RPA 2000

THE COMPETENCE CERTIFICATION SCHEMES

Document MPE2

MEDICAL PHYSICS EXPERT COMPETENCE RECOGNITION SCHEME

Instructions and Guidance for the creation of a portfolio of evidence for MPE certification.

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1 INTRODUCTION

1.1.1 All Portfolios of Evidence must comply with these instructions, since no other construction of a portfolio is acceptable to RPA 2000. Portfolios that do not closely adhere to these instructions will be returned to applicants. The objective of these instructions is to create a portfolio through which the assessors can easily navigate and obtain the necessary information to enable them to reach a decision with regards to certification**.**

1.1.2 You are required to provide sufficient evidence from education, training, knowledge and practical experience to meet the requirements of the scheme. Your portfolio of evidence should therefore contain details of your training and relevant examples of your work that together provide evidence to demonstrate your core competence to act as a Medical Physics Expert (MPE).

2 DEPARTMENT OF HEALTH REQUIREMENTS FOR MPEs

2.1.1 These portfolio instructions satisfy the requirements of the Department of Health & Social Care (DHSC) for the assessment of competence of persons seeking to gain recognition as Medical Physics Experts (MPEs).

2.1.2 The DHSC, with assistance from the MPE Working Group, has developed a syllabus which is based on the requirements given in the Basic Safety Standards Directive 2013/59/Euratom Article 83. The demonstration of competence depends on a combination of knowledge and experience. Applicants seeking to gain recognition as an MPE must provide adequate evidence to demonstrate the appropriate level of competence for each topic in the DHSC's syllabus. This will consist of knowledge-based evidence and experience-based evidence.

2.1.3 The most recent version of the DHSC MPE syllabus can be found on the RPA2000 web site.

3 PRESENTATION OF THE PORTFOLIO

3.1 Construction

3.1.1 The preferred way to present the portfolio is to place the various items of evidence, suitably numbered and indexed, in an A4 ring folder. It often proves helpful to separate the various sections of the portfolio using a simple system such as numbered, tabbed dividers. Electronic submissions alone will not be considered. However, applicants may, if they choose, submit a collated pdf document on a usb medium in addition to their printed portfolio, provided that it contains identical information.

3.2 Length

3.2.1 The exact length of the portfolio clearly depends on the amount and type of evidence being presented. However, it is expected that the applicant should be able to provide sufficient evidence in a single ring folder.

3.2.2 The emphasis should be on the quality of the evidence rather than its quantity. Remember that the assessors will have to read carefully through each piece of evidence presented in the portfolio some two to three times.

3.2.3 In general, one 'significant' item of evidence should be supplied (and may be sufficient) to demonstrate practical competence in a Cross-Reference Table 2 sub-topic. A good item of evidence will cover several of the competences listed indicative content given in the guidance for the applicant. Where an applicant has doubts about the value of an item of evidence, it is acceptable to supply not more than 3 additional items of supporting evidence.

3.2.4 The term 'significant' is related to both the nature of the evidence and the ease with which an Assessor can judge the relevant competence of the applicant from that evidence.

3.2.5 In any event, 20 pieces of evidence should suffice to demonstrate competence as an MPE, 25 would be considered an upper limit.

3.3 Navigation

3.3.1 Good navigation aids are essential, since aiding the assessors in their navigation through the portfolio is beneficial for all parties. Each piece of evidence must have an associated linking note that explains which competencies it addresses and why.

3.3.2 Essential items of evidence may be contained within a larger document to give context, in which case the relevant parts of the larger document should be clearly identified in either the linking notes attached to the item of evidence, or in the Contextual Note provided in the summary (see section 4).

3.3.3 The essential navigational elements of the portfolio are included in the list of portfolio contents that follows in section 4.

