

**Proton Beam Therapy Research Meeting
The Royal College of Radiologists
Thursday 6 September 2012, 10.00-16.00**

Summary of outcomes

General points

There was overall consensus of the value and desire to progress the research agenda, both as a support to the PBT Treating Centres and to develop the area for the research community.

Post-doctoral training centre scheme may provide opportunities for research and training. Karen Kirkby has substantial experience of this (EPSRC Centre for Doctoral Training).

Risk of our funding needs 'falling between two stools' might be reduced by a discussion with funders.

Specific outcomes

The Breakout Session was arranged into 4 discussion groups, and outcomes are summarised for each.

Group A: Physics – moderator Ran MacKay

Four priority areas were identified for attention prior to start of clinical treatment, and two for attention after the start:

Before start

1. Optimised workflow
2. Referral pathway
3. Dosimetry
4. Beam splitting

After start

1. Motion tracking
2. Proton tomography

No other specific outcomes emerged, though individuals in Group A will be involved in the output from Group C (below).

Group B: Clinical trials – moderator Gillies McKenna

It was clear that clinical studies of different types are required, including dosimetry studies, cohort studies and (more formal) clinical trials. The group focussed on identifying possible areas for randomised trials. The difficulty and complexity of this was immediately apparent. The Group identified the need for a further workshop to develop the ideas further. Adrian Crellin offered to resource this.

Group C: Clinical methodologies – moderator Susan Davidson

The need for clinical outcome data for every patient treated with PBT was obvious, amounting at the very least to an outcome tracking study, and blood must also be collected from every patient for radiosensitivity studies. Exactly what data should be collected, and what data systems already exist, need to be established. The Group identified the need for a further workshop to develop the ideas further, and Adrian Crellin offered to resource this too. This will need to involve physicists from the day's Group A.

Group D: Ion beams and biology – moderator Catharine West

The Group clearly prioritised questions related to RBE (Relative Biological Effectiveness). Top priority was given to investigating RBE in different tumours and normal tissues *in vivo*, but this is not possible at present. Therefore, top priority was given to examining how RBE changes in tumours and normal tissues with different radiosensitivity, and using different endpoints. This can be examined using existing UK facilities, especially at the Surrey Ion Beam Centre.

NGB + CSKC 12.9.12

Appendix 1: Agenda

09:30	<i>Registration and refreshments</i>	
10:00	Introduction and Welcome Terms of reference Deliverables and timeframes	Neil Burnet
10:15	Feedback on identified key themes	Neil Burnet (Chair)
	<u>Presentations on research domain workstreams</u>	
10:30	A: Physics	Ran MacKay
10:40	B: Clinical trials	Adrian Crellin
10:50	C: Clinical methodologies – capturing / recording data	Michelle Kwok-Williams
11:00	D: Ion beams and biology	Karen Kirkby
11:10	Discussion	Neil Burnet (Chair)
11:30	Format for workstream breakout session	Neil Burnet
11:40	<u>Workstream breakout session</u> A: Physics B: Clinical trials C: Clinical methodologies D: Ion beams and biology	<i>(Breakout group leaders)</i> Ran MacKay Gillies McKenna Susan Davidson Catharine West
12:45	<i>Lunch</i>	
	<u>Report back from breakout session</u>	
13:30	A: Physics	Ran MacKay
13:45	B: Clinical trials	Gillies McKenna
14:00	C: Clinical methodologies	Susan Davidson
14:15	D: Ion beams and biology	Catharine West
14:30	Discussion	Neil Burnet (Chair)
15:00	<i>Coffee Break</i>	
15:20	Identify key areas of work Agree key work packages Agree timeframes	Neil Burnet (Chair)
16:00	Summary and actions	Neil Burnet
16:20	Meeting close	

Appendix 2: Attendees

Name	Surname	Affiliation
Lara	Barazzuol	Surrey Ion Beam Centre
Neil	Burnet	Cambridge
Carolyn	Chan	National Cancer Research Institute
Yen-Ch'ing	Chang	UCLH
Adrian	Crellin	Leeds
Susan	Davidson	Manchester
Manjit	Dosanjh	CERN
Derek	D'Souza	UCLH
Naomi	Fersht	UCLH
Dan	Ford	Birmingham
Stuart	Green	Birmingham
Bleddyn	Jones	Oxford
Karen	Kirkby	Surrey Ion Beam Centre
Michelle	Kwok-Williams	Leeds
Kate	Law	CR-UK
Anthony	Lomax	Centre for Proton Radiation Therapy, Paul Scherrer Institute, Switzerland
Ranald	MacKay	Manchester
Henry	Mandeville	Royal Marsden Hospital
Geoff	McBride	Science and Technology Facilities Council
Gillies	McKenna	Oxford
Lisi	Meira	University of Surrey
Mike	Merchant	Surrey Ion Beam Centre
Aisha	Miah	Institute of Cancer Research
Syed Ali	Moinuddin	UCLH
Alfred	Oliver	Consumer member
Hywel	Owen	Manchester
Ken	Peach	Oxford
Kevin	Prise	Belfast
Ivan	Rosenburg	UCL
Gary	Royle	UCL
Paul	Sanghera	Birmingham
Beatrice	Seddon	UCLH
Mark	Sheehan	Oxford
Michael	Simmons	Cambridge
Ed	Smith	Manchester
Gregory	Smyth	Institute of Cancer Research
Julia	Solano	UCLH
Hilary	Stobart	Consumer member
Russell	Thomas	National Physical Laboratory
Claire	Timlin	Oxford
Katherine	Vallis	Oxford
Philip	Webster	Department of Health
Catharine	West	Manchester
Gillian	Whitfield	Manchester