

In this issue

In this issue there are six original articles on a range of topics, in the first two, the researchers seek the views of radiation therapist to evaluate their views on providing information to patients and in agreeing research priorities to impact on service improvement. The next two articles are very much focussed on ensuring accuracy and reproducibility in radiotherapy. In the fifth article, the researchers undertake a Monte Carlo study on mucosal dose in the oral and nasal cavity using photon beams with small fields. In the final paper, researchers investigate the contribution of PET-CT to staging, gross tumour volume definition, planning and response assessment in IMRT for nasopharyngeal carcinoma.

In the first article, Griffiths and Hodgson present a study investigating professional attitudes and confidence in providing sexuality information to prostate cancer patients. Sexual dysfunction is a well documented side effect of radical radiotherapy treatment for prostate cancer and the provision of information to patients is often a radiotherapist or assistant role. The study sought to measure the attitudes and beliefs of individuals before and after an educational intervention and establish current practice in providing sexual information.

In the second article, Cox et al., sample radiation therapist across Australia to identify the group interest and focus of research priorities. The authors argue research is increasingly important in radiation therapy, but radiation therapists are relatively new to research and may have difficulty defining research topics. An Australian – wide Delphi process was used, examining the range of problems relating to patient care, working with colleagues, and radiotherapy in general, that therapists experienced in their daily work. In an initial study, 374 problems were identified. These were

translated into 53 research areas which were prioritised in the second stage of the study. Agreement between groups was analysed using a hierarchical cluster procedure and post hoc Scheffe multiple comparisons. The list of potential research areas specific to radiation therapy will be useful for new researchers to consider.

In the third article, Baker et al., present their research of a comparison of imaging schedules for prostate radiotherapy including online tracking techniques. Repeat imaging protocols, specifying imaging frequency and action levels for movement correction, can be used to achieve more accurate targeting of the prostate gland during radiotherapy. This study is a comparison of the accuracies of online versus off-line correction strategies which use implanted marker seeds to localise the prostate. Data was analysed for 60 prostate patients, verified using an online imaging technique. Systematic and random errors have been calculated for a daily imaging protocol and for other common imaging schedules. Resource requirements have been assessed for the daily imaging technique by analysing the in-room timings performed on 10 patients.

In the next article, Goldsworthy et al., present their findings of a study undertaken to identify the best position to ensure reproducibility in patients undergoing radiotherapy for breast cancer. 50 consecutive female patients were randomised to ipsilateral or bilateral arm abduction. Central lung depth and cranial caudal depth on the simulator image was compared with that featured on three electronic portal images (EPI) captures during treatment for each patient. Systematic and random errors were analysed with respect to the average translational displacement and standard deviation

per patient and per population between the planning image and the EPI.

Chow and Owrangi undertake a detailed study using the Monte Carlo methodology into how mucosal dose in the oral or nasal cavity depends on the irradiated small segmental photon fields varying with beam energy, beam angle and mucosa thickness. Dose ratio (mucosal dose with bone underneath to dose at the same point without bone) reflecting the dose enhancement due to bone backscatter was determined by Monte Carlo simulation, validated by measurements. The dosimetric information in this study should be considered when searching for an optimized treatment strategy to minimise the mucosal complications in the head and neck intensity – modulated radiation therapy.

In the final article, Guden et al., present their findings on the contribution of positron emission tomography-computed tomography (PET-CT) to staging, gross tumour volume definition, planning and response assessment in IMRT for nasopharyngeal carcinoma. The effectiveness of PET-CT was investigated for staging target delineation compared with computed tomography-magnetic resonance (CT-MR) and early response of intensity-modulated radiotherapy. Gross tumour volume-clinical target volume differences between PET-CT and CT-MR for 14 nasopharyngeal carcinoma patients were compared. Evaluation of doses of organs at risk was done by IMRT plans and responses of IMRT were evaluated for both sets.

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