



The Royal College of Radiologists
RCR-Cyclotron Trust Visiting Fellowships 2018/19 (Clinical Oncology)

POST-VISIT REPORT

PLEASE NOTE: This report must be completed and emailed to the RCR within 2 months of the end of your visit.

1. Name of Visiting Fellow	Michael Kosmin	
2. Name of joint Visiting Fellow (if applicable)	Andrew Gosling	
3. Institution(s) of Visiting Fellow(s)	UCLH	
4. Name of Host(s)	Cristina Bono	
5. Institution(s) of host(s)	CNAO, Pavia, Italy	
6. Expenses claimed	£1570.89	
7. Visit Dates (ACTUAL)	a. Start Date: 18.6.19	b. End Date 29.6.19
8. 2nd visit dates (if applicable)	a. Start date	b. End Date
9. Aims of the visit		
<ol style="list-style-type: none">1. Gain an understanding of the referral pathways for patients to be considered for protons and/or carbon ion therapy at CNAO.2. Gain experience of the CNAO patient selection criteria for particle beam therapy (carbon ion and protons)3. Understand the dose fractionation prescriptions used, particularly for CIRT.4. Gain experience of the use of PBT and CIRT for brain and skull base tumours.5. Gain experience of acute and late toxicities of PBT and CIRT through attending follow-up clinics.6. Gain experience of patient setup and motion management.		
10. Activities undertaken		

New patient clinics – particular focus on neuro-oncology patients.

Follow-up clinics– post CIRT and PBT, delivered to a variety of anatomical sites.

Treatment planning – observing volume delineation by clinicians (especially of brain and skull-base cases); observing discussions between clinicians and planners; plan review and sign off.

Observing CIRT treatment for cardiac leiomyosarcoma, delivered in end expiration with respiratory gating. Issues and complexities discussed with clinicians and physicists.

Observing of patient setup and delivery of PBT for ocular melanoma.

Experience of Image verification and the need for replanning treatment for anatomical changes.

Review of patients on follow-up with post-treatment toxicities, ranging from grade 1 radionecrosis to complete tissue breakdown post-CIRT for a parotid tumour (requiring surgical flap).

Discussions with clinicians about criteria for choosing CIRT vs PBT, and the prescribed dose fractionations.

Discussions about the benefits and limitations of the use of methionine-PET/CT at CNAO as a tool in neuro-oncology for differentiating between post-treatment pseudo-progression (which can occur late after particle therapy), and disease progression.

Weekly case discussion meetings (~MDT). All new cases seen by clinicians during the week discussed. Also any significant issues (i.e. toxicities, recurrences) encountered in follow-up clinics discussed.

Teaching session from research physicist on the INSIDE study – their purpose-built PET detector for intra-treatment monitoring of dose delivery (CIRT and PBT). Study at CNAO opening imminently (more information on [Clinicaltrials.gov: 03662373](https://clinicaltrials.gov/ct2/show/study/03662373)).

11. Benefits of the visit (short term)

Increased understanding of patient selection for PBT and CIRT.

Understanding of the use of hypofractionated regimens for CIRT.

Understanding the importance of image guidance to ensure effective and safe delivery of treatment plans, especially at critical sites.

Experience of significant toxicities associated with PBT and CIRT treatments.

Appreciate the benefits of the standardised NHS patient referral and treatment pathways.

12a Envisaged benefits of the visit longer term (your own practice)

Experiencing the workings of an established particle therapy centre and the patient pathways will provide useful knowledge and understanding when designing the pathways at the new UCLH PBT Centre.

Seeing that despite the limitations of a fixed gantry delivery system, excellent plans could be produced. The addition of a moving gantry will provide additional possibilities to undertake treatments that the CNAO team would find difficult.

The immobilisation and gating techniques were different to what I have seen used before and may have a role in the development of our service, in discussion with the relevant tumour site teams.

I will be able to contact the CNAO team in future to discuss any issues in our own experience in the UK, as well as getting advice on treatment development and research opportunities.

12b. Envisaged benefits to the wider group (dissemination to others in your centre/clinical oncology community/multiprofessional team)

I will be delivering a teaching session on my experience to the members of the radiotherapy department at my centre in order to share some of the key take-home messages from this trip.

As we develop the PBT service at UCLH, the experience of seeing an established working particle therapy centre in action will be very helpful, including to tumour teams beyond my own.

Understanding how a clinical observership can be arranged and coordinated is also a useful experience as we will likely have many visitors in future at UCLH, and perhaps formalising the process as at CNAO would be worth considering.

13. Please outline any problems you encountered before, during or after your visit

No problems.

Be aware that there is a fee to undertake this observership – details available from the contact at CNAO (Cristina Bono). This fee is included in the claimed expenses.

14. Any additional comments

15. Do you have any 'top tips' that you would like to share with prospective visiting fellows?

Pavia is a charming small Italian town, 30 minutes by train south of Milan. There are good bus services from the centre (train station) to CNAO.

I would recommend renting an apartment in the old town centre (rather than staying next to CNAO). If travelling in summer, make sure that where you stay has air conditioning!

Almost all consultations are in Italian, but staff members all have excellent English. As with everything, you will just need to ensure that you are not shy and query things in order to gain the most out of your trip.

Signed: *Michael Kosmin*

Date: 29 June 2019

Report approved by: Clinical Oncology Professional Support and Standards Board (CO PSSB)

Date: 05 September 2019

Please return this form to Mrs Emma Burgum, Professional Support and Standards Administrator at: emma_burgum@rcr.ac.uk