

Adaptive Radiation Therapy Practices: An Australian Perspective

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About the Author

Glen is from the Townsville Cancer Centre and is the clinical lead radiation therapist working on the MR-Linac. He has a keen interest in the adoption of new technologies into radiation therapy and the opportunities these provide for role expansion for RTs.

Introduction

Adaptive Radiation Therapy (ART) practices are anecdotally increasing within Australia, often dependent on a department's technology. With the introduction of new treatment modalities that enable ART routinely, such as the MR-Linac, information regarding the current adaptive capabilities and radiation oncology professional perceptions is required.

Methods

An online survey was distributed to Radiation Therapists (RT), Radiation Oncologists/Registrars (RO/Reg) and Radiation Oncology Medical Physicists (ROMP) currently practicing within Australia. Questions included aspects of current ART practices, the perceived importance and benefits of ART, and barriers or enablers for implementation.

Results

There was a total of 76 respondents from all states and territories, including 10 RO/Regs, 14 ROMPs and 52 RTs; a majority of whom were clinical (82%) and 5-10 years qualified (60%). Varied approaches to adaptation were reported across clinical treatment sites including nil ART; ad-hoc and scheduled re-simulation/planning; plan-of-the-day approaches; with 13% reporting online ART of male pelvis treatments.

Major barriers reported included staffing and capital investment; with training and credentialing identified as a moderate barrier. Major enablers identified included best care provision for the patient, and research and development opportunities. Ensuring adequate planning target volume (PTV) coverage was ranked as the most important criteria for adaptation, followed by gross anatomy changes, and serial organs-at-risk (OARs) close to high dose regions; with a minimum improvement to justify ART of 3-5% of PTV coverage (51% of respondents) or 3-5% dose to OARs (53% of respondents) reported.

Conclusion:

While there are vast differences in the ability of Australian departments to implement and provide ART, pleasingly, there is consistency regarding the benefits of ART reported.