



Proton Beam Therapy - Interim Guidance

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Summary

SCoR publishes this interim guidance and advice document to provide members and education providers with an overview of the likely educational and professional requirements for the effective delivery of a proton beam therapy service.

1. Introduction

In April 2012, the government announced that it was to fund the development of a proton beam radiotherapy service.¹ Two proton beam therapy (PBT) centres, one in the North West of England at The Christie Hospital, Manchester and one at University College London Hospitals (UCLH) have been agreed, with a possible option for a third in Birmingham. The Christie and UCLH Centres are expected to start accepting patients in 2018 and to be fully operational by 2021. It is proposed to treat up to 750 patients per year at each centre, including 150 paediatric tumours. The remainder will comprise complex adult tumours to include some sarcomas, paranasal sinus and brain tumours, together with some difficult cases that may benefit from PBT.

Final sign-off of the business case for PBT, with concomitant release of funds, is not expected until mid-2015 and there are many decisions outstanding about equipment and associated imaging capability. However, current estimates suggest that delivering a United Kingdom (UK) based proton beam therapy service is likely to require an additional therapeutic radiography workforce of approximately 80,² with a gradual increase of staffing during the period 2015 -2021.

The Society and College of Radiographers (SCoR), as the professional body for the radiographic workforce, gives professional leadership, guides and supports professional development and offers accreditation to those who meet its standards. At the time of writing, this guidance document is necessarily of an interim nature. It has been developed in consultation with senior members of the profession from the two centres involved, based on their current workforce strategy.³

2. Aim of the document

The aim is to provide members and education providers with an overview of the likely educational and professional requirements for the effective delivery of a proton beam therapy service.

This guidance is consistent with the following documents, which provide detailed information:

- the outcomes for practitioners and advanced practitioners and the indicative pre-registration curriculum in the Education and Career Framework⁴
- actions for individuals when defining their scope of professional practice⁵
- the response to the recommendations of the Francis Report in relation to the maintenance of practitioner competence⁶ continuing professional development requirements of the Health and Care Professions Council.⁷

3. Integration with career and professional development frameworks

Proton beam therapy will be fully integrated within the existing provision as another form of radiotherapy. Although most therapeutic radiographers will not deliver PBT, practitioners should be equipped to take advantage of opportunities that may present to work in this specialism. It is also essential that all members of the profession have an understanding of how PBT works and the possible indications for its use. Referrals to the PBT service will come from radiotherapy centres and therapeutic radiographers need to be able to talk intelligently to patients and others about it in order to inform and support decision making.

For service delivery, there will be a stratified workforce from Bands 5 to 8, consistent with photon therapies and including advanced and consultant practice roles.^{9, 10} As a clinical specialism, all practitioners will receive additional competency-based induction and on-going training and the clinical environment will offer opportunities for therapeutic radiographers to develop advanced practice roles, underpinned by accredited masters level education programmes. All patients should be enrolled in clinical trials and there will be significant opportunities for engaging in high quality practice-related research activities across the patient pathway; pre-treatment, treatment delivery and aftercare.

At the present time internationally, imaging for PBT is less sophisticated than the most advanced imaged-guided radiotherapy (IGRT) in use in the UK, although this is expected to change during the procurement process of the UK PBT service. With regard to skills of image interpretation and adaptation of treatment protocols, radiographers with these skills in photon therapy will have the necessary transferable skills for PBT.

4. Learning and development for pre-registration students and therapeutic radiographers not directly engaged in PBT

The indicative curriculum guidance in the Education and Career Framework⁴ has been revised to ensure that pre-registration students have the necessary underpinning knowledge and skills to achieve the practitioner outcomes following preceptorship in a modern radiotherapy service with the latest technology. This includes

- physical properties of protons
- generation of clinical proton beams
- characteristics and dosimetry of protons beams
- clinical indications for proton beam therapy
- cross-sectional anatomy
- imaging and working with 3D, aspiring to 4D
- use of functional imaging with PET and MR
- immobilisation techniques.

5. Competencies for practitioners delivering PBT

Specialist staff will receive additional, competency-based training between 2014 and 2018. Initially this will be from an overseas training partner but will move to local, in-house provision. It will be underpinned by the development of workplace-based modules, accredited at masters level and by the SCoR by 2016. In addition, SCoR intends to develop a proposal for funding for a PBT e-learning module within the e-Learning for Healthcare (e-LfH) project which will be accessible to all NHS staff.

Indicative Learning outcomes

- Practitioners should be able to
- schedule PBT to optimize treatment delivery
- plan and deliver safe, accurate PBT to patients within protocols, ensuring the radiation safety of all
- provide site and PBT-specific information and support to patients and their carers
- manage the care pathway for patients receiving PBT, including relationships with referring centres.

Practitioners will require up to date knowledge and understanding of

- proton therapy physics
- proton dosimetry
- radiobiology of charged particles
- particle accelerators
- Quality Assurance Protocols
- radiation protection
- treatment planning
- uses and contra-indications for proton beam therapy
- cross-sectional anatomy
- imaging and working with 2D, 3D, aspiring to 4D
- functional imaging with PET and MR
- immobilisation techniques
- toxicity and symptom control.

Conclusion

There is a role for the whole therapeutic radiography workforce as the proton beam therapy service is integrated within radiotherapy nationally. This interim guidance document recognises the capability of the existing workforce and identifies the likely learning and development needs of therapeutic radiographers as far as are possible at this time.

Date for Review

September 2015

References

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