Cancer Care Ontario
Action Cancer Ontario

CLINICAL SPECIALIST RADIATION THERAPIST (CSRT) SUSTAINABILITY / INTEGRATION PROJECT

*FINAL REPORT – **2014/15***

Final Report
August 11, 2015

Driving quality, accountability and innovation in all cancer-related services

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EXECUTIVE SUMMARY

With the objective of improving quality of care and system efficiency, Cancer Care Ontario (CCO) in collaboration with the Ontario Ministry of Health and Long-Term Care (MOHLTC) has been working together to develop innovative models of care. In 2004, the MOHLTC funded a pilot project, examining whether a new kind of radiation therapy (RT) role, called the Clinical Specialist Radiation Therapist (CSRT), could improve the current RT model of care and optimize the use of human health resources in this effort.

The overall goal was to enable CSRTs to assume responsibility for certain key activities traditionally performed by other members of the health care team, including radiation oncologists (RO), while maintaining and improving access and the patient experience, implementing quality initiatives and increasing capacity. Subsequent annual goals and targets have been developed by the CSRT Sustainability/Integration Project team to determine the progress of the project and establish and examine the various ways in which CSRTs have positively impacted patient care and management.

The CSRT Sustainability/Integration Project continues to deliver on its performance goals and/or targets.

For 2014/15, the articulated goals were:

1. further integration of the existing 18 CSRT positions into fully functioning teams,
2. support for employers to develop and hire 7 new CSRT positions,
3. formalization of the Palliative Radiation Therapy CSRT role within CCO,
4. creation and dissemination of knowledge about CSRTs, and
5. continuation of work with professional associations and stakeholder groups to ensure consistent integration of the CSRT role.

Twenty-one of the 25 CSRT positions are now considered permanent and full time, a significant increase from 6 reported permanent positions out of 18 total positions in 2013/14. This represents a very positive milestone in the project's implementation, exceeding expectations for this year. Work continues towards the conversion of the remaining positions to permanent, full time status.

CSRTs have contributed to improving the patient experience through the ability to increase the number of new patients seen in clinic, and through the saving of RO hours. These outcomes help to enhance the patient experience through quicker access to treatment, decreased wait times, decreased anxiety while waiting for a treatment plan, etc. Results realized through implementation of CSRTs as part of the existing interprofessional team are varied. The variation relates directly to the description of the position and its intent and the length of time within the position. In general, CSRTs have either "direct" impact resulting in increased capacity and patient volume for the system, or "indirect" impact where the activities they assume result in time savings for the ROs (or other relevant health care provider) allowing them to focus on other, more complex issues and potentially allowing more patients to access care. In addition CSRTs are also driving quality initiatives, research and innovations. For the most experienced CSRTs, capacity can be seen to increase by as much as 50% in some programs with the average being in the 10% to 20% range. Time savings for ROs through the sharing of specific activities can be as high as 66 hours/month (>50% of the RO's monthly time allotted to clinical work and patient care with the average being 10% to 20%).

"Senior" CSRTs (n = 7) have been in their advanced practice roles for over 7 years and continue to achieve excellence at unprecedented levels, contributing to an increase in new patients able to access treatment per month (ranging from 2 – 21 new patients/month) and saving significant RO time (ranging from 5 – 66 hours/month saved). As comfort levels amongst supervisors and team members continue to increase, these senior CSRTs are taking new and creative directions. CSRTs who have been in place for approximately two years ("Junior" CSRTs n = 11) are now demonstrating high levels of competence. This is reflected in the

data they collected this year, which shows an impressive increase in the number of patients able to access treatment, (ranging from 4 – 28 new patients/month), and reported RO time savings (ranging from 2 – 56 hours/month). After approximately 2 years in their respective positions, junior CSRTs appear to be approaching the output of the more senior CSRTs with respect to achievements and productivity. The addition of 7 new CSRTs in 2014/15, including 3 palliative CSRTs, brings the total to 25 CSRT positions implemented in more than half (n = 10/14) of the provincial cancer centres. Of the 25 CSRT positions, 23 were active in 9 cancer centres in 2014/15 (1 position "on hold" and 1 position on maternity leave). New CSRTs have also begun to contribute to increasing the number of new patients able to access the clinic (ranging from 0 – 28 new patients/month), and contribute to RO time savings (ranging from 0 – 7.5 hours/month.

