Royal Devon University Healthcare NHS Foundation Trust

JOB DESCRIPTION

JOB DETAILS	
Job Title	Specialist Healthcare Scientist-MPE (Diagnostic Radiology & Radiation Protection)
Reports to	Lead for Diagnostic Radiology Physics
Band	Band 8a
Department/Directorate	Medical Physics Department / Clinical Specialist Services Division

JOB PURPOSE

Clinical & Radiation Physics provides and supports services using ionising and non-ionising radiations across North and East Devon, with approximately 200 x-ray and associated imaging systems, including x-ray, CT, Nuclear Medicine.

The post-holder will provide scientific support and highly specialised advice to maintain and enhance the diagnostic radiology and radiation protection services of the RDUH and external customers. These are mainly in the dental and veterinary sectors but also include providers of diagnostic medical services and research such as the University of Exeter and Alliance Medical.

KEY RESULT AREAS/PRINCIPAL DUTIES AND RESPONSIBILITIES

Specific duties include but are not limited to:

Diagnostic Radiology / Radiation Protection:

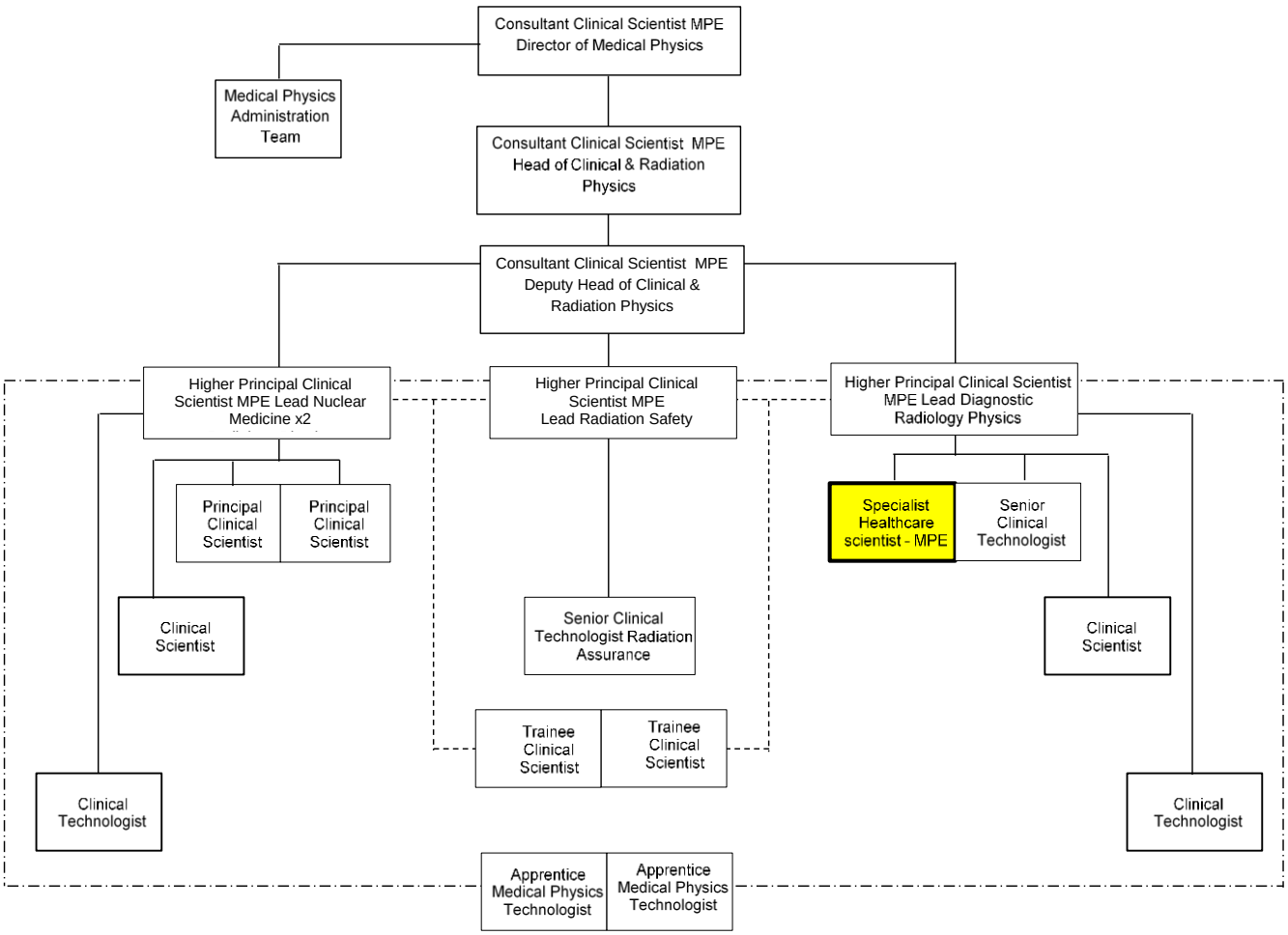
- Act as a Medical Physics Expert (MPE) for patients in diagnostic radiology as required and defined by the Ionising Radiation (Medical Exposures) Regulations 2017 (IRMER17) and amendments.
- Assist the Trust RPA / Head of Clinical Radiation Physics in resolving any radiological incidents that may occur and which may be reportable to the HSE or other bodies.
- Lead provision of services to commercial customers.
- Deputise for the lead MPE.
- Plan, propose and undertake CPD, as required by the HCPC so that professional competency is maintained and developed, and the future requirements of the service are met.
- 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 radiations.
- Supervise and/or train staff/students/trainees on the safe delivery of services.