4 GUIDANCE FOR ALL APPLICATIONS

4.1 Introduction

4.1.1 It is recognised that MPEs practise within different clinical specialities and that the MPE aspect is likely to form only a part of any individual's clinical role. Applicants must be able to demonstrate that they have the necessary underpinning knowledge indicated in the topics in Table 1. For the Detailed Understanding topics, the evidence should be from the scope of practice for which MPE competence is being assessed.

Applicants must be able to demonstrate that they have the practical skills in the topics and sub-topics in Table 2 with regard to their own area of practice. **Please note that the MPE certificate will not identify any specialist area. It is up to the employer to choose suitable MPEs to support its work activities and it is the responsibility of the individual MPE to work within their own sphere of competence and scope of entitlement.**

4.2 Portfolio Content

4.2.1 Listed below are the necessary contents of the Portfolio:

4.2.2 A comprehensive **contents list**, detailing and indexing all your items of evidence.

4.2.3 A **summary section**, usually not exceeding 8 pages in length, in which **each** of the items of your evidence is summarised into a **short contextual paragraph** that clearly identifies the competence(ies) and experience(s) that it supports.

4.2.4 All the documents that you are submitting as your items of evidence (see section 4.3. for more guidance)

4.2.5 A linking note before every piece of evidence, explaining which competencies it addresses and why.

4.2.6 Authentication by a suitable Referee, who has agreed that the contents truly reflect the extent and nature of your own work. (Part 4 of the Application Form)

4.2.7 Where the portfolio covers work for more than one employer (e.g. consultancy), the separate parts may be authenticated by different people, as appropriate.

4.3 Items of evidence

4.3.1 To determine the suitability of a potential piece of evidence, examine it and ask yourself 'How does this evidence show that I have the basic knowledge/competence/ experience?' This will help in deciding what material to include to ensure adequate coverage of all the requirements. Evidence can be generated specifically to demonstrate knowledge, understanding and competence.

4.3.2 Practical competency evidence must be from your own work, dated and predominantly taken from work carried out over the last five years. Evidence of training and education may precede the five years, as may some unique pieces of evidence of practical competency and workplace experience. However, in such situations you should submit additional evidence that knowledge and skills have not been lost, for example by having been kept up to date through professional development and practical application.

4.3.3 An item of evidence consisting of workplace documentation alone is unlikely to provide an adequate demonstration of performance. It will need some "linking notes" written by you, which will explain the intellectual process you went through at the time and perhaps the background and details of the situation involved. Include details of numerical calculations, logical reasoning behind decisions and reference to legislation, where appropriate.

4.3.4 Some individual items or types of evidence may demonstrate more than one sub-topic. It is not necessary to provide additional items where this is the case. A single item can be referenced by more than one sub-topic.

4.3.5 Items of evidence that include contributions by other people should be annotated to clearly show the extent of your contribution to the work and your relationship to the others (e.g. if you are the Department Head).

4.3.6 Evidence should not disclose personal details relating to any individual patient or any other information that would allow a patient to be identified.

4.3.7 Evidence should, where practicable, be limited to 'Protect-Commercial' or equivalent. Should applicants have concerns on such matters, they should blank out names or other details that they do not wish to disclose.

4.3.8 Evidence should never contain information that could compromise the security of radioactive materials. Details of high activity source strengths, quantities of bulk radioactive materials, storage facilities and source security should always be omitted. they should discuss the matter with the Assessment Secretary.

4.4 Underpinning Knowledge for MPEs (Cross-Reference Table 1 of the application form - MPE1).

4.4.1 The syllabus specifies the topics of the underpinning knowledge and also the depth of knowledge required for each topic of the syllabus, namely: GA (general awareness); BU (basic understanding); or DU (detailed understanding).

4.4.2 Sufficient evidence is required to demonstrate that each topic of the syllabus has been covered, to the required depth of knowledge, either:

(i) in the applicant's degree, postgraduate study, professional training courses, certificated study or other local training events; and/or

(ii) as part of the applicant's work experience. This evidence could be in the form of a resume of the applicant's work history and relevant work experience and must clearly highlight those aspects that demonstrate the necessary knowledge for each relevant topic.

