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**PRESENTATION TITLE**
Understanding the Canadian landscape to guide practice change: MRI in radiation therapy

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**ABSTRACT**

Please type in your abstract up to a MAXIMUM of 500 words. Figures may be included.

**Purpose:** Magnetic Resonance Imaging (MRI) is becoming a preferred imaging modality in radiation medicine due to its superior soft tissue visualization to help guide treatment decisions. Currently, MRI plays a vital role in Radiation Therapy (RT) treatment planning across many disease sites given its high contrast. MR guided RT represents the next evolution of image guided RT with the potential to further dose escalate and reduce treatment margins. The seamless integration of MRI into RT workflow requires forward planning of the knowledge, skills and training required to ensure safe practice and successful implementation of therapeutic MRI into RT departments. The aim of this work was to understand the current state and projected utilization of MRI in RT departments across Canada.

**Materials & Methods:** An electronic survey was developed and circulated to 39 Canadian RT managers to determine 1) proportion that currently have a dedicated MRI, 2) proportion who anticipate acquiring a dedicated MRI simulator and/or integrated MRI-linear accelerator (MRL) in the next 5 to 10 years, 3) current and/or anticipated staffing models for these units and 4) comment on anticipated training needs with the integration of therapeutic MRI. The e-survey was available for a 4 week period with a reminder email sent out at 2 weeks. To encourage high response rate, the e-survey was available in both French and English.

**Results:** A 59% (n=23) response rate was obtained with respondents from 10 of 12 provinces. Dedicated MRI simulators exist in 17% of the RT departments and 26% of the RT departments anticipate the acquisition of a dedicated MRI simulator in the next 5 years of which half also anticipate acquiring an integrated MRL. An additional 13% of the RT departments anticipate acquiring only an
integrated MRL in the next 5 to 10 years. There was a large variation in staffing models, whereby the units may be operated by: dual certified RTT/RTMRI, RTT with specialty MRI training or a team comprised of individual RTT and RTMRI. There was general consistency regarding anticipated department training needs with 30-39% agreeance on the need for training on MRI safety, MRI based anatomy, MRI image quality, scan optimization/interpretation, and QA requirements and procedures.

**Conclusions:** This comprehensive snapshot of MRI in RT across Canada demonstrates that RT Managers recognize the value and anticipate the integration of therapeutic MRI, however, there is currently no consensus as to the optimal staffing model or requisite training. The opportunity exists to respond to this paradigm shift by exploring new staffing models to maximize resources and the scope of practice for RTTs. In addition, it is vital that education and training solutions for therapeutic MRI are established to meet the needs of RT departments efficiently and effectively and to ensure the seamless integration of therapeutic MRI to ultimately benefit cancer patients across Canada.