

VMRPET - Grant Recipient Abstracts

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Optimal Breath-hold technique for Upper-abdominal & thoracic Radiotherapy

- Briana Welsh

The delivery of radiotherapy to cancers of the lung and upper abdomen, including the liver, pancreas, adrenal gland and kidneys, is technically challenging, as the tumour and surrounding organs move due to breathing.¹ One method to overcome the effect of this motion is to deliver radiotherapy while the patient is holding their breath. A specialised machine called an Active Breathing Coordinator (ABC) is used to assist patients to hold their breath during radiation treatment. The intent of using this machine is to ensure the tumour and nearby healthy organs do not move during radiotherapy treatment. However, over multiple breath-holds, some small differences in tumour position can be observed. This small instability must be accounted for in the planning of the patient's radiotherapy treatment, to ensure the tumour is treated with the correct dose. Too large a volume will result in unnecessary normal tissue irradiation and increased risk of side effects.

Better Preparing Prostate Cancer Patients for Radiotherapy: Incorporating Telehealth Consultations into Pre-treatment Patient Management

- Nigel Anderson

Modern technologies have enabled significant improvements in radiotherapy precision, providing an exciting opportunity to optimise patient outcomes. However, greater precision generates heightened sensitivities to deviations in planned radiotherapy due to dynamic patient changes throughout treatment. Prostate radiotherapy demands precision, due to the close proximity of critical structures (i.e. bladder and bowel) to the targeted area (prostate or prostate bed). Pre-radiotherapy bladder and bowel filling protocol adherence ensures optimal avoidance of these structures, mitigating prostate/prostate bed displacement away from targeted radiation caused by dynamic patient changes. Such non-compliance often necessitates the need to repeat both the patient CT simulation (the preparatory CT scan that is required to enable radiotherapy planning) and radiotherapy treatment (multiple sessions to deliver the required dose of therapeutic radiation) appointments to ensure optimal treatment.

Patient protocol compliance is often challenging. Currently, up to 40% of patients presenting for prostate radiotherapy CT simulation at the Peter MacCallum Cancer Centre (Peter Mac) have not adequately prepared, despite receiving printed preparation instructions and a follow-up phone call. This dramatically impacts service delivery, due to the need for additional appointments to rectify patient non-compliance. Additionally, patients are also inconvenienced with this extra requirement.

Peter Mac now offers a telehealth video consultation platform organisation-wide. Application of telehealth in the provision of prostate cancer patient information provides an exciting opportunity

to positively impact the persistent issue of bladder/bowel filling non-compliance, providing multifaceted benefits to both the patients and the organisation.