4.4.3 Course outlines, syllabus information, meeting programmes attended or similar items would usually suffice for the evidence in those areas where general awareness or basic understanding is required, provided the evidence is sufficient to demonstrate the necessary knowledge.

4.4.4 It is possible that some training course providers will be able to demonstrate that their course meets the knowledge requirements for many of the topics of the basic syllabus. Demonstration of attending and passing (if course was assessed) that course is sufficient evidence for those topics. The course provider should be able to provide appropriate information.

4.4.5 Information should be provided as to whether or not performance on the training course(s) was formally assessed. If it was, a brief description of the method(s) of assessment should be provided together with the result(s) achieved by the applicant.

4.4.6 In addition to knowledge, evidence of practical competence and workplace experience is necessary for those topics for which Detailed Understanding (DU) is required (see Table 2). Such evidence should normally be from a workplace environment.

4.4.7 Table 1 has been specifically designed to identify all the evidence that the applicant needs to supply and to provide a convenient format for:

(i) the applicant to provide the evidence;

(ii) the assessors to record the outcome of the assessment; and

(iii) RPA2000 to easily identify where further evidence is required.

4.4.8 The following should be borne in mind concerning the underpinning requirements:

(i) Individuals who are HCPC-registered Clinical Scientists in Medical Physics will be able to demonstrate knowledge and practical competence in parts of the RPA2000 MPE curriculum but will need to provide evidence of having developed both to a higher level. Specifically, they will need to demonstrate additional knowledge for competencies A14 to A17. This can be done directly or by using evidence presented in Cross-Reference Table 2 to demonstrate practical competency.

(ii) Individuals who have successfully completed the HSST training scheme and / or have obtained entry onto the Academy for Healthcare Science Higher Specialist Scientist Register are considered to have adequate knowledge.

(iii) Individuals with RPA certification will not have to demonstrate competencies A1 to A7

(iv) Individuals with RWA certification will not have to demonstrate competencies A1 to A7

4.5 Demonstration of Practical Competence and Workplace Experience (Cross-Reference Table 2 of the application form - MPE1)

4.5.1 Applicants must provide evidence to demonstrate practical competence and workplace experience in the topic and sub-topic areas indicated in Cross-Reference Table 2.

4.5.2 For each of the **sub-**topic areas in Cross-Reference Table No.2, you need to provide evidence to convince the assessors that you have sufficient practical competence and workplace experience to satisfy the requirements for an MPE. Preferably the practical evidence should come from your workplace, but simulation and/or mentored practical exercises can be used where such practical experience has not been available to you (see section 4.6. for more information).

4.5.3 The guidance included in Cross-Reference Table 2 and in section 5 of this document is designed to assist applicants to adopt a pragmatic approach towards the evidence that they should submit. Your evidence should be sufficiently wide-ranging to indicate familiarity with the breadth of situations implied by the topic area and should concentrate on quality rather than quantity. Evidence must be provided for all sub-topics in Cross-Reference Table 2.

4.5.4 Applicants do not need to provide evidence to cover every element in the guidance associated with Cross-Reference Table 2 or section 5 of this document. These are only indicative suggestions of evidence that might be provided. Remember that assessors are looking for 15 to 25 pieces of good evidence only, and that the evidence should be easy to navigate.

4.5.5 As a general principle, and where appropriate, it is acceptable for one significant item of evidence to be used to demonstrate more than one competence. If doing so, the applicant must be careful to maintain clarity in the presentation of the evidence.

4.5.6 Items of evidence might include operating data or documentation produced in the workplace, reports, minutes or notes on meetings, schedules, programmes, objectives/goals achieved, details of work on special projects, images, plans, drawings, etc.

4.5.7 Items of evidence may also include lectures or presentations, which should be clearly annotated to identify those elements of the presentation that are dependent on the applicant's *practical* competence as opposed to knowledge.