KEY WORKING RELATIONSHIPS

The post holder is required to deal effectively with staff of all levels throughout the Trust as and when they encounter on a day-to-day basis. In addition, the post holder will deal with external engineers, external organisations and the public. This will include verbal, written and electronic media.
Of particular importance are working relationships with:

Internal to the Trust	External to the Trust
• Clinical Scientists • Clinical Technologists • Radiographers • Clinicians • Medical staff • Engineers • Trainees • Clinical and General Managers	• Engineers • External customers e.g. dental staff, veterinary staff, University of Exeter technical and academic staff • Patients • Peer group and the wider scientific community • External partners and suppliers

ORGANISATIONAL CHART



FREEDOM TO ACT

- Undertake quality control measurements on radiation measurement equipment as required.
- Work autonomously under the direction of the Head of Clinical & Radiation Physics prioritising and managing your own schedule.
- Act as a Medical Physics Expert (MPE) for diagnostic medical exposures using x-rays for identified modalities.
- Assess staff doses in a variety of complex situations. Use expert knowledge to determine relevant parameters, derive effective radiation doses and advise on risks and appropriate courses of action.
- Write procedures, work instructions and instructions for physics and other staff engaged in the provision of services. Ensure processes are documented in accordance with the local quality system, undertaking audits both as auditor and auditee, and initiating quality improvements.
- Act as MPE, act as an Operator under IR(ME)R17 for x-ray equipment.
- Coordinate programme of surveillance of radiological equipment. Advise as appropriate on clinical use of equipment.
- Produce routine and complex spreadsheets as required to deliver the service, including for surveillance of radiological equipment and patent dose estimation.
- Participate in the production and execution of quality assurance protocols required for surveillance of radiological equipment.
- Undertake quality control measurements and other general activities on wide ranging radiological equipment when required. This may require working outside office hours but within the Agenda for Change working day envelope.
- Implement nationally and locally agreed policies where they have a direct bearing on the service.

COMMUNICATION/RELATIONSHIP SKILLS

- Communicate highly specialist radiation protection advice to managers, staff and customers regarding patients undergoing medical exposure to ensure exposure of patients and their carers is optimised and so that the risk of accidental exposure to radiation may be minimised in accordance with IRMER17.
- In liaison with the RPA give advice on radiological safety of staff and members of the public who are or may be affected by work utilising ionising radiations. Recognise and overcome barriers to understanding specialist radiation protection information, which may require consideration of the occasional emotive nature of the subject.
- Liaise with X-ray engineers in order to diagnose equipment faults.
- Communicate the results of R&D and other developments at national and international meetings/conferences as oral and poster presentations and in peer reviewed scientific literature, collaborating with colleagues beyond the local department where appropriate.
- Communicate and interpret highly complex radiation protection advice concerning medical exposure of patient undergoing diagnosis in order that the requirements of statutory legislation are complied with.

