



The Royal College of Radiologists
RCR-Cyclotron Trust Visiting Fellowships 2019/20 (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	Dr Harshani Green	
2. Name of joint Visiting Fellow (if applicable)	Orla Byrne (Senior Medical Physicist)	
3. Institution(s) of Visiting Fellow(s)	Royal Marsden Hospital	
4. Name of Host(s)	CNAO	
5. Institution(s) of host(s)	Valentina Gasperi	
6. Expenses claimed	£427.27 (not including accommodation)	
7. Visit Dates (ACTUAL)	a. 17/04/23	b. 21/04/23
8. 2nd visit dates (if applicable)	a. Start date	b. End Date
9. Aims of the visit	<p>To observe the use of proton and carbon ion treatment in various clinical scenarios and to understand how one treatment type is selected over another.</p> <p>To understand the pros and cons of different treatments and to see which patients may benefit from options other than photons.</p> <p>To learn about ion beam dosimetry and the uncertainties involved in this.</p> <p>To discuss the use of carbon ion treatment on patients with kidney cancer to aid with research taking place at the RMH.</p>	

10. Activities undertaken

We began with presentations on the history of CNAO and on the clinical pathway and various treatment options available at CNAO.

I then spent sometime in the planning office with a physicist there who showed us some examples of different plans. There was a discussion on the various RBE models and their differences as well as how to plan in ways that ensure high LET areas are within the tumour volume and in ways that mean plans are robust.

We were shown how to use the planning system so that we could create some plans ourselves.

I was given a tour of the treatment rooms and clinical area and shown the various bits of equipment used for QC/dosimetry, discussed the pros and cons of these.

I also had the chance to observe a variety of set ups and treatments including gated treatments and ocular treatments and discuss their pathways. A mix of radiographers, clinicians and biomedical engineers were present at these.

I attended the daily QA session with one of the therapists and saw how they various tests are run, after this I meet one of the physicists to analysis the results and to discuss dosimetry in ion beams.

Presentations were given by the biomedical engineers on the work they had done in setting up all the systems used for treatment and the research they are involved in.

A presentation was given by a radiation biologist on the difference between photons, protons and heavier ions on cells and the biology research done on site. This involved a discussion on the boron neutron capture treatment they are preparing for in the coming years.

We brought a selection of scans that we wanted to create plans on and we were given a lot of help allowing us to do this.

11. Benefits of the visit (short term)

I have a better understanding of the benefits of carbon ion treatment particularly the radiobiological advantages. I also saw the limitations of this treatment type as it currently implemented and have a better understanding of which patients would not be suitable for this type of treatment.

I also have an understanding of the volume of work and the resources necessary to treat patients using these techniques.

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

Connections with physicists with experience working with ion therapy for several years with the potential to lead to future research collaboration.

Knowledge of how patients in our departments may or may not benefit from other forms of treatment.

A greater appreciation of the uncertainties in delivered dose to the patient from these treatment types.

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

I will use the knowledge gained at CNAO to expand the understanding of ion treatment within my department. This may be of particular use to those who work closely with the proton centres in the UK. This will be done through presentations and discussions within the department.

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

There is no set timetable so you need to inform them of anything you want to observe or if there are staff groups you would like to speak to. They had no issue with organising our requests though.

14. Any additional comments

I would like to thank the staff at CNAO who were all very accommodating and gave up their time to give displays and discussions despite the fact that this is a busy clinical environment.

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

Routine QC/PSQC takes place most weekends so it is worth discussing this with the physics staff before the visit to arrange to attend at some point if you are interested. There was some confusion when discussing this with the administration staff organising the trip who assumed I meant a service on the synchrotron itself which happens infrequently.

It was useful to attend with a clinician to compare notes and discuss the different aspects we observed.

Signed: Orla Byrne

Date: 26/4/23

Report approved by:

Clinical Oncology Professional Support and Standards Board

Date

25/5/23