4.5.8 When using minutes or notes of meetings as evidence, you should ensure that they are from meetings where you made a significant contribution and are detailed enough to clearly identify that contribution.

4.5.9 Linking Notes are required as a means for enabling Applicants to identify the extent to which they contributed towards an item of evidence or to provide additional background in support of what might otherwise appear as a less significant item of evidence.

4.5.10 Cross-Reference Table 2 has been specifically designed as a convenient format for:

(i) the applicant to cross-reference all items of portfolio evidence to the appropriate practical experience;

(ii) the assessors to record the outcome of the assessment; and

(iii) RPA 2000 to easily identity where further evidence is required.

4.5.11 Section 5 gives some examples of the types of evidence which could be provided to demonstrate the practical competency requirements for individuals working in the specified modality. It is not necessary to provide all pieces of evidence from a single modality and other items may be provided which demonstrate the competence. Please remember that one piece of evidence may be used to demonstrate more than one sub-topic.

4.6 Simulation

4.6.1 The DHSC recognises that some applicants may have difficulty in obtaining practical experience in some areas and encourages the use of simulation in place of, or to supplement, workplace evidence.

4.6.2 Simulation involves the creation of a realistic workplace scenario incorporating relevant radiation protection and clinical issues that an MPE would be expected to address. The applicant submits evidence to demonstrate the necessary practical competence to resolve those issues.

4.6.3 The RPA 2000 Board is clear in its view that MPE Certification can only be awarded to applicants who have accrued significant levels of practical competence in workplace situations. Even high levels of knowledge are not considered to be sufficient, without an appropriate level of actual workplace experience. However, the Board recognises the importance of simulation, as an aid to meeting MPE certification requirements in certain situations, and offers the following guidance regarding the use of simulation:

(i) Evidence from simulation should only be used when the applicant's workplace is unable to provide the opportunity to demonstrate the competency.

(ii) In all cases, the reason for submitting this type of evidence should be fully explained.

4.6.4 DHSC considers that all applicants should be able to submit some actual workplace evidence for all topics and most sub-topics in Cross-Reference Table 2. Simulated evidence may be used to supplement this, particularly with regard to the specification

of equipment and requirements relating to other events which do not happen regularly.

4.6.5 With regard to the quantity of simulated items which are acceptable, there should not be a problem awarding certification if a 'good portfolio' includes no more than one quarter of the competencies being demonstrated by evidence from simulation (i.e. at least three quarters are from direct work experience). However, it is unlikely that certification would be awarded if more than one third of the competencies are demonstrated by evidence from simulation (i.e. less than two thirds are from direct work experience). In all situations, the award of certification will be greatly influenced by the quality of both the practical evidence and the evidence from the simulation, together with the reasons for having to use simulation.

4.7 Applicants from Outside the UK

4.7.1 Any person may apply for a Certificate of Competence to act as an MPE, irrespective of where they live or work. All evidence submitted must be in English. A translation from an original document is acceptable.

4.7.2 Applicants for MPE certification must be able to satisfy the Assessors that they have a Detailed Understanding of relevant UK Legislation and the practical implementation of the associated regulatory requirements. If necessary, such a demonstration may be achieved by providing Portfolio evidence of legislative knowledge in their own country of work, with contextual statements showing how that Country's legislation relates to or differs from the requirements of UK Legislation.

4.7.3 Such persons must demonstrate the ability to communicate effectively, provide suitable training and give adequate advice to employers and other duty holders.

5 GUIDANCE BY MODALITY AND AREAS OF WORK

5.1 Introduction

5.1.1 It is recognised that different individuals applying to be certificated as a Medical Physics Expert may have followed different education routes and have gained different workplace experiences. This will be particularly true for those working outside of the NHS.

