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Editorial

The importance of quality and safety in radiotherapy delivery



Never before has the robustness of safety processes and practices been more important than during the COVID19 pandemic. While our concentrations may have been diverted to immediate concerns at hand, safety needs to remain in focus for all medical disciplines; radiation oncology is no different. In the background we must keep in mind the other aspects of quality and safety which are so important in delivering the optimum care to our patients. This special edition of TipsRO focuses on these aspects and bring experience and recommendations on five key issues: the prevalence of ALERTS and the impact on our daily practice, how we might prioritise the analysis and application of near-misses to improve safety, best practice recommendations for IGRT in head and neck cancer patients, using innovative systems that focus on safety for the introduction of new technology into a department and learning from the analysis of reported incidents and near incidents.

In all aspects of our life when using computers we have become accustomed to seemingly random and annoying messages popping up on the screen, the majority of which we ignore, many we don't even understand! However, when we put this into the context of a busy day on the linear accelerator, we have to give a little more thought both to what these messages actually mean and do we need to take some action or intervention. Major radiotherapy incidents have occurred as the direct result of these types of messages and reviewing the frequency and type of messages displayed regularly on our screens is important in raising awareness and preventing desensitisation. The ALERTS paper from the group led by Petra Reijnders reviews the number and type of messages viewed over six centres in The Netherlands and provides a stimulus for further research in the area (Prevalence of software alerts in radiotherapy).

Many of our reporting and learning systems record near-misses and where there is actually important information to gain from them, particularly when shared with others, sometimes it can seem like a lot of data collected to no clear end. Liszewski developed a method to inform a prioritisation framework for the triage of near miss events based on their potential to cause actual harm to a patient (A Prioritization Framework for the Analysis of Near Misses in Radiation Oncology). Failure Modes Effects Analysis (FMEA) was used to identify potential systems failure and the Analytic Hierarchy Process (AHP) to develop priority scales based on expert input. Near misses were analysed in terms of their potential impact and the barriers where they were identified. A normalised 10-point score (NTPS) was used to stratify the results to describe the event types with the greatest and least programmatic risk

and to help departments to assess the allocation of resources for incident learning and mitigation to give the optimum benefit.

Image Guided Radiation Therapy (IGRT) is now a routine part of our daily practice and has been the focus of much discussion on the additional dose received by the patient. The frequency of imaging has often been determined without any clear evidence of optimal frequency, and this may vary depending on the treatment site [1]. Suggestions have been made to limit the dose delivered based largely on radiation protection recommendations. In the context of radiotherapy greater consideration needs to be given to the justification of the procedure, how the information gained from imaging is used and how the process can be fully optimized [2]. Kearney and Leong describe an extensive review of practice in IGRT for head and neck cancer patients summarising the evidence and providing recommendations for the implementation of an IGRT strategy in the clinical setting. This paper also stresses the importance of accurate immobilisation in conjunction with IGRT to achieve optimum results. The review covers the full spectrum of IGRT methodology and considers the increasing importance of IGRT in both current and future practice as part of the justification process and the potential outcome benefits. They discuss the dose levels and refer to the major publications in the area. They conclude with recommendations on implementation strategy for departments.

In the rapidly evolving world of radiotherapy, departments have to manage the introduction of new technology and techniques into their routine practice. This presents many challenges. Ralston et al. have developed a novel multidisciplinary team approach to evaluate the benefits of new technology and techniques prior to their introduction. The Risk and Benefit Balance Impact Template (RABBIT) leads a multidisciplinary team through the process of analysis of the risks and benefits of a new technology prior to its implementation and subsequent evaluation after a period of clinical use. The paper explains the four steps of RABBIT and provides an example as an illustration.

Learning from incidents and near incidents is an important component of improving safety in radiotherapy departments. This paper by Smith et al from two Australian cancer centres reports on a 15-year review of incident learning in the two integrated centres. These centres have a long history of reporting and learning from incidents and near incidents which includes analysis of reports and implementation of the findings. The paper outlines the process that the centres went through to develop a radiotherapy specific reporting module that was missing from their existing hospital

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system allowing them to analyse in detail their incidents and near incidents and make active changes for improvement. In all 1727 reports were analysed, of these 1166 were near misses. This paper provides a detailed analysis of these reports, the reduction of the number of incidents over that period and how the information gained will inform future activities.

To complement this special edition and to provide ongoing education on aspects of quality and safety the ESTRO Radiation Oncology Quality and Safety Committee (ROSQC) is developing a series of lectures and webinars on a wide range of topics under this umbrella heading. One component of this initiative will be presentations based on the five published papers. The selected topics will cover background information underpinning quality and safety, a range of methodologies routinely used and examples of clinical application. Information on the availability of the lectures and webinars will be given on the ESTRO website. The Radiation Oncology Safety Education and Information System, a component of the ROSQC, provides direct links to quality and safety websites from a wide range of international professional societies and organisations. The ROSQC will continue to update and improve the ROSEIS and to provide the ESTRO members with information pertaining to quality and safe radiotherapy.

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