ANALYTICAL/JUDGEMENTAL SKILLS

- Liaise with clinical staff, resolving problems with the procedures, including those arising with anxious staff, patients or carers.
- Create risk assessments as required under IRR17 for areas utilising ionising radiations to inform necessary control measures in order that staff and public doses are restricted as low as reasonably practicable. Advise commercial customers on the precautions required, and appropriate steps required to achieve compliance in accordance with regulatory requirements.
- Analyse highly complex clinical and technical requirements making judgements in order that medical exposures are optimised within technical, clinical and resource limitations.

- Design protocols for equipment surveillance to ensure highly complex clinical equipment is subject to appropriate assessment to inform safe and effective clinical use. This will involve both standard and novel methodologies.
- Perform equipment surveillance tests, including necessary calculations and checks and authorise fitness of equipment for clinical use.
- Apply principles of radiological safety, including application of dose constraints and optimising in all aspects of work including public and staff exposures as well as medical exposures on patients.
- Perform calculations to estimate doses to patients for derivation and review of diagnostic reference levels and estimates of dose and risk associated with accidental and unintended exposures.

PLANNING/ORGANISATIONAL SKILLS

- Plan, perform and supervise the quality assurance programmes for highly specialised imaging equipment across the Trust and for commercial customers.
- Supports plans and strategies in response to changing circumstances and organisational priorities.
- Participate in the evaluation and procurement process for new equipment and participate in the installation, acceptance testing and commissioning, so that the service is the best obtainable within budgetary constraints.
- Coordinate with the Lead Scientists in diagnostic radiology and radiation safety to support the effective and safe delivery of services.
- Coordinate with the Lead Scientist for radiation safety to maintain and support the radiation dosimetry services ensuring equipment is calibrated in accordance with relevant standards.
- 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.

PATIENT/CLIENT CARE

- Plan, perform and supervise the tasks involved in the services provided to commercial customers.
- Carry out highly specialist dose estimates for medical exposures in diagnostic radiology and issue appropriate advice for complex situations which require special attention as required by IRMER17.
- Undertake radiation protection measurements, including contamination monitoring, to ensure radiation hazards are minimised for the patients, carers and hospital workers.
- Respond as required and provide expert advice in relation to patient incidents involving ionising radiations that may occur in the Trust, or other commercial and non-commercial customers premises.
- Design plan and deliver radiation protection services to commercial customers.
- Follow appropriate procedures for infection control when working on clinical equipment.
- Provide radiation protection advice for patients and hospital staff.

POLICY/SERVICE DEVELOPMENT

- Ensure work with ionising radiation is in line with the relevant radiation risk assessment and Local Rules and has undergone appropriate notification/registration/consent with HSE.
- Applies national and international guidance and implement protocols to keep services in line with recommended practice. Responsible for proposing and developing changes to practice for service users and supporting implementation outside own area.
- Perform radiation safety inspections and audits of ionising radiation facilities and radiation safety policies and procedures.
- Advise on compliance with IRR17, IR(ME)R17 and other relevant legislation.
- Assist the Trust RPA / Lead scientist for radiation safety in investigating any radiological incidents that may occur and which may be reportable to the HSE or other bodies.

- If there are issues with any regulatory compliance, if required this will be reported to the Radiation Safety Group on IR(ME)R17 and IRR17.
- Provide estimates of patient doses from medical exposures by means of manual calculations, software based methods and physical measurements.
- Undertake quality control measurements on equipment used for medical exposure and the calibration of the relevant test and measurement equipment.
- Identify and take appropriate action where any activity involving ionising radiations is not carried out within Statutory Regulations, Approved Codes of Practice and local Safety rules, particularly IRR17 and IR(ME)R17.
- Promote the implementation of novel protocols as required for equipment surveillance.
- Propose and develop improvements and new methods for measurements and analysis to meet national standards and protocols.

FINANCIAL/PHYSICAL RESOURCES

- Oversee the installation, validation and commissioning of new hardware and software, including introducing new software upgrades into clinical use.
- In coordination with the Lead Scientists for Diagnostic Radiology and Head of Clinical & Radiation Physics produce and review the annual Clinical & Radiation Safety budget.
- Monitor and contributes to Service Level Agreements for the income generation with private customers and costs for commercial services. Prepare and send invoices for services provided.
- Commission new radiological equipment and hand over for clinical use.