5.1.2 The DHSC syllabus does not take account of these differences, requiring the individual to demonstrate knowledge and competence in their own area of practice. As a result, it is likely that individuals applying for MPE certification will submit a wide range of types of evidence in order to demonstrate the required knowledge and practical experience to cover all of the identified topics and sub-topics in their area of practice.

5.1.3 In order to assist the applicant to choose appropriate and relevant items of evidence, this section aims to provide additional guidance for the general modalities of MPE

practice. **It should be considered in addition to the 'Guidance for the applicant' given in Cross-Reference Table 2 of the application form and the general guidance given in Section 4.**

5.1.4 However, it is expected that some applicants will be working across these general areas. For example:

(i) Nuclear medicine in large centres now includes multi-modality imaging, in particular PET-CT and SPECT-CT, and molecular radiotherapy. It is therefore anticipated that applicants from such departments may include evidence relating to diagnostic radiology and/or radiotherapy in their portfolios.

(ii) Applicants from radiotherapy departments would be expected to include reference to planning and/or verification exposures in their evidence.

Applicants are not, therefore, expected or required to provide all of their evidence from a single area.

5.1.5 The examples of evidence in this section are provided for guidance only, and other items may be provided which satisfy the scheme requirements. No items are mandatory and applicants should not consider that they have to provide evidence for every piece of suggested evidence.

5.2 Radiotherapy

5.2.1 Table 5.2. identifies some items of evidence which could be used to demonstrate the detailed understanding and practical competency requirements for an individual working in Radiotherapy.

Table 5.2. Guidance for Radiotherapy

Topic Sub-topic	Some items that might be included as evidence
Medical Exposure Regulation	
Detailed understanding of IRMER and associated approved codes of practice or best practice guidance	• Detailed IRMER audit report where the audit was undertaken by and the report was prepared by the applicant • Minutes and action lists from Department or Employer meetings, e.g. Radiation Protection Committee, relevant to IRMER compliance, in which the applicant was an active participant • Evidence of authorship of Employers policies and procedures
The role of the MPE	• Detailed recommendations for action following an IRMER audit • Development of a training course or training materials for other duty holders, including the employer,

Table 5.2. Guidance for Radiotherapy	
Topic Sub-topic	Some items that might be included as evidence
	operators, practitioners or referrers**. NB Delivery of training developed by others is NOT sufficient** • Evidence of contribution to a MDT / dose optimisation team / short life optimisation working party / contribution at a medical exposures committee meeting
Medical Radiological Equipment Management	
Specification and evaluation	• Extracts from specification and procurement documentation to which the applicant contributed • Contribution to responses to tenders, including completing tender score sheets or evidence of equipment scoring against specified criteria • Attendance at professional body or academic courses or meetings relevant to the specification and/or procurement of medical radiological equipment • Evidence of training from the equipment supplier regarding intended use, optional features, limitations and expected working life
Acceptance and commissioning	• Acceptance test report where the applicant performed or led the tests undertaken and prepared the report • Commissioning report where the applicant performed or led the commissioning programme and prepared the report
Quality assurance	• Routine quality assurance test report where the applicant performed or led the tests undertaken and prepared the report • Audit of annual QA testing, including identification and reporting of and trends • Preparation of QA testing protocols for Operators and Medical Physics staff • Discussion with manufacturer / service agent about test results or trends. • Advice issued to employer / manufacturer or service.
Dosimetry	
Dosimetric quantities	• Review of patient dose measurement techniques in local department, including comparison with other available methods • Report on calibration of dosimetric devices
Dose assurance	• Audit of activity administered or patient doses for routine exposures (including radiotherapy planning imaging), including identification of trends, doses

