

IMPACT

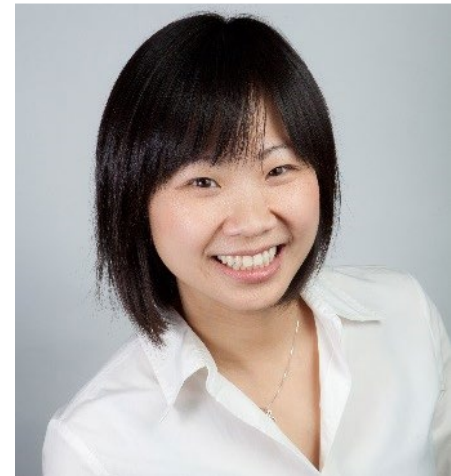
Influencing Models of Practice with
Advanced Competency in Therapeutic Radiation

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Greetings from the Editor in Chief

Kitty Chan (CSRT Community of
Practice Co-Chair)



Welcome to the 6th Edition of the IMPACT Newsletter! I would like to first give a big thank you to all frontline health care workers during this COVID-19 pandemic.

As Clinical Specialist Radiation Therapists (CSRTs), we have been adapting to the rapidly changing environment. We are using our advanced clinical, technical and professional skill sets to conduct telephone consults; develop departmental guidelines and protocols; contour tumour volumes and so much more. Being able to adapt to the changing needs of a department is definite assets of our CSRT group.

Prior to the pandemic, we celebrated the new appointment of Laura D'Alimonte, a Brachytherapy CSRT, as the new Clinical Practice Manager of Windsor Regional Hospital. This led to the appointment of Darby Eler, a Stereotactic CSRT and now former CSRT CoP co-chair, as the Professional Leader for Radiation Therapy in Odette Cancer Centre (OCC).

I would like to congratulate both and welcome them as affiliate members in our CSRT CoP. I'd like to thank Darby for her partnership as CSRT CoP co-chair in the past year and welcome her successor, Natalie Rozanec. Lastly, I'd like to thank CAMRT for collaborating with us and lending us resources in editing and designing of this newsletter.

This issue focuses on magnetic resonance (MR) and its role in radiation therapy. You will read:

- Feature: Role of CSRT in the integration of MR into Radiotherapy Practice
- Successes of three of our members
- National Taskforce update

We hope you enjoy!

About Us

The Clinical Specialist Radiation Therapist (CSRT) was introduced by HealthForce Ontario in 2006. Subsequently, the CSRT Community of Practice (CoP) was formed in 2015 to facilitate initiatives to ensure cancer patients in Ontario, Canada receive the highest quality of care and to advocate a collective CSRT/APRT identity. There are currently 23 CSRTs employed in the province of Ontario, Canada.

Feature: Role of CSRT in the integration of MR into Radiotherapy Practice



MR-Linac at the Odette Cancer Centre (Left)



MRgRT Interventional Suite at the Princess Margaret Cancer Centre (Right)

Kitty Chan (CSRT at Princess Margaret Cancer Centre)

At the beginning of this century, the introduction of MRI into the radiotherapy planning process improved tumour and soft tissue visualization, which led to the reduction of planning target volumes.

More recently, the integration of MRI into actual radiotherapy workflow, required expertise in MR technology and radiation therapy. Kitty Chan, Brachytherapy CSRT at Princess Margaret (PM) Cancer Centre and Laura D'Alimonte, former Brachytherapy CSRT,

OCC, were instrumental in designing the workflows and multidisciplinary team education to ensure high quality and safe radiotherapy treatment.

In 2012, the installation of the MR-guided Radiotherapy (MRgRT) Interventional Suite at the Princess Margaret allowed real-time MR-guided catheter insertions which enabled dose escalation to target volumes in gynecological and prostate tumours. In the recent decade, global efforts escalated to develop a hybrid integrated MRI-Linac (MRL) system that allowed daily real-time MR tumour imaging during external beam radiation therapy treatment.

This enabled the monitoring of intra-fraction motion, re-optimization of treatment plans (adaptive planning), and monitoring of tumour response when functional images are acquired.