Although palliative radiotherapy makes up 30 – 50% of a cancer centre's treatment volume, barriers to accessing care still exist for patients who would benefit from palliative radiation therapy. Given the common challenges experienced across the province in this regard, the implementation of palliative radiation therapy CSRTs in each centre was identified as a successful strategy for addressing these issues. Evidence collected throughout the project shows that CSRTs bring the necessary knowledge, skills and judgment to help streamline and create capacity in the system, helping to facilitate that more patients who would benefit from palliative radiotherapy are able to access treatment. In 2015, the palliative CSRT position has been expanded to reach 3 additional cancer centres in the province (n = 9), providing a solid foundation to serve these patients in the future.

The CSRTs have also continued to participate in research projects and share their knowledge, involving themselves in over 52 current research initiatives and sharing knowledge through over 240 different dissemination activities in 2014/15. In addition, new services continue to be implemented and new skills continue to be developed (over 20 new skills currently in development), demonstrating the continued breath of knowledge CSRTs are capable of bringing to their teams, and the work in place to improve patient and provider experiences. CSRTs have also formed a Community of Practice, a voluntary group which has begun to engage in activities they deem appropriate for ensuring the standardization and consistency of the CSRT position as well as its formalization within the province.

The Integration Support Team (IST) focused on issues related to the sustainability and permanent integration of the positions. Impressive progress has been made in the partnership with the Canadian Association of Medical Radiation Technologists (CAMRT) on the development and implementation of a certification process for advanced practice in radiation therapy. The pilot certification project is set to begin in June 2015 with full implementation scheduled for 2016. Policy work within CCO has resulted in the CSRT role being identified as an acceptable physician alternate in the Provincial Oncology Alternative Funding Plan (AFP) agreement which is currently pending approval by the MOHLTC. This will provide leverage for CCO to suggest the development of additional CSRT positions where system pressures exist. Work with the CCO Models of Care initiative is also underway to help capture CSRT contributions and better understand role within the health care team.

Within all this good news is a message of caution that momentum not be hindered by removing much relied on support and motivating forces provided by CCO and the IST. This fledgling role remains delicate within the broader radiation therapy community and dedicated efforts remain necessary to shepherd the work forward. The issues of funding and consistent educational and professional preparation remain unresolved and are in need of further thought and efforts. With the CSRT role still considered new to the scene, further support is required to add stability and strengthen the probability of permanent integration.

In summary, the CSRT Sustainability/Integration Project continues to meet its targets – on time and within budget. The CSRT role holds great promise for the Ontario cancer care system but must be handled carefully to ensure it does not lose traction and can deliver on its full potential.

A/ BACKGROUND

Ontario's heath care system faces many challenges, including increasing costs, an aging population, the introduction of expensive new treatments and technologies, and a growing complexity of care. It is estimated that in their life time 46% of males and 41% of females are expected to develop cancer.[1] Cancer Care Ontario (CCO) estimates each day 180 Ontarians are diagnosed with cancer, and that by 2015, 400,000 people will be living with, or will have survived, cancer in Ontario.[2] In this context, the demand for innovative clinical practitioners and flexible and responsive interprofessional teams has never been stronger.

In response to these system demands – and recognizing the value of interprofessional practice[3] – the Ministry of Health and Long-Term Care (MOHLTC) began exploring non-traditional and creative solutions to recurring issues in radiation therapy.[4] These efforts ultimately led to the development of the Clinical Specialist Radiation Therapist (CSRT) role and the CSRT Projects (Figure 1). The CSRT role provided an opportunity to think creatively about traditional and new ways of working, within the context of an interdisciplinary team environment. The work of the CSRT Demonstration Project confirmed CCO's commitment to drive quality, accountability and innovation throughout Ontario's cancer system. A detailed background and timeline for the series of projects can be found in Appendix A.