Table 5.2. Guidance for Radiotherapy	
Topic Sub-topic	Some items that might be included as evidence
	exceeding those intended and any action required • Report on generation of diagnostic reference levels for local equipment
Organ dosimetry techniques	• Review of literature regarding organ dosimetry techniques relevant to the applicant's area of practice • Review of dose calculation algorithms for photon and electron transport • Appropriate clinical advice on treatment selection, including choice of modality, plan complexity and beam parameters; • Generation of patient-specific dose distributions using inversely modulated techniques • Review considering the validation of dose calculation algorithms and the associated limitations
Determination and communication of the risk of detriment to the individual	• Preparation of information for the patient following an exposure much greater or much less than intended • Reflective report of discussion with a patient found to be pregnant following the exposure, including estimation of the risk to the foetus • Advice to a patient or subject who is pregnant
Medical Exposure Optimisation	
Imaging performance required to achieve desired imaging or treatment objective	• Preparation of imaging protocols or significant review of existing protocols with recommendations for optimising doses • Relevant contribution to a MDT / dose optimisation team / medical exposures committee meeting • Evidence of attending reporting sessions with consultants, including review of exposure parameters following session
Technical performance and clinical applications	• Preparation of clinical exposure protocols or significant review of existing protocols with recommendations for optimising doses • Optimisation study using anthropomorphic phantoms; report to include design / results / recommendations.

Table 5.2. Guidance for Radiotherapy	
Topic Sub-topic	Some items that might be included as evidence
	• Contribution to the design of a protocol for a non-standard exam, including investigating the average local dose following implementation. • Technical contributions to a dose optimisation team (by modality or patient cohort) • Contribution to the design of a protocol for a non-standard exposure or implementation of a research exposure protocol, including investigating the average local dose following implementation
Management of patient risks from ionising radiation	• Investigation and preparation of report into an over- or under exposure incident, including advice on how to avoid repeat • Contribution to the local protocol on the use of patient protection • Review of treatment plans produced by others, ensuring the plan is optimal, safe and accurate; • Auditing and reviewing set-up errors and recommended margins for different sites and techniques e.g. GTV, CTV, PTV, PRV • Contribution to the local policies on the use of patient protection measures

5.3 Nuclear Medicine

5.3.1 Table 5.3. identifies some items of evidence which could be used to demonstrate the detailed understanding and practical competency requirements for an individual working in Nuclear Medicine.

Table 5.3. Guidance for Nuclear Medicine	
Topic Sub-topic	Some items that might be included as evidence
Medical Exposure Regulation	
Detailed understanding of IRMER and associated approved codes of practice or best practice guidance	• Detailed IRMER audit report where the audit was undertaken by and the report was prepared by the applicant • Minutes and action lists from Department or Employer meetings, e.g. Radiation Protection Committee, relevant

Table 5.3. Guidance for Nuclear Medicine	
Topic Sub-topic	Some items that might be included as evidence
	to IRMER compliance, in which the applicant was an active participant • Evidence of authorship of Employers policies and procedures
The role of the MPE	• Detailed recommendations for action following an IRMER audit • Development of a training course or training materials for other duty holders, including the employer, operators, practitioners or referrers**. NB Delivery of training developed by others is NOT sufficient** • Evidence of contribution to a MDT / dose optimisation team / short life optimisation working party / contribution at a medical exposures committee meeting
Medical Radiological Equipment Management	
Specification and evaluation	• Extracts from specification and procurement documentation to which the applicant contributed • Contribution to responses to tenders, including completing tender score sheets or evidence of equipment scoring against specified criteria • Attendance at professional body or academic courses or meetings relevant to the specification and/or procurement of medical radiological equipment • Evidence of training from the equipment supplier regarding intended use, optional features, limitations and expected working life
Acceptance and commissioning	• Acceptance test report where the applicant performed or led the tests undertaken and prepared the report • Commissioning report where the applicant performed or led the commissioning programme and prepared the report • A report highlighting the acceptance of a hybrid imaging system.
Quality assurance	• Routine quality assurance test report where the applicant performed or led the tests undertaken and prepared the report • Audit of annual QA testing, including identification and reporting of and trends • Preparation of QA testing protocols for Operators and Medical Physics staff

