining the traceability of the Service's dosimetry equipment, ensuring that equipment is calibrated correctly so that the patient receives the correct dose.
  - (ii) Ensuring that dosimetry equipment quality assurance programs are up to date, planning organising and coordinating calibration and dosimetry quality assurance schedules.
  - (iii) Acting as the Service's Dosimetry Equipment Control Officer, overseeing the management of the Service's physical assets used for dosimetry, including dosimetry systems and phantoms, and data acquisition systems.. Ensuring that all equipment is working effectively and safely. Arranging for the repair, maintenance, stability and integrity checks to be performed.

- (iv) Ensuring that patient doses are interpreted and reported correctly. Advising on ways of reducing doses to critical patient organs.
- d) Quality assurance responsibilities include:
  - (i) Acting as the Service's Clinical Equipment Control Officer, overseeing the work carried out on this equipment and giving expert scientific advice and direction as required. Investigating and resolving complex problems on highly complex patient-critical radiotherapy and associated equipment.
  - (ii) Ensuring that the treatment units are correctly calibrated in accordance with international, national and local standards, protocols and guidance and are delivering the correct dose to the patient.
  - (iii) Ensuring that imaging devices on radiotherapy equipment are performing correctly and within specification (spatial resolution and accuracy, contrast resolution and patient dose for example).
  - (iv) Ensuring that the quality assurance programs on the treatment units and associated systems are up to date.
- e) Treatment planning responsibilities include:
  - (i) Support the provision of expert scientific advice to the radiotherapy department in treatment planning, including supporting and resolving problems with conformal and complex 3D treatment plans.
  - (ii) Support the introduction of new software or updates into clinical use and modelling new or replacement treatment units and quantifying model accuracy.
  - (iii) Ensuring that the geometric and dosimetric accuracy of the treatment planning systems are properly understood and that their limitations are not exceeded.
  - (iv) .
- f) Special treatment technique responsibilities include:
  - (i) Support for the scientific aspects of the stereotactic radiotherapy service, including treatment planning, localisation and verification of the target within the patient and treatment unit quality assurance to ensure that the patient receives the correct, highly conformal, dose.
  - (ii) Support for the quality assurance programs for the stereotactic techniques are up to date.
- g) Maintaining close liaison and effective communication channels with other staff in the Radiotherapy, Radiological Physics and Radiation Safety and Medical Electronics Departments, including radiographers, clinical scientists, physicists, clinical technologists, consultant oncologists and other medical staff.
- h) Supervising the professional work of other radiotherapy physics staff working in the areas or on projects being managed by the post-holder.
- i) Prioritising and managing own work in accordance with agreed outcomes.
- j) Undertaking risk assessments and quality system audits throughout the radiotherapy department to inform the decision making process.
- k) Regularly acting as team leader. This involves planning, supervising and performing the routine work of the scientific service, ensuring that all work is carried out in a timely and effective manner and complies with the relevant regulations and quality standards.

### **Clinical and scientific responsibilities**

- a) Providing expert scientific and technical advice to clinical oncologists, registrars, radiographers, clinical scientists and technologists in own areas of expertise.
- b) Advise on producing complex treatment plans, carrying out the associated dosimetry calculations in accordance with the clinical prescription, and agreed protocols.

