



Radiation Therapy Research Showcase 2019

The concept for our second annual radiation therapy research showcase was to embed a research culture among the radiation therapists (RTTs) at the Beatson West of Scotland Cancer Centre in Glasgow, UK (1). The showcase took place on 9 March 2019. Great enthusiasm was shown by the RTTs, who gave up their free time on a Saturday either to present their own work, or to listen to colleagues.

We aimed to formalise any research opportunity and provide interested RTTs with the tools and skills required to conduct/present research. From the outset, the research team offers support to RTTs throughout the process. At the showcase, this support included opportunities to meet and discuss abstract writing, research methodology and project design, presentation skills, and practice runs through presentations. Throughout a project, research RTTs offer support for staff, building up to their presentations of their work at a showcase. The aim of the day was to create a research-positive environment and demonstrate to RTTs how we can improve patient outcomes through research.

The day was a resounding success that presented RTT-led and multi-disciplinary research. Staff appreciated the opportunity to learn about areas in which RTTs have not only initiated projects, but have followed them through to dissemination at national and international conferences.

A wide variety of projects was presented, ranging from novel technical advances, evaluation of delivered dose, optimisation of pancreatic radiotherapy and advances in stereotactic radiosurgery (SRS), through to practice education and statistics in research. Here I include an overview of the programme from the showcase:

I presented my work on 'Dosimetric impact of daily variations to organs at risk (OAR) during prostate stereotactic body radiation therapy (SBRT) treatment delivery'. This study showed variations in bladder and rectum volumes over a course of prostate SBRT. The volume variations indicated that doses delivered to OAR may have been higher than reported at planning. The manuscript for my research has been submitted for publication.

Next to offer their work were clinical RTTs Jennifer McAuley and Susan Melville, who have led the implementation of new superficial-treatment unit Xstral within the department. They presented an audit of practice that had captured data from patients' follow-ups. Research opportunities were discussed, with advice given on planning of prospective projects to be presented in future years.

RTT Lisa Hay presented 'Using cone beam computed tomography (CBCT) and deformable image registration (DIR) for dose verification during head & neck (HN) radiotherapy'. This project has developed a method to use DIR software to assess on-treatment changes and the dosimetric effect. Her analysis, which used DIR, has led to recommendations for the evolution of adaptive pathways for HN radiotherapy. Lisa presented this work at the European Society for Radiotherapy and Oncology meeting, ESTRO 38, and is now submitting her work for publication. This is a great example of development of a project that has continued through to submission of a manuscript. A new student mentorship programme within the department was the project presented by RTT Kirsty Brown. This highlighted the positive effect that designated mentors have on students' learning experiences while they are on clinical placement. It was a valuable project that considered how we could enhance support to our future colleagues, and improve professional retention within our profession.

Our lead research RTT Aileen Duffton presented her work entitled 'Optimising pancreatic radiotherapy within trials'. It showed the impressive pancreatic cancer research programme currently underway in Glasgow, and how an RTT played a key role in the multi-disciplinary research team. Aileen described the key aims of her future work to optimise radiotherapy planning and delivery to pancreatic patients within clinical trials. With poor clinical outcomes for pancreatic cancer, the importance of conducting high-quality studies in this area is clear.

HyperArc™ and SRS was the topic presented by consultant radiographer Aoife Williamson. This detailed the implementation of new immobilisation systems in conjunction with HyperArc™ planning and delivery. Aoife demonstrated improved conformity in the treatment of multiple brain lesions while dose to normal brain tissue was reduced. The results showed fewer set-up errors with this new technique. This work was also presented at ESTRO 38 in Milan.

Our clinical trials RTT Chloe Wilkinson presented 'Identifying barriers to opening radiotherapy clinical trials'. The aim of this work was to understand the resources required to obtain permission for radiotherapy clinical trials, how the resources were allocated and where there were hold-ups in the system. Chloe discussed how addressing these issues could maximise the trials portfolio offered to our patients. Ongoing data is being captured for publication.

RTT Jennifer Turnbull discussed her research into 'educating the practice educator'. Jennifer explained a great example of research methodology and presentation of her results. Participants enjoyed hearing how we can best train staff to

educate students and improve their clinical skills in a busy department.

We are very fortunate to have access to statistical support in our department. This is crucial for development and performance of good-quality studies. Philip McLoone, our radiotherapy research group statistician, presented statistical considerations for RTT projects. This gave guidance and encouragement to RTTs by detailing the support available.

The day was a great success and was an excellent way to bring together the research team, advanced practitioners and clinical staff to encourage research. By developing structured support for RTTs to be involved in presenting research, we hope this can lower barriers to participation. At the showcase we aimed to encourage all levels of staff to participate, with the idea of developing prospective projects for them to lead on. For those with more experience, this was an excellent forum to improve the skills required to present at international conferences.

Following this meeting, the research team have offered further support to those who want to write up their results

for publication. It is through publication that RTTs can demonstrate the importance of advanced roles and the impact they have on patient outcomes and on service delivery (2). As a research team, we feel that encouragement and support for RTT colleagues to develop their own ideas and projects will lead to improvements in patient care and potentially demonstrate better patient outcomes.

1. Society of Radiographers. Research Strategy 2016-2021. <https://www.sor.org/learning/document-library/research-strategy-2016-2021>
2. Duffton A, Devlin L, Tsang Y, Mast M, Leech M. Advanced practice: An ESTRO RTTC position paper. Tech Innov Patient Support Radiat Oncol [Internet]. 2019;10:16–19. Available from: [https://www.tipsro.science/article/S2405-6324\(19\)30008-3/abstract](https://www.tipsro.science/article/S2405-6324(19)30008-3/abstract)



Lynsey Devlin
Research Radiographer
Beatson West of Scotland Cancer Centre,
Glasgow, UK