Table 5.3. Guidance for Nuclear Medicine	
Topic Sub-topic	Some items that might be included as evidence
	• Discussion with manufacturer / service agent about test results or trends. • Advice issued to employer / manufacturer or service. • Report into diagnosis of a camera problem that affects the image quality and provision of a recommended solution
Dosimetry	
Dosimetric quantities	• Review of dose measurement techniques in local department, including comparison with other available methods • Report on generation of diagnostic reference levels for local equipment • Report on calibration of dosimetric devices • Authorship of paper on dosimetric quantities for new techniques or new isotopes • Relationships between radiopharmaceuticals and radiation dose in molecular radiotherapy • Calculation of administered activities and understanding of its measurement in molecular radiotherapy
Dose assurance	• Audit of activity administered or patient doses for routine exposures (including radiotherapy planning imaging), including identification of trends, doses exceeding those intended and any action required • Appropriate selection and use of isotope calibrator/ionisation chambers and traceability to primary standard
Organ dosimetry techniques	• Review of literature regarding organ dosimetry techniques relevant to the applicant's area of practice • Calculation of whole body and organ doses in molecular radiotherapy
Determination and communication of the risk of detriment to the individual	• Preparation of information for the patient following an exposure much greater than intended • Reflective report of discussion with a patient found to be pregnant following the exposure, including estimation of the risk to the foetus • Advice to a patient or subject who is pregnant • Advice to a patient who is breastfeeding/pregnant and appropriate report on dose reduction.
Medical Exposure Optimisation	

Table 5.3. Guidance for Nuclear Medicine	
Topic Sub-topic	Some items that might be included as evidence
Imaging performance required to achieve desired diagnostic or treatment objective	• Preparation of imaging protocols or significant review of existing protocols with recommendations for optimising doses • Relevant contribution to a MDT / dose optimisation team / medical exposures committee meeting • Evidence of attending reporting sessions with consultants, including review of exposure parameters following session
Technical performance and clinical applications	• Preparation of clinical exposure protocols or significant review of existing protocols with recommendations for optimising doses • Optimisation study using anthropomorphic phantoms; report to include design / results / recommendations. • Contribution to the design of a protocol for a non-standard exam, including investigating the average local dose following implementation. • Technical contributions to a dose optimisation team (by modality or patient cohort) • Advice on clinical protocols, and proposed changes to protocols in cases where these need to be adapted and optimised for specific patients. • Evaluation of new software (resolution recovery) for processing of acquired images • Contribution to the design of a protocol for a non-standard exposure or implementation of a research exposure protocol, including investigating the average local dose following implementation
Management of patient or subject risks from ionising radiation	• Investigation and preparation of report into an over-exposure incident, including advice on how to avoid repeat • Contribution to the local protocol on the use of patient protection • Advice to those having molecular radiotherapy or other NM procedure • Assessment of patients (or subjects) as suitable for molecular radiotherapy or other NM procedure, e.g. incontinence

Table 5.3. Guidance for Nuclear Medicine	
Topic Sub-topic	Some items that might be included as evidence
	• Radiation protection advice to those in close contact with the patient and, where appropriate, consideration of the management of waste from the patient and its disposal • Advice to incontinent patients having I131 treatment • Contribution to the local policies on the use of patient protection measures

5.4 Diagnostic Radiology

5.4.1 Table 5.4. identifies some items of evidence which could be used to demonstrate the detailed understanding and practical competency requirements for an individual working in Diagnostic Radiology.