- c) Advising clinical staff on the effects of various treatment plan options on patient dose distributions. Discussing and agreeing approaches with clinical staff to produce the optimum dosimetric plans. Advising on aspects of the treatment and patient set-up as required.
- d) Advise on re-planning a patient's treatment following an error or a change in patient shape. Using judgement to analyse and determine the most appropriate compensation method. Calculating the compensation required and subsequent dose. Carrying out manual dose calculations.
- e) Checking and approving routine and complex treatment plans, dose calculations and templates produced by other members of staff. Resolving complex problems with treatment plans when they occur.
- f) Undertaking both routine and complex dosimetry measurements to a high degree of accuracy with suitable equipment, following procedures and guidelines when appropriate.
- g) Performing quality control and other measurements or procedures on patient-critical equipment, including dosimetry equipment, treatment units, electronic portal imaging systems and other associated equipment. Planning and taking corrective action when quality control parameters are out of tolerance to ensure that the equipment is safe for clinical use.
- h) Performing calibrations on the treatment units and associated equipment to ensure that patients receive the correct dose.
- i) Investigating and resolving multi-factorial problems that often provide conflicting information on highly complex patient-critical radiotherapy equipment and associated systems, providing scientific and technical advice where required.
- j) Acceptance testing of clinical equipment after service and/or repair by technical staff or equipment manufacturers and authorising its return to clinical use.
- k) Participating in aspects of the purchasing of new radiotherapy equipment, including specification, evaluation, selection, acceptance testing and commissioning as appropriate.
- l) Providing appropriate scientific computing support to the Radiotherapy Department. Designing and writing software to the user's requirements and adapting existing packages as required.
- m) Performing and advising on dosimetry measurements on patients.
- n) Maintaining accurate records of all work undertaken and ensuring that computer systems are backed up in accordance with section protocols.
- o) Supervising the professional work of less experienced clinical scientists within the radiotherapy physics team, ensuring that their work is checked and approved where necessary.
- p) Leading in the commissioning of new equipment and techniques, including measuring beam data using sensitive, highly complex and expensive equipment and systems, interpreting results and assessing the suitability of the data for clinical use, preparing data tables, inputting the data into computer systems, performing confirmatory measurements, ensuring that the data is interpreted correctly by clinical users and preparing commissioning reports.
- q) Acting as an operator under the definitions of IR(ME)R in accordance with Trust policies, procedures and work instructions.
- r) Carrying out the roles and responsibilities of a Medical Physics Expert as defined in IR(ME)R 2017 for all aspects of the radiotherapy physics service in accordance with Trust Policies and Practice..
- s) Participating in the duty physicist rota system for the day-to-day operation of the section including treatment planning, stereotactic radiotherapy, treatment unit calibration and dosimetry assessments, and performance testing of all clinical and dosimetric radiotherapy equipment.

- t) Developing and implementing clinical and scientific protocols to reflect changes in professional guidelines, clinical practice and technology in own area of expertise. Taking part in working parties to propose, develop and agree joint protocols that impact on the Radiotherapy Physics Service and the Radiotherapy Department.
- u) Ensuring compliance with the Radiotherapy Department's Quality Assurance Systems in the areas for which the post-holder carries responsibility.
- v) Working the hours necessary for the proper and efficient performance of the work. In practice, this will involve regular performance of duties outside the normal working hours.

### **Professional responsibilities**

- a) Maintaining registration with the Health & Care Professions Council (HCPC) as a clinical scientist and complying with the HCPC Code of Professional Conduct for Clinical Scientists.
- b) Maintaining the highly specialist scientific and technical knowledge of modern radiotherapy practice required of this post by enrolling in the IPEM Continuing Professional Development (CPD) program or other suitable CPD scheme. This may involve attending seminars and courses at educational establishments, other hospitals and manufacturers' training centres, which may require travel (including abroad) and time away from home.
- c) Taking account of the legal and ethical considerations when exercising professional self-regulation as a clinical scientist, ensuring that all activities are carried out in a quality framework and meet regulatory requirements, approved codes of practice, professional standards, Local Rules and accepted best practice.

### **Teaching, training and research responsibilities**

- a) Coordinating and participating in applied research and development programs and clinical audit, to improve the equipment and clinical techniques used for radiation therapy.
- b) Presenting original work at meetings and conferences, and in publication. Presenting seminars and feedback on meetings.
- c) Delivering training in areas appropriate to the post-holder's areas of expertise to medical staff, other clinical scientists, radiographers and technical staff.
- d) Providing training on highly complex features of new equipment and facilities to radiographers, technical and scientific staff.
- e) Preparing talks, reading lists, seminars and tutorials to support the training activities of the Service.
- f) Supervising trainee clinical scientists during their radiotherapy placement.
- g) Assessing the competency of specialist registrars, other medical staff, radiographers, clinical scientists and nursing staff undergoing training in radiotherapy physics, ensuring that training records and assessment forms are completed on time.

### **Communication responsibilities**

- a) Communicating highly complex scientific and technical information, ideas, procedures and advice relating to the safe use of ionising radiation to treat patients, to members of the radiotherapy physics service, consultant oncologists and specialist registrars, radiographers and other health professionals and outside organisations.

