Portfolio Guidance Notes The RCT Equivalence Standards – Radiotherapy Physics

In order to demonstrate to The RCT assessment panel that you are working at a sufficient level, it is necessary to produce a portfolio of evidence detailing how you meet each of the standards. Not everyone will have first-hand experience of every aspect and in these cases, you will need to demonstrate an understanding of the subject in lieu of being able to present first-hand evidence. First-hand evidence is however preferential and in many cases without this you may not meet the requirements for entry. Your portfolio should be one complete document in PDF form and not submitted as multiple separate files. It should show an index at the front of the document and page numbers which are referenced against the evidence matrix.

To assist you with the production of your evidence portfolio further. The RCT has given examples of the types of evidence which could be seen as acceptable for each of the criteria, details of which are below.

A. Safe Working Practice

1. Provide evidence that you are competent with a range of generic skills including mandatory training e.g. infection control and basic life support

- Explain how health & safety affects your day to day role.
- Provide details on infection control measures you adhere to them when carrying outpatient procedures.
- Show you have completed your mandatory infection control, life support, safeguarding and manual handling training and explain how this relates to your work.

2. Demonstrates an understanding and application of health & safety and risk management in all aspects of the Clinical Technologists role

- Can you demonstrate how your local health & safety policies cover your work or show an understanding of the risks around working in a clinical setting/lone working. Can you provide evidence how you meet these requirements in your day to day role?
- Show you have completed your mandatory health & safety training, patient handling and explain how this relates to your work.

3. Demonstrates an understanding of and works within all relevant legislation to their role including departmental local rules

- Can you identify relevant legislation which governs your role? Are you able to identify the roles of others such as radiation protection advisers, COSHH assessors or manual handling facilitators? Can you define Controlled Areas within your workplace and how this affects your working practices?
- Can you identify your role in relation to IR(ME)R and demonstrate why you have that designation ascribed to your role?

4. Perform health & safety risk assessments (including radiation risk assessments for ionising radiation) in accordance with standard operating procedures

- Have you performed any risk assessments? If not, you may need to learn how to do one and carry out a range of assessments covering several aspects of your role. These may include COSHH, Display Screen Equipment, Moving & Handling or radiation risk assessments.

- If you are unable to perform a risk assessment you could review one already carried out and comment on its suitability and how it applies to the workplace.

5. **Demonstrates an understanding of radiation incident reporting**

- Are you involved with reporting or investigating incidents? Either provide evidence that this is part of your role or explain the reporting process and mechanisms.

6. **Demonstrates effective communication skills and team working**

- Can you demonstrate who you communicate with in your daily role? What are the different staff groups you communicate with regularly? Explain the importance of effective communication between these different disciplines.

7. **Demonstrates a professional approach to all aspects of the Clinical Technologists role**

- Provide evidence to show how you have dealt with challenging situations in a professional manner.

- Describe how you work on a day to day basis in a professional manner, how do you comply with patient confidentiality or governance issues.
- Do you have any direct feedback from patients from patient satisfaction surveys?
- Can you demonstrate awareness of disciplinary issues and the processes involved?

8. **Observes and assists in a range of procedures within the Radiotherapy Physics discipline e.g. Preparation of immobilisation devices, treatment planning and machine dosimetry. Adhering to standards of professional practice throughout**

- Evidence of training with examples of procedures undertaken.
- Knowledge of departmental protocols regulating the procedures.

9. **Demonstrates an understanding of the statutory, regulatory provisions and guidance relating to working with radiation in the contexts of patients, staff and the treatment machines**

- Demonstrate knowledge of ICRU 50(62), ICRU 83, IRMER and how these affect your daily work.
- Record of local rules read and understood. Controlled Areas knowledge.

- Understands the difference between RPA and RPS in terms of the responsibilities of each.