Table 5.4. Guidance for Diagnostic Radiology	
Topic Sub-topic	Some items that might be included as evidence
Medical Exposure Regulation	
Detailed understanding of IRMER and associated approved codes of practice or best practice guidance	• Detailed IRMER audit report where the audit was undertaken by and the report was prepared by the applicant • Minutes and action lists from Department or Employer meetings, e.g. Radiation Protection Committee, relevant to IRMER compliance, in which the applicant was an active participant • Evidence of authorship of Employers policies and procedures
The role of the MPE	• Detailed recommendations for action following an IRMER audit • Development of a training course or training materials for other duty holders, including the employer, operators, practitioners or referrers**. NB Delivery of training developed by others is NOT sufficient** • Evidence of contribution to a MDT / dose optimisation team / short life optimisation working party / contribution at a medical exposures committee meeting
Medical Radiological Equipment Management	
Specification and evaluation	• Extracts from specification and procurement documentation to which the applicant contributed

Table 5.4. Guidance for Diagnostic Radiology	
Topic Sub-topic	Some items that might be included as evidence
	• Contribution to responses to tenders, including completing tender score sheets or evidence of equipment scoring against specified criteria • Attendance at professional body or academic courses or meetings relevant to the specification and/or procurement of medical radiological equipment • Evidence of training from the equipment supplier regarding intended use, optional features, limitations and expected working life
Acceptance and commissioning	• Acceptance test report where the applicant performed or led the tests undertaken and prepared the report • Commissioning report where the applicant performed or led the commissioning programme and prepared the report
Quality assurance	• Routine quality assurance test report where the applicant performed or led the tests undertaken and prepared the report • Audit of annual QA testing, including identification and reporting of and trends • Preparation of QA testing protocols for Operators and Medical Physics staff • Discussion with manufacturer / service agent about test results or trends. • Advice issued to employer / manufacturer or service. • Template for level A, B equipment testing with rationale for test inclusion. • Research work into local test object use (CDRAD vs. TO20 etc), evidence based testing guidelines.
Dosimetry	
Dosimetric quantities	• Review of patient dose measurement techniques in local department, including comparison with other available methods • Report on generation of diagnostic reference levels for local equipment • Report on calibration of dosimetric devices
Dose assurance	• Audit of activity administered or doses for routine exposures (including radiotherapy planning imaging), including identification of trends, doses exceeding those intended and any action required
Organ dosimetry techniques	• Review of literature / current methodologies regarding

Table 5.4. Guidance for Diagnostic Radiology	
Topic Sub-topic	Some items that might be included as evidence
	organ dosimetry techniques relevant to the applicant's area of practice • Organ dose estimates in own area of MPE practice (e.g. CT, radiography, fluoroscopy, mammography, detntal, DEXA etc) • Lifetime attributable risk calculations.
Determination and communication of the risk of detriment to the individual	• Preparation of information for the patient following an exposure much greater than intended • Reflective report of discussion with a patient found to be pregnant following the exposure, including estimation of the risk to the foetus • Advice to a patient or subject who is pregnant
Medical Exposure Optimisation	
Imaging performance required to achieve desired diagnostic or treatment objective	• Preparation of imaging protocols or significant review of existing protocols with recommendations for optimising doses • Relevant contribution to a MDT / dose optimisation team / medical exposures committee meeting • Evidence of attending reporting sessions with consultants, including review of exposure parameters following session
Technical performance and clinical applications	• Preparation of clinical exposure protocols or significant review of existing protocols with recommendations for optimising doses • Optimisation study using anthropomorphic phantoms; report to include design / results / recommendations. • Contribution to the design of a protocol for a non-standard exposure or implementation of a research exposure protocol, including investigating the average local dose following implementation. • Technical contributions to a dose optimisation team (by modality or patient cohort)
Management of patient risks from ionising radiation	• Investigation and preparation of report into an over-exposure incident, including advice on how to avoid repeat • Contribution to the local policies on the use of patient protection measures • Setting of dose constraints for research exposures in own area of MPE practice

5.5 Other Exposures

5.5.1 It is recognised that Medical Physics Experts are also required to support employers undertaking non-clinical medical exposures to which the preceding sections cannot be easily applied. Given the range of potential environments in which such exposures may take place it is not possible to give any specific guidance regarding the evidence which should be provided to support an MPE application.