HUMAN RESOURCES

- Communicate with clinical staff, providing advice regarding the appropriate clinical use and optimisation of medical exposures.
- Supervise the professional work of Clinical Scientists and other staff undertaking surveillance of radiological equipment.
- Responsible for the delivery of providing specialist training on an on-going basis.
- Deliver specialist training to Clinical Scientists in radiation safety and imaging with ionising radiations when required as part of their post-registration development.
- Provide training to STP trainees in radiation safety and imaging with ionising radiations.
- Plan, organise and deliver regular radiation safety training to other staff groups to meet service needs and contractual commitments.
- Train other persons such as dentists, dental nurses, veterinary practitioners in practical aspects of radiation protection.

INFORMATION RESOURCES

- Maintain and enhance the QA database for radiological equipment.
- The post holder is responsible for maintaining accurate and auditable records of all technical, radiation protection, and training activities, personally generated. This includes detailed documentation of equipment testing results, calibration certificates, audit findings, dose records, and learner progress logs.
- They are expected to produce clear, technical reports and compliance records required under IRR17, IR(ME)R, and departmental quality systems on a daily basis.
- They will routinely (daily) analyse complex datasets using bespoke and commercial software tools, interpret findings, and present them in a format suitable for both technical and clinical stakeholders.

RESEARCH AND DEVELOPMENT

- Undertake and participate in clinical and professional audit on a monthly basis, so that professional and safety standards may be maintained. Audits may be organised on a local, regional and national basis.
- Promote continuous innovations and developments within the service, in line with changing clinical practice.
- They will frequently lead and support local projects aimed at optimising equipment performance, reducing patient dose, improving service efficiency, or enhancing educational delivery.
- Specify, commission, test and verify highly complex clinical and test and measurement equipment.
- Present work at professional and scientific meetings and conferences and in peer reviewed literature, collaborating with colleagues within and out with the Trust.
- Responsible for own continuous professional development (CPD) and for maintaining professional registration and certification.

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.

PHYSICAL EFFORT

- Plan, perform and execute commissioning of x-ray equipment.
- These activities require ability to:
    - stand for long periods
    - Manipulate (push) heavy pieces of equipment (assisted by trollies and tables on wheels)
    - Lift heavy (<=15kg) test equipment (in accordance with relevant manual handling protocols)
- Ability to sit for long period of time in front of computer monitors.
- The post holder is required to travel between all Trust sites and to sites where external contracts are held.

MENTAL EFFORT

- Provide clinical advice under time pressure directly affecting medical exposure of patients.
- Deliver scientific advice on medical exposures making judgements under time pressure.
- Able to concentrate frequently when subject to unpredictable working patterns and interruptions.
- Able to concentrate for prolonged periods (hours).
- Able to extract relevant clinical information from complex datasets.

EMOTIONAL EFFORT

The post holder must be able to deal with rare but unexpected situations involving emotional distress.

WORKING CONDITIONS

- Ensure that all practices comply with Statutory Regulations, Approved Codes of Practice and local Safety rules, particularly IRR17 and IR(ME)R17.
- Reduce as much as practicably possible his/her radiation exposure as well as the radiation exposure to patients, staff and members of the public to ionising radiation.
- Regular VDU user.

OTHER RESPONSIBILITIES

- Take part in regular performance appraisal.
- Undertake any training required in order to maintain competency including mandatory training, e.g. Manual Handling
- Contribute to and work within a safe working environment
- The post holder is expected to comply with Trust Infection Control Policies and conduct themselves 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.

You must also take responsibility for your workplace health and wellbeing:

- When required, gain support from Occupational Health, Human Resources or other sources.
- Familiarise yourself with the health and wellbeing support available from policies and/or Occupational Health.
- Follow the Trust's health and wellbeing vision of healthy body, healthy mind, healthy you.
- Undertake a Display Screen Equipment assessment (DSE) if appropriate to role.

DISCLOSURE AND BARRING SERVICE CHECKS

This post has been identified as involving access to radioactive sources and in line with Trust policy successful applicants will be required to undertake a Disclosure & Barring Service Disclosure Check.

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.