10. **Assists in giving instructions to patients and colleagues regarding radiation hazards, doses and restrictions**

- Explain what instructions you may give to patients following brachytherapy. Do you provide any additional advice for patients with young children? Pregnant or breastfeeding women? Patients who are due to fly in a day or two?
- What information would you give a patient in the Mould Room regarding radiation when undergoing CT scans and their radiotherapy treatment?
- What considerations are vital when dealing with MRI scanners for staff, patients and carers?

11. Demonstrates reflective practice as part of the learning process

- Provide evidence of reflective practice and how this has changed your technique or how you carry out a specific task.

B. Equipment Management

1. Assist in the process for the procurement of equipment, accessories or consumables

- Show that you are involved in the procurement of consumables or have had some input into the procurement process for a new piece of equipment.

2. Demonstrates the use of an equipment inventory system

- Explain how an equipment inventory system is used in your department. Whilst you may not use this inventory routinely you need to be able to show that you understand its purpose and the benefits to the department of having one.

3. Performs cleaning/decontamination of equipment

- Explain how you clean equipment prior to and after use. Do you have any records of this which you can provide?
- What additional cleaning do you perform if a patient has MRSA or other infectious diseases?

4. Performs routine equipment quality control checks and review and interpret results

- Explain what quality control checks you do and how you determine if the equipment is safe for use. E.g. Electrometer QC- Strontium checks, role of electrical safety checks.

5. Performs a range of fault finding and first line user maintenance

- Explain the procedure you follow if a piece of equipment is out of specification/faulty and what you would do?

6. Demonstrates knowledge of radioactive source management, transport and disposal

- Outline how your department manages their radioactive unsealed sources. What checks are done before they are used for treatment?
- How do you dispose of radioactive material? What records do you keep & what legislation are you complying with? Who takes responsibility for this in your department?
- What is your role in this process?
- Leak testing of small sealed sources.

7. Demonstrates an understanding of Quality Management Systems

- Show that you have an understanding of how documents detailing procedures and standards are kept? Who updates these? Are they regularly reviewed? Have you written documents for your quality system?
- Role of internal audit. Are you an auditor?

C. Radiation Transport and Dosimetry

1. Perform source checks and completes all relevant paperwork prior to transport as appropriate

- Are there copies of records that show you have completed this? Who checks these documents?
- What legislation governs these processes?
- Can you show a structure to the department with regards RPS and RPAs?

2. Perform "leak" tests, review results and take appropriate action

- Provide evidence to show that you have performed these and document the processes involved.

3. Perform contamination checks and maintain appropriate records

- Show why this is important. Provide quality system documentation from your department. Provide evidence of training records and procedural records.

D. Radiotherapy Physics

1. Dose planning, virtual simulation and image guidance

I. Produce a range of radiotherapy dose treatment plans using image data, defined treatment parameters, dose calculations and simulation processed to assist in the safest and most effective treatment being delivered to the patient, following local treatment site specific protocols.

- Create anonymised treatment plans for various treatment sites.
- Explain how these plans were created e.g. which treatment energy was selected and why, what beam angles were used and why.
- State the local protocols you would follow in planning these treatments.
- Explain the international protocols that govern your planning reporting.
- Can you identify the pros and cons of various types of planning algorithms that are used?
- Identify Organs at Risk (OARS) involved and their dose constraints.
- Explain the imaging modalities used for localisation and planning.
- Use your reflective diary to demonstrate how your involvement in the process has increased with increasing competency.

II. Demonstrate an understanding of image guidance to check and modify treatment plans following local protocols.

- What imaging protocols are used in your department to verify treatment?
- Explain the advantages and disadvantages of different imaging modalities, e.g. Cone beam CT versus MV imaging (used in Tomotherapy) versus Digitally Reconstructed Radiographs (DRRs).
- Demonstrate an understanding if imaging is out of tolerance. What happens next?

2. Mould Room

I. Make safe and appropriate immobilisation devices for patients, considering the individual needs of each patient, in accordance with local protocols.

