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Editorial

Guest Editorial: RTT Workshops-Preparing the RTT profession for the future

Radiation oncology is a dynamic medical discipline, which is constantly evolving and increasing in complexity with rapidly advancing technology, including computer science and machine learning applications [1]. With this comes new approaches to treatment delivery, coupled with the potential for integration with molecular and biological therapies and the increasing role of patients in shared decision making. The rapid increase in the use of molecular and biological agents into routine treatment regimens will require Radiation TherapisTs (RTTs) to understand their application, mode of action and side effects in order to be able to monitor patient reactions during radiation therapy. All of these advances will dictate the future practice of RTTs.

To meet these changes in practice, RTTs must carefully consider how their roles and responsibilities will be impacted and how they can meet these inevitable future challenges. It has been suggested that Artificial Intelligence (AI) will replace many of the roles currently filled by RTTs but this is not supported by evidence to date. It is more likely that AI can be used to enhance and develop the RTT roles and responsibilities. The optimum approach is the interaction of AI and a human and the RTT can be one of the key human interfaces in future radiation therapy practice. It is timely to actively address the possible impact of these developments on the RTT scope of practice and to create a roadmap of how to efficiently and safely integrate emerging technologies and techniques into daily clinical practice. In this way, the profession can evolve in parallel to support the ESTRO vision of 'optimal health for all, together' [2].

When considering the future roles and responsibilities of RTTs there are many factors to consider. Optimised and efficient workflow is an important requirement of service delivery and can be supported by the suppliers of oncology information systems, treatment planning systems as well as the manufacturers of the treatment and imaging systems. Collaboration with RTTs as systems evolve will be essential in this context. It is of utmost importance to create a dialogue between manufacturers, vendors, computer scientists and the radiation therapy professionals who will be using their products in clinical practice to ensure safe integration into clinical workflow. Furthermore, the necessity to integrate these emerging topics into professional education needs to be addressed.

Gilian et al. [3] noted that addressing uncertainties and fears of professionals on whether new technology will take over certain tasks or even workflows and how it will change their scope of practice in the future is important. There is a patent need to bring RTTs

who are working across the spectrum of practice together to discuss the influence of the latest developments on their daily practice, and to create ideas and practical workflows of how these new approaches can be introduced efficiently and safely into clinical practice ensuring a smooth workflow and future proofing the RTT profession.

In order to address these topics, the first RTT workshop has been planned for November this year. The three tracks focus on the application of new technologies in image guided radiotherapy (IGRT) and adaptive radiotherapy (ART); the specific requirements for particle therapy and on amendments to educational programmes and the RTT scope of practice.

The workshops

1. IGRT/ART

In little over a decade, IGRT has become a major pillar in the daily practice of radiation therapy. IGRT, and more recently (ART) has become one of the most challenging and responsible aspects of the RTT role. Even though IGRT and ART have matured, there still is much room for development, especially in ART and MR-guided treatment delivery. Furthermore, the need for standardisation and evidence-based guidelines, to enable auditing or benchmarking departments, for instance, needs to be discussed. The immense potential of future advanced technology and especially the role of "artificial intelligence" in radiotherapy needs to be exploited. In treatment planning the role of AI has already been evaluated and seems to offer enough benefits to change practice in the near future [4,5]. However, the role of AI in IGRT and ART is still largely undefined, but could potentially be of great value, especially in ART if the already implemented auto-segmentation tools [6] and the currently evaluated and available auto-planning [5] offer the possibility to create treatment plans within a reduced time frame.

A workshop aimed specifically at RTTs who are involved in IGRT, ART and research within this field, could be an opportunity to evaluate the impact of these developments on professional practice. In contrast to a conference, this format will give an excellent opportunity to brainstorm freely, together with other RTT professionals throughout Europe in a focused group. The impact of current developments, emerging technologies and AI on current workflows could be included while elaborating on protocol and workflow creation and optimisation. It additionally offers the

opportunity to network and potentially build collaborations with RTT professionals and researchers in this still emerging field. Subsequently, the results of this workshop could be used to identify deficits in current education programmes, at undergraduate, postgraduate and continuous professional development (CPD) levels which may currently fail to address the needs for RTTs working in this fast developing field of practice.

2. Particle therapy

The purpose of the particle therapy track, within the framework of the ESTRO RTT workshop, is to identify the specific needs and skills required for particle therapy practice, which may be different when compared to conventional radiation therapy. We will also use the workshop as a common platform to discuss important issues like workflow management, failure concepts, roles and responsibilities and immobilisation as well as establishing a platform for future collaboration.

The target groups invited to participate in the workshop are RTTs who are already working in the field of particle therapy, those who are interested in working in this field in the future and representatives of educational institutions.

Clinical workflows in different facilities will be presented and interactive sessions will discuss and analyse different solutions to workflow management, failure concepts, roles and responsibilities and immobilisation, requirements and qualifications, courses available and different solutions for education and training in order to provide optimal treatment for patients. As one endpoint, information to inform future core curricula will be collated for the specific needs of particle therapy.

This workshop is a unique opportunity to share knowledge and experience and exchange practical solutions to common challenges that RTTs are facing in clinical routine in the growing field of particle therapy. The aim of the workshop is to inspire the participants, offer different perspectives to already existing tasks and to create an international network for knowledge sharing.

3. Future proofing RTT education

To enable the RTT to work effectively in this dynamic environment, education and training must be designed to meet current practice but also to ensure that roles and responsibilities to meet future practice can evolve smoothly and effectively expanding on basic knowledge, skills and competences. A move away from static approaches of specific areas of practice is necessary to provide transferable competences reflecting dynamic changes in the future.

This workshop provides an opportunity for RTTs working in both the clinical and academic environments to consider the adequacy of current education programmes and approaches. Presentations on the structure and content of education programmes in different countries/regions will form the basis of discussion sessions. Participants will also consider obstacles to RTT education and the impact that this has on current and future practice. An analysis of clinical practice and the extent to which current education programmes support this will inform the knowledge, skills and competences that will be required going forward. The workshop will provide a forum to review how the structure of radiation therapy teams will evolve in the future and what are the potential roles and responsibilities of the RTTs. The participants can consider the benchmarking documents and the competencies identified and consider the education requirements. Interaction with participants from the other workshops will further inform potential content. One endpoint of this workshop, therefore, will be an identification of a group of RTTs from both clinical and academic backgrounds who could commence the revision of the core curriculum [7], so

that RTTs can redefine themselves in a holistic way with the aim of minimising the risk of role-erosion and highlighting equal membership of the radiation therapy team.

This workshop is an opportunity for RTTs to consider how they wish to be defined in the future, how they will interact with AI and use it to their advantage to lead change in the clinical setting. Definition of the knowledge base that will be essential for future practice and the necessary skills to underpin competences at graduate and postgraduate level to support career development and progression will be discussed. Through interactive sessions we will consider current roles and responsibilities and how they will be impacted upon and changed by new approaches, some of which have already been introduced into clinical practice. Subsequently, the scope of practice of RTTs in the future could be outlined and the currents benchmarks [8,9] for possible roles and responsibilities would need to be set in conjunction with the proposed adaptation of the educational background that would be needed for these.

These workshops are an exciting opportunity to examine the RTT as a professional, both currently and in the future. We would encourage RTTs from both the clinical and academic environments to attend and to work together to define the future of our profession.

Declaration of Competing Interest

The author declares that there is no conflict of interest.

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