At the OCC, the first Canadian MRL was installed with Canada's first MRL radiotherapy treatment delivered to brain tumour patients in August 2019.

Darby Erler (former SBRT CSRT, OCC) was a key member of the implementation team.

In this feature, Vickie Kong, Imaged-guided Adaptive Planning CSRT at PM Cancer Centre, will comment on how she helped with improved localization of target and organs at risk (OAR) and her journey as a CSRT in implementing this technology.

Carrie Bru, Director of Education, CAMRT also shares how the CAMRT are helping us, as radiation technologists, to equip ourselves to operate in an environment that integrates the two technologies.



MR-Linac team at Odette Cancer Centre. CSRT in project: Darby Erler (second from right)

Feature:

MRL: A tool for Adaptive Radiation Therapy

Vickie Kong (CSRT in Princess Margaret Cancer Centre)

Changes in the size and position of the target volume can be large for some disease sites such as bladder and cervix. Despite the use of image guidance to improve geometric precision, two questions remain: 1) Did the target volume receive an adequate dose? 2) During the treatment course, was the amount of normal tissue being irradiated acceptable?

At the PM Cancer Centre, a team consisting of CSRTs and medical physicists started developing and validating tools to estimate the actual delivered dose to the volumes of interest to better inform the clinical team on the effect of organ motion on the dose distribution. Building this clinical expertise facilitates decision making during the online adaptive process delivered by the recently installed MR-Linac (MRL) where the dose distribution is modified “on the fly” based on the anatomy of the day.

Prior to working at the MRL, I developed and validated the dose reconstruction workflow by using images (usually daily cone-beam CTs) of patients from various disease sites. This facilitates estimation of actual delivered dose over the treatment course with the use of deformable image registration. In addition to calculating the difference between the actual delivered dose and the planned dose using this workflow, I tracked and



MR-Linac team at Princess Margaret Cancer Centre. CSRTs in project Vickie Kong (front 2nd from left), Grace Lee (middle row 5th from left), Andrea Shessel (middle row, 7th from left).

quantified the anatomical changes of the target and the OARs. This was done to assess if and how changes in anatomy can contribute to the varying degrees of deviation observed. This knowledge enables me to provide feedback and recommendations when image guidance issue arises on the treatment unit, and informs the development of the new adaptive clinical workflow for the MRL. The MRL process is dynamic and requires a good understanding of the effect of both inter- and intrafraction motion.

We are currently evaluating the efficacy of this new adaptive process by comparing the dosimetry and resources needed against the standard image-guidance approach. This is being done using the dose-reconstruction workflow that we validated.

I am thankful for this great opportunity to participate in the implementation of this new technology and to collaborate with the radiation oncologists, medical physicists, MR technologists and radiation therapists in delivering personalized radiation medicine to our patients.

Feature: MR in Radiation Therapy: CAMRT National Taskforce Update

Carrie Bru (Director of Education, CAMRT)

With the advent of any new technology, comes the necessary discussion around knowledge and skill requirements to ensure safe integration and application of the new technology into practice. The introduction of Magnetic Resonance (MR) into the Radiation Therapy (RT) environment, and more specifically, the introduction of the MR-Linac into the Canadian healthcare system, is no exception to this rule.

In 2019, the CAMRT formed a national taskforce to identify competency requirements for MR in RT, due in large part to the advocacy of a dedicated group of CAMRT members. This taskforce is comprised of radiation therapists, magnetic resonance technologists, dual-trained technologists, educators, administrators, and representatives from the Alliance of MRT Regulators, COMP, CARO and CADTH.

The inaugural meeting was held in February 2019. At this meeting taskforce members discussed the current environment, existing education pathways, opportunities, challenges and the need for a consistent standard for competence. In addition, the group also engaged in a generative session to identify a preliminary consensus on the knowledge, skills and judgement required to safely and effectively integrate MR into RT practice. The preliminary knowledge and skill domains identified were: MR Physics, MR Safety,

Application of MR guided RT, Patient Care, MR Image Interpretation for RT and Emerging Paradigms. Also of note, a significant portion of the requisite knowledge and skills identified at the meeting extended beyond the current entry-level education and practice expectations, suggesting a need for new content/program development.