- Show training records and a log of immobilisation devices produced.
- Demonstrate knowledge of standard positioning for treatment sites in your department. Explain why these positions are appropriate. Explain the procedures if a patient cannot attain the standard immobilisation position required due to surgery or other impediments.
- Describe the different types of materials used in immobilisation devices. Explain the advantages and disadvantages of these types. Be aware of previously used immobilisation devices and their limitations.
- Show evidence of immobilisation devices produced for non-head and Neck areas, such as vacuum bags for limb immobilisation.

- Have you been involved in problem solving difficult immobilisation situations? Have you been involved with researching and introducing new techniques/equipment?

II. Manufacture appropriate beam modification devices

- Describe, using reference to local protocols, the manufacture of beam modification devices such as tissue equivalent bolus. What materials may be used that are different to those that your department uses?
- Provide evidence of production of other beam modification devices such as lead masks, shielding blocks, etc. Refer to local protocols, reflective diary entries and how they fit in to the patient treatment pathway.

III. Provide appropriate explanations about procedures being performed to patients using appropriate strategies to overcome difficulties in communication which may exist.

- What instructions would you give to a patient undergoing a Mould Room procedure? How would you alter the delivery of information if there were communication difficulties such as the patient being hard of hearing or who did not have English as their first language?
- In reference to a reflective diary how have your communications developed?

3. Brachytherapy

I. Participate in the preparation and delivery of brachytherapy treatment procedures.

- Explain the process of a typical brachytherapy procedure in your department or in a department visited. Include working instructions and how the technologists' role fits in with the patient's treatment pathway.
- Describe different types of brachytherapy procedures that a technologist may be involved in both within your department and other centres nationally.
- Use your reflective diary to demonstrate how your involvement in the process has increased with increasing competency.
- Explain who is responsible for ordering brachytherapy sources.
- What QA procedures are involved in routine brachytherapy procedures?

II. Assist clinicians in operating theatres with the handling and assembly of brachytherapy applicators, using sterile techniques in line with local protocols.

- Explain the procedure, with reference to local protocols, your role in brachytherapy theatre sessions.
- What local rules are in place when dealing with sterile techniques?
- Demonstrate knowledge of IRMER regulations governing procedures in theatre.
- What QA is performed regarding brachytherapy in a theatre setting?

E. Quality Control of Radiotherapy

1. Performs routine quality control on orthovoltage and megavoltage equipment, including dosimetry measurements.

- Describe, with reference to working instructions, how the procedures are performed. Using your reflective diary show you have performed routine QA on these machines and how your proficiency in performing these procedures has increased.

- Explain the roles and responsibilities of Physicist and Technologist in your department when performing QA. Are other centres different in how these roles are defined?

- What happens when Linac or Orthovoltage QA is out of tolerance? What further investigations take place?

2. Demonstrates an understanding of the frequencies of quality control and the regulator and advisory framework around which QC schedules are designed

- How is the regularity of machine QA determined? Are there guidelines that advise the frequency? Who is responsible for ensuring these are performed to schedule?
- Why is regular QA vital?

3. Performs quality control on other radiotherapy equipment e.g. HDR brachytherapy, CT and conventional simulators

- Describe the QA procedures carried out on other equipment as suggested above. Provide evidence that you have assisted with QA procedures in accordance with local protocols.

4. Assist with treatment planning systems

- Describe the routine QA procedures performed on your departments Treatment Planning System (TPS).
- Describe what commissioning may be involved in a new TPS. What are the Physicists and Technologists role in this?
- Explain what happens if errors are found in TPS QA.

F. Good Scientific Practice

1. Adhere to relevant standards of professional practice as defined in Good Scientific Practice. Demonstrate that you have read, understood and comply with this document in all aspects of work

- Good Scientific Practice is a document written by the Academy of Healthcare Science, a copy of which is available on the Academy Healthcare Science website homepage under "The Register" and then "Register Standards and Rules".

- This document sets out the principles and values expected of the Healthcare Science workforce.
- Demonstrate how you have the ability to recognise your own limits of technical expertise and use professional judgement in all aspects of clinical and technical practice.
- Adhere to the Register of Clinical Technologists Code of Professional Conduct which may be found on their website.