Everyone within the Trust has a responsibility for, and is committed to, safeguarding and promoting the welfare of vulnerable adults, children and young people and for ensuring that they are protected from harm, ensuring that the Trusts Child Protection and Safeguarding Adult policies and procedures are promoted and adhered to by all members of staff.

At the Royal Devon, we are committed to reducing our carbon emissions and minimising the impact of healthcare on the environment, as outlined in our Green Plan available on our website. We actively promote sustainable practices and encourage colleagues to explore and implement greener ways of working within their roles.

PERSON SPECIFICATION

Job Title	Specialist Healthcare Scientist-MPE (Diagnostic Radiology & Radiation Protection)

Requirements	**Essential**	**Desirable**
QUALIFICATIONS / TRAINING		
Degree in Physics or a related subject	E	
MSc in Medical Physics or related subject	E	
State registered Clinical Scientist (HCPC) or registered clinical technologist	E	
Medical Physics Expert	E	
Corporate member of IPEM		D
KNOWLEDGE/SKILLS		
Specialist theoretical knowledge and experience of radiation protection legislation in healthcare.	E	
Advanced knowledge of procedures and techniques within radiology physics, particularly in relation to specified area	E	
Knowledge of the techniques employed to measure radiation sources in a healthcare environment.	E	
Specialist knowledge of the techniques employed to measure radiation sources in a healthcare environment.	E	
High level of understanding of patient and staff risks arising from exposure to ionising radiation.	E	
In-depth understanding of relevant legislation, national standards, professional and other guidelines.	E	
Knowledge of programming languages such as IDL, Visual Basic, C, Matlab coding.		D
Knowledge of national standards, professional and other guidelines relevant to the specialist area	E	
Able to devise methods of analysing complex data.	E	
Able to work off-site alone and to use initiative in non-standard conditions	E	
Able to use Microsoft Office applications in order to set up documents & spreadsheets, extract information, calculate results and prepare reports.	E	
EXPERIENCE		
Able to exercise initiative when dealing with issues within own specialist area of competence. Able to accept high level of autonomy and act under own initiative.	E	
Sufficient experience to act as a Medical Physics Expert under IRMER17 in specified area.	E	

Experience in surveillance of radiological equipment.	E	
Able to solve complex problems using analytical skills and clinical judgement.	E	
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.	E	
Experience in writing and using software to analyse data and extract information.	E	
Able to concentrate when frequently subject to unpredictable working patterns.	E	
Understanding of quality systems.	E	
Occasional requirement to lift and transport medium weight phantoms.	E	
Experience in developing and using Access databases.	E	
Able to communicate complex information.	E	
PERSONAL ATTRIBUTES Able to exercise own initiative when dealing with issues within own area of competence	E	
Able to deal with complex, unpredictable situations.	E	
Able to train and supervise clinical scientists and technologists.	E	
Ability to prioritise work.	E	
Able to work effectively as a member of a team.	E	
Good verbal and written communication skills.	E	
Able to communicate complex information to many different groups of staff at a range of levels and across professional boundaries.	E	
Negotiation skills.		D
Able to present scientific papers at local / national conferences.	E	
Rarely, able to deal with distressing circumstances.	E	
Able to use a VDU more or less continuously on most days.	E	
OTHER REQUIRMENTS Able to handle radioactive substances.	E	
Manual dexterity to manipulate small volumes of liquids whilst maintaining sterility and radiation safety.		D
Occasional requirement to work extended hours.	E	
Professional approach.	E	
Driving Licence and access to a vehicle for transporting test equipment between sites.	E	

		FREQUENCY (Rare/ Occasional/ Moderate/ Frequent)			
WORKING CONDITIONS/HAZARDS		**R**	**O**	**M**	**F**
Hazards/ Risks requiring Immunisation Screening					
Laboratory specimens	N				
Contact with patients	Y		O		
Exposure Prone Procedures	N				
Blood/body fluids	Y	R			
Hazard/Risks requiring Respiratory Health Surveillance					
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				
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				
Other General Hazards/ Risks					
VDU use (> 1 hour daily)	Y				F
Heavy manual handling (>10kg)	Y		O		
Driving	Y			M	
Food handling	N				
Night working	N				
Electrical work	N				
Physical Effort	Y		O		
Mental Effort	Y				F
Emotional Effort	Y	R			
Working in isolation	Y	R			
Challenging behaviour	Y	R			