It was recognized that additional validation of the knowledge and skill requirements was needed and thus the taskforce elected to support an international Delphi study, initiated and led by Mikki Campbell (Odette Cancer Centre/UTDRO) and Laura D'Alimonte (Windsor Regional Cancer Centre/UTDRO).

The taskforce was scheduled to reconvene in early April to discuss the outcomes of the Delphi study and begin work on a national competency standard. Unfortunately, due to the escalation of the COVID-19 pandemic, this meeting has been postponed. We will continue to update our key stakeholders as new information emerges.

On behalf of the CAMRT, we would like to extend our sincere gratitude to all MRTs working on the frontline during this pandemic. You are a vital member of the healthcare team and we appreciate all that you do. Your association is here for you. Take care and stay safe.

“...We would like to extend our sincere gratitude to all MRTs working on the frontline during this pandemic.”

Our People

Recognizing our new APRT(T)s and CSRTs



Congrats to new APRT(T)s!

Our congratulations go out to Natalie Rozanec MSc, APRT(T) and Grace Lee MHS, APRT(T) who were both successful in completing the Canadian Association of Medical Radiation Technologist, Advanced Practice Registered Technologist certification! Natalie and Grace both exemplify the very best of our profession and we are very proud of them. Congratulations on achieving this milestone in your careers! As well, Natalie has recently been appointed the new co-chair of the CSRT Community of Practice! We thank her for taking on this position and welcome her contributions and leadership in this group.

Natalie: "I am very excited take on the role of CSRT CoP co-chair, and am looking forward to see the group continue to grow and expand. Along with mentorship and support for current CSRTs, I hope that the CSRT CoP continues to form new partnerships as advanced practice in radiation therapy continues to develop across the country and internationally."



CSRT Spotlight

Grace Lee is one of the most experienced CSRTs in Ontario. She was the recipient of the CAMRT's Early Professional Achievement Award (2013) and Ontario Association of Medical Radiation Sciences Medical Radiation Sciences Practitioner of the Year (2019). Her most recent achievement has been completing the CAMRT, Radiation Therapy APRT(T) certification. Grace started her CSRT role as Patient Assessment and Symptom Management (Breast Site) in 2007. As a CSRT specialized in breast radiotherapy, she supports radiotherapy on-treatment review, new patient and follow-up clinics. She also delineates the post-operative breast cavity in selected patients undergoing whole breast radiotherapy. Grace was the therapy lead for the QuickStart RT Program at the PM Cancer Centre, which provides simulation and treatment for patients with early-stage breast cancer on the same day. This program was recognized at the Cancer Quality Council of Ontario 8th Annual Quality and Innovation Awards Ceremony. This process also received the 2018 TCLHIN Certificate of Recognition for Outstanding Innovation.

Grace: "One of the things I like about my role is the ability to connect with patients. I value every interaction with patients in the Radiation therapy review clinics. My role (also) challenges me to keep up with the current practice guidelines and evidence-based practice."

Our People

Recognizing our new APRT(T)s and CSRTs



Welcome new CSRT!

Welcome Madette Galapin - the new Head and Neck CSRT in Odette Cancer Centre at Sunnybrook Health Sciences Centre. Madette started her role in December 2019. Understanding that head and neck cancer patients often present with complex issues and experience an abundance of side effects during and after their course of treatment, Madette's goal is to enhance the patient experience by developing and providing novel clinical and technical support. She also garners knowledge daily from members of the interprofessional team. Madette looks forward to learning and collaborating from members of the CSRT CoP, especially on how to measure impact and how to advance her practice even further. Welcome Madette!

Special Announcement

Christopher Topham (Director, Advocacy and Communications, CAMRT)

The CAMRT made a formal submission to the House of Commons Standing Committee on Health for their study of Palliative Care. The submission focuses on the work of the CSRTs in palliative roles in Ontario, with an aim to getting that role more exposure nationally and eventually adopted in other provinces. The submission was built by adapting some previous submissions to government agencies relating to the CSRT roles in Ontario as well as the recent manuscripts produced by Nicole Harnett, Carrie Lavergne, Natalie Rozanec and contributors.

