
Contouring training should not be viewed as a process limited to the residency and fellowship programs and core-curriculums. In a study evaluating the impact of prospective contouring rounds in a high volume academic centre, 36 % of cases required modification of contouring or written directives prior to treatment planning [Cox BW, et al. Pract Rad Onc 2015]. In a study of stereotactic body radiotherapy for lung cancer, the institutional peer-reviewers recommended major and minor changes of delineations in 23 % and 37 % of 472 contoured structures, respectively [Lo AC, et al. J Thor Onc 2014]. In view of the rapid developments of imaging and radiotherapy delivery, accompanied by constant evolution and development of new contouring recommendations, the importance of continuous education of the experienced practitioners, mentors and trainers cannot be overemphasized.

Research focusing on site-specific volumetric, topographic and qualitative aspects of contouring variation informs the educational activities in this field. The growing number of published inter-observer studies offers valuable resource to guide the training process. Limiting the learning to didactic and case-based instructions has improved knowledge scores and resident satisfaction in one study. However, this was not translated into improved contouring accuracy [D’Souza L, et al. BMC 2014]. In our experience, site-specific curriculum based on intensive sequence of didactic presentations, system-based instructions and hands-on contouring workshops represents an optimal strategy to achieve good learning results [Segedin B, et al. Submitted to Radiol Oncol 2016]. Feasibility and effectiveness of similar intensive educational interventions has been confirmed by others [Jaswal J, et al. IJROBP 2014].

These favorable early outcomes of teaching cannot be extrapolated on the long-term scale. Further evidence-based characterisation of the learning curve is required to quantify the needs for continuous education and identify strategies for long term knowledge consolidation. Relative impact of the individual educational modules and qualifications of trainers on the learning outcome needs to be quantified, taking the tumour-site specific challenges into account. Development of training tools, including e-learning platforms and tools for objective assessment of contouring represent some of the main pre-requisites for future improvements in this field.

SP-0108
Physicist training in 3D dose planning
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New physicists entering to the speciality of brachytherapy normally undertake a formal training scheme in Medical Physics. Within the specialised field of brachytherapy the depth and breadth of training received can be dependent on the training scheme undertaken, training hospital’s expertise in brachytherapy, length of time dedicated to brachytherapy training and the assessment process. This presentation will summarise the key components of knowledge and experience a physicist should be expected to receive during their brachytherapy training and cross reference this to example training schemes. Several key questions need to be addressed when reviewing the training needs for image guided brachytherapy: is additional training still required after completion of the formal training scheme? Are they appropriately focussed on image guided brachytherapy? It is important that any training gaps are identified and that measured data is put in place to ensure that physicists have an understanding across all the components of image guided brachytherapy, have a full appreciation of the uncertainties and limitations within the brachytherapy pathway and of the systems used.

Additional training resources will likely have to be explored to complement the core training schemes. Examples of available training resources will be presented and how they can potentially help facilitate the training and professional development of brachytherapy physicists. It is important that we ensure that opportunities for physicist training is not restricted and that physicists are allowed to develop their knowledge, understanding and skill set required for the modern image guided brachytherapy era. Training schemes need to continue to evolve and new training resources explored to complement formal training schemes and work based learning.

SP-0109
New avenues for training with e-learning
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E-learning has the potential to deliver educational content to large numbers of learners world-wide. In 2008, Cook et al from the Mayo Clinic conducted a meta-analysis of 201 studies of e-learning in the health professions. They found that internet-based instruction for medical professionals is associated with favorable outcomes across a wide variety of learners, learning contexts, clinical topics, and learning outcomes. Internet-based instruction appears to have a large effect compared with no intervention and appears to have an effectiveness similar to traditional methods. In a separate review in 2010, they identified that interactivity, practice exercises, repetition, and feedback improved learning outcomes.

This talk discusses the potential of e-learning for teaching competency in target volume delineation (TVD). A crucial component of such a programme is automated assessment of contours with individualised feedback. The talk will compare conventional and novel methods for creating reference contours for TVD assessment, and conventional and novel metrics for automated assessment of TVD competency in individuals and groups of learners. The talk will also discuss the potential to investigate the impact of different instructional designs (e.g. live lectures, podcasts, annotated clinical cases, interactive demos) on TVD competency using quasi-experimental methodology.

Symposium: Imaging markers for response prediction and assessment

SP-0110
Imaging markers for response prediction: the clinical need
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A variety of therapeutic options are now available to cancer patients. It is recognised that significant biologic heterogeneity exists that may affect a patient’s likelihood of response to particular therapies and development of resistance on therapy. To be able to predict whether a patient will respond or not respond to a specific therapy is advantageous in streamlining patient management and minimising the costs of continuing therapy that is not working as well as minimising unwanted side-effects of such therapy.