### **Freedom to act**

- a) The post-holder has the freedom to decide how defined objectives are best achieved in their own area of expertise, referring to the Head of Radiotherapy Physics when required. Guidance is also provided by standard operating policies and procedures, professional principles, recommendations and guidance and national and international regulations. Accountable for own actions.

### **Other duties**

- a) Any other duties commensurate with the grade and in line with the requirements of this post.

## **GENERAL RESPONSIBILITIES**

### **Infection Control**

Infection control is everyone's responsibility. All staff, both clinical and non clinical, are required to adhere to the Trust's Infection Prevention and Control policies and procedures and the Health Act (2006) Code of Practice for the prevention and control healthcare associated infections and make every effort to maintain high standards of infection control at all times thereby reducing the risk of Healthcare Associated infections.

It is the duty of every member of staff to take personal responsibility for the prevention and control of infection, as laid down in the Trust's policies and procedures which reflect the statutory requirements of the Hygiene Code.

- To work in close collaboration with the Infection Control Team.
- To ensure that monitoring of clinical practice is undertaken at the agreed frequency.
- To ensure that the ward environments are cleaned and maintained to the highest standards; ensuring that shortfalls are rectified, or escalate as necessary.
- To ensure that all relevant monitoring data and issues are provided to the Directorate's Governance structures.
- To ensure that all staff are released to attend infection control-related educational sessions and staff with specialist roles, e.g. link practitioners, are released to undertake their duties.

### **Health and Safety at Work**

The post holder is required to:

- Take reasonable care for the health and safety of himself/herself and other persons who may be affected by their actions or omissions at work.
- Co-operate with the employer in ensuring that all statutory and other requirements are complied with.



### **Confidentiality & Data Protection**

The post holder has a responsibility to comply with the Data Protection Act 1998 and maintain confidentiality of staff, patients and Trust business.

If you are required to process information, you should do so in a fair and lawful way, ensuring accuracy is maintained. You should hold information only for the specific registered purpose and not use or disclose it in any way incompatible with such a purpose.

You should disclose information only to authorised persons or organisations as instructed. Breaches of confidentiality in relation to information will result in disciplinary action, which may include dismissal. Employees are expected to comply with all Trust policies and procedures and to work in accordance of the Data Protection Act 1998. For those posts where there is management or supervision of other staff it is the responsibility of that employee to ensure that their staff receive appropriate training (e.g. HISS induction, organising refresher sessions for staff when necessary.)

### **Conflict of Interest**

The Trust is responsible for ensuring that the services for patients in its care meet the highest standards. Equally, it is responsible for ensuring that staff do not abuse their official position, to gain or benefit themselves, their family or friends.

### **Equality and Diversity**

The Trust values equality and diversity in employment and in the services we provide. It is committed to promoting equality and diversity in employment and will keep under review our policies and procedures to ensure that the job related needs of all staff working in the Trust are recognised. The Trust aims to ensure that all job applicants, employees or clients are treated fairly and valued equally regardless of sex, marital status, domestic circumstances, age, race, colour, disablement, ethnic or national origin, social background or employment status, sexual orientation, religion, beliefs, HIV status, gender reassignment, political affiliation or trade union membership. Selection for training and development and promotion will be on the basis of the individual's ability to meet the requirements for the job.

You are responsible for ensuring that the Trust's policies, procedures and obligation in respect of promoting equality and diversity are adhered to in relation to both staff and services.

### **Vulnerable Groups**

- To carry out responsibilities in such a way as to minimise risk of harm to children, young people and vulnerable adults and to promote their welfare in accordance with the Children Act 2004, Working Together to Safeguard Children (2006) and No Secrets guidance (DH 2000).
- To demonstrate an understanding of and adhere to the trust's child protection policies.

### **No Smoking**

The Trust implemented a No Smoking Policy, which applies to all staff. Staff contravening this policy will be subject to disciplinary procedures.

### **Standards of dress**

All staff are expected to abide by the Trust's guidance on standards of dress.

This job description outlines the current main responsibilities of the post. However the duties of the post may change and develop over time and may therefore be amended in consultation with the post holder,