In correspondence with the clerk of the Standing Health Committee, it remains unclear whether they will be adhering to the timeline of this study of palliative care set prior to the coronavirus pandemic. Whether the study proceeds as normal, or with delay, the report is now an item of public record, and the CAMRT will be considered with the other submissions for appearance to testify in front of the committee. The CAMRT will also be using the contents of the submission in upcoming advocacy opportunities related to the promotion of palliative APRT roles across the country.

Our Achievements

Advanced Practice Certifications:

- **Michele Cardoso**, Master of Science in Advanced Practice (Radiotherapy and Oncology)
- **Natalie Rozanec**, Advanced Practice Registered Technologist (Radiation Therapy)
- **Grace Lee**, Advanced Practice Registered Technologist (Radiation Therapy)

Awards:

- **Lee G.** (2019). Medical Radiation Sciences Practitioner of the Year Award. Ontario Association of Medical Radiation Sciences (OAMRS) Award

Grants:

- Tadic, T., **Kong, V.**, Letourneau D., Berlin A. (2019). A framework for fast online adaptive treatment planning for prostate radiotherapy. CARO - Sanofi Award
- Rosewall, T., **Kong, V.**, Bayley A. (2019). Therapist-recorded patient assessment facilitates evidence-based practice: An evaluation of prospectively documented acute toxicity for prostate cancer patients treated with radical external beam radiotherapy from 2001 to 2017. CAMRT - Research Grant

Publications:

- **Lee G**, Parmar H, Li W, **Shessel A**. The Effect of Lumpectomy Cavity Changes on Planning Dose in Breast Radiotherapy Boost. J Med Imaging Radiat Sci. 2019 Jun;50(2):317-322. doi: 10.1016/j.jmir.2019.02.002.
- **Linden K**, Dennis K Renaud J, Zohr R, Gaudet M, Haddad A, Pantarotto J, Dennis K Clinical Specialist Radiation Therapist in Palliative Radiation Therapy: Report of an Orientation, Training and Support Program. Journal of Medical Imaging and Radiation Sciences. 50 (2019) 543-550.
- **Javor J.**, Robbins M., Rosewall T., Craig T., Villafuerte C.J., Cummings B., Dawson L. (2020) Can conformity-based volumetric modulated arc therapy improve dosimetry and speed of delivery in radiation therapy to lumbosacral spine compared to conventional techniques? JMIRS *IN PRINT*
- Chan J., **Linden, K.**, McGrath, C., Renaud, J., Doering, P., MacDonald, S., Gaudet M., Pantarotto JR., Asmis T., Slotman B. & Dennis K. (2020). Time to Diagnosis and Treatment with Palliative Radiotherapy among Inuit Patients with Cancer from the Arctic Territory of Nunavut, Canada. Clinical Oncology. 32(1): 60-67. doi: 10.1016/j.clon.2019.07.001
- Gaudet M, **Linden K**, Renaud J, Samant R, Dennis K. (2020). Effect of an electronic quality checklist on prescription patterns of prophylactic antiemetic and pain flare medication in the context of palliative radiotherapy for bone metastases. Supportive Care in Cancer. doi: 10.1007/s00520-020-05298-zEpub ahead of print].
- Korzets Y, **Lee G**, Espin-Garcia O, Purdie T, Koch AC, Hodgson D, Barry A, Fyles A. The Role of Partial Breast Radiation in the Previously Radiated Breast. Am J Clin Oncol. 2019 Aug 20
- Loudon J., **Rozanec, N.**, Clement, A., Woo, R., Grant, A., Murray, J., Wells, W. (2020) Collaborating with the Community: Improving Patient Access to Palliative Radiation Therapy. Practical Radiation Oncology. 10(1): 1-7.
- Balsdon A., **Timotin E.**, Hunter R., Diamond K. Stability of Intracavity Applicator Placement for HDR Brachytherapy of Cervix Cancer. Journal of Medical Imaging and Radiation Sciences 50 (2019) 441-448

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MRgRT Interventional Suite at the PM Cancer Centre: Visual Services UHN

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MR-Linac Team at Odette Cancer Centre: Sunnybrook Health Sciences Centre

MR-Linac team at PM Cancer Centre: Kelvin Young