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Editorial

Guest short communication: Is education of RTTs really unnecessary?

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ABSTRACT

Radiation Therapists (RTTs) are an integral part of the radiation oncology team, however the provision of high quality education for these professionals can be met with difficulties. Over many years, the RTT committee of the European Society for Radiotherapy and oncology (ESTRO), together with the International Atomic Energy Agency (IAEA) have endeavoured to improve the educational standards of RTTs. This article summarises the main difficulties experienced in this field as well as the steps that both the IAEA and ESTRO have taken to improve the education of RTTs and thereby improve the safe treatment of cancer patients internationally.

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This question seems quite extraordinary given the complexity of radiation therapy preparation and delivery and the potential for significant harm to patients but is sadly the reality in many parts of Europe and indeed globally.

Perhaps one of the reasons for this unusual situation is historical, dating from the era when radiation therapy was delivered through large fields with very little possibility of a geometric miss. Radiation oncologists were responsible for the prescription and overall management and the medical physicists responsible for the maintenance of equipment and together largely responsible for the preparation of treatment. The assumption was that very little could therefore go wrong. In this context a hierarchical system evolved that would inadvertently support the inadequacy of RTT education programmes.

As no specialist education was required RTTs were drawn from a wide range of backgrounds some of which were peripherally related to the discipline but others not. Professional societies evolved over time and included the role of RTT within their scope of practice but without identifying the specific requirements of the discipline. Education programmes followed suit with at most a minimal radiotherapy content included, delivered primarily as guest lectures with no formal faculty staff drawn from an RTT background. In this setting it was almost impossible for the profession of RTT to evolve and grow.

Access to modern radiation therapy is now recognised as an essential component of high-quality cancer treatment and central

to optimal patient care. In the field of radiation therapy, the international normative exists to ensure that the professionals responsible for intentionally exposing human individuals to high doses of ionising radiation for medical purposes will do so most efficiently and safely.

For two decades the RTT Committee of the European Society for Radiotherapy and Oncology (ESTRO) and the International Atomic Energy Agency (IAEA) have worked tirelessly to address the situation of RTT education despite many obstacles and impediments to progress. Professional hierarchy in many cases still supports on-the-job training to carry out specific tasks as an adequate model for RTT education. Professional societies often persist in seeing the practice of radiation therapy as something that other professionals can easily carry out without any specific education, this despite having put major effort into developing the professional profile, education standard and career progression options for the majority profession that they represent. Education Institutes often consider specialist programmes for RTTs to be non-economically viable given the perceived small numbers required and are generally 'lukewarm' in considering other options of programme development to accommodate small numbers. As there is no speciality of RTT in many of the institutes there is no background on which to build the necessary expertise or for RTTs to pursue higher qualifications in the area of radiation therapy. All of these issues contributed to the sense that the difficulties are insurmountable but, in reality, they are just challenges that need to be confronted and 'debunked'. It is a new era both within radiation therapy and also the awareness of radiation therapy and its role globally. There is now much evidence to support the importance of appropriate

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RTT education and training to refute the title of this special commentary.

Given the current complexity of radiation therapy and the ongoing technical developments that will be introduced into clinical practice within the coming years, it is essential that education programmes are specific for RTTs. They should be of sufficient academic rigor to enable graduate RTTs to work at the required current level of competency and to be able to adapt to the inevitable developments that will take place in the coming years [1].

Analysis of radiotherapy incidents and accidents that happened during both the 2D era as well as in the modern technology era, both in developing and developed countries point to patterns of factors in the roots of these accidents. The causes include working with a lack of awareness and alertness, lack of procedures and checks, lack of qualified and well-trained staff, with necessary educational background and specialised training, and when there are gaps and ambiguities in the functions of personnel along the lines of authority and responsibility [2].

Through a review of 7741 reported incidents over three decades, involving a total of 3125 patients, a WHO-appointed group of experts were able to identify the stages of radiotherapy treatment where most events occur [3]. Although a significant proportion of reported incidents were related to system failures due to incorrect use of equipment and setup procedures, for a number of them the contributing factors were incorrect treatment decisions, mistaken treatment delivery and inadequate verification of treatment, due to inexperience and insufficient knowledge of the staff involved.

The IAEA in its publication reviewing 10 years of experience with QUATRO audits in the Europe region highlighted the need to improve education, training and professional development, particularly for RTTs [4]. Similarly, an analysis of 12 QUATRO audit missions in Latin America recognised the need for training and professional recognition of workers in general and of RTTs in particular [5].

From a legal perspective, the International Basic Safety Standards [5]; the reference document from which much national nuclear regulatory normative is derived; states in its Section on Medical Exposures, Requirement 35:

“The regulatory body shall require that health professionals with responsibilities for medical exposure are specialised in the appropriate area and that they fulfill the requirements for education, training, and competence in the relevant specialty.

“The regulatory body shall ensure that the authorisation for medical exposures to be performed at a particular medical radiation facility allows personnel (radiological medical practitioners, medical physicists, medical radiation technologists and any other health professionals with specific duties in relation to the radiation protection of patients) to assume the responsibilities specified in these Standards only if they:

(a) Are specialised in the appropriate area;

(b) Meet the respective requirements for education, training, and competence in radiation protection, in accordance with para. 2.32;

(c) Are named in a list maintained up to date by the registrant or licensee.”

In other words, in countries that have radiation protection legislation and a regulatory body, this regulatory authority must ensure that to receive a license to practice, a facility or centre has to employ individuals that have been adequately educated to perform their functions. Although this may seem obvious to many readers, let’s remember that there are countries without a regulatory infrastructure, some in which this infrastructure is under sub-optimal operation and in many countries, certain radiotherapy-related professions are poorly defined, and education programmes may be non-existent. Thus, the normative exists for a reason.

In response to the question posed at the beginning of this short communication, it is clear that specialist radiotherapy based education for the RTT of 2018 is crucial to safe, accurate and quality treatment. The ESTRO and IAEA core curricula and the ESTRO level 6 benchmarking document have been the recommended baseline of RTT education and professional practice and are available on the respective websites. This edition of Technical Innovations and Patient Support in Radiation Oncology introduces the level 7 & 8 benchmarking document and outlines the activities and impact of the Train the Trainer project. We look forward to an era where RTTs are recognised for the important role they fulfil as part of the radiation oncology team and are educated sufficiently to allow them to fulfil this role appropriately and to develop the career structure that will support and enable future technological developments in radiation oncology.

Conflict of interest

There is no conflict of interest.

Appendix A. Supplementary material

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.tipsro.2018.09.001>.

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Further reading

- [6] Basic Safety Standard Directive of the European Nuclear Safety Regulators group. Available at: <http://www.ensreg.eu/nuclear-safety-regulation/eu-instruments/Basic-Safety-Standards-Directive>.