Figure 1: CSRT Projects – Project Phases

- Advanced Practice Radiation Therapy (APRT) Development Project (2004-2006)
- CSRT Demonstration Project – Phase I (March 1, 2007 to March 31, 2008)
- CSRT Demonstration Project – Phase I Extension (April 1, 2008 to March 31, 2009)
- CSRT Demonstration Project – Phase II Expansion (August 1, 2008 to March 31, 2010)
- CSRT Demonstration Project – Phase IE[2] (April 1, 2009 to March 31, 2010)
- **CSRT Sustainability/Integration Project – April 1, 2010 to March 31, 2016**

The Demonstration Project introduced and evaluated the CSRT role in a number of different health care institutions across the province. Up to 10 full-time equivalent (FTE) CSRTs were supported in this project which ended March 31, 2010. The results of the final phase of the CSRT Demonstration Project were reported in May 2010 and showed the overall positive impact that the pilot CSRT positions were having in their respective programs and services. In concert with the submission of the final results, CCO also recommended a "Sustainability Phase" of this health service development work. In March of 2011, the CSRT Sustainability Project received funding from the MOHLTC for a three-year plan to integrate the CSRT role into Ontario's cancer care system. This included 11 additional CSRT pilot positions in 2012 and 2013. It was subsequently agreed by both CCO and the MOHLTC to revise the original project activities and

[1] Canadian Cancer Society, Cancer Statistics at a Glance. http://www.cancer.ca/en/cancer-information/cancer-101/cancer-statistics-at-a-glance/?region=on (accessed February 25, 2014)
[2] CCO, Ontario Cancer Plans. https://www.cancercare.on.ca/common/pages/UserFile.aspx?fileId=84204 (accessed on May 22, 2013)
[3] Institute of Medicine, Crossing the Quality Chiasm: A New Health System for the 21st Century. Washington, D.C.: National Academies Press, 2001.
[4] Goodyear, J. Innovative Solutions: New and Expanded Roles in the Healthcare System. Presentation at CCO Advanced Practice Workshop. Toronto, Ontario, March 26, 2004 (March 26, 2004).

timelines to fund the project transition over six years ending, to fund the project's transition and to align with Ontario's Action Plan for Health Care. These changes, prioritizing the needs of palliative patients in all jurisdictions, focus on the roll out of the Palliative Radiation Therapy CSRT for the final three years of the project. To that end, the CSRT Sustainability/Integration Project undertook the development and implementation of 7 additional positions (7.0 FTE), including 3 new palliative positions in 3 cancer centres that did not have any existing CSRTs, bringing the total to 24 active CSRT positions (24.0 FTEs) in 9 cancer centres.

The CSRT Sustainability/Integration Project had several performance goals and/or targets for 2014/15*:*

1. further integration of the 18 CSRT positions into fully functioning teams,
2. support for employers to develop and hire new 7 CSRT positions,
3. formalization of the Palliative Radiation Therapy CSRT role within CCO,
4. creation and dissemination of knowledge about CSRTs, and
5. continuation of work with professional associations and stakeholder groups to ensure consistent integration of the CSRT role.

B/ KEY ELEMENTS

1. CSRTs

1.1 General Overview

There are currently 25 CSRT positions, with 23 active in 9 of the 14 cancer centres in 2014/15 (1 position "on hold" and 1 position on maternity leave) (Figures 2a and b). Seven "senior" CSRTs have been in their positions since 2007 (5 positions, 5.0 FTE) and 2008 (2 positions, 2.0 FTE). Eleven "junior" CSRT positions were implemented in July 2012 (10 positions, 9.5 FTEs) and July 2013 (1 position, 1.0 FTE). One "junior" position (0.5 FTE) remains on hold. Seven "new" CSRTs were implemented in fall 2014 (7 positions, 7.0 FTE) (Figure 2a). CSRTs can also be categorized according to speciality and clinical focus. Of the overall 25 positions, 9 CSRTs are palliative in 9 different cancer centres (including one position "on hold" and one position on maternity leave) and a further 16 CSRTs are in other specialities and disciplines in 6 cancer centres (Figure 2b).

Figure 2a: Summary of CSRTs by Time in Position

SENIOR CSRTs (7-8 years in position)

1. Palliative Radiation Therapy CSRT – Princess Margaret Cancer Centre (PM)
2. Target Visualization and Delineation CSRT, Head and Neck Site Group – PM
3. Palliative Radiation Therapy CSRT – Odette Cancer Centre (OCC)
4. Patient Assessment and Symptom Management CSRT, Breast Site Group – PM
5. Skin Cancer CSRT – OCC
6. Metastatic Bone Cancer CSRT - Juravinski Cancer Centre (JCC)
7. Head and Neck Cancer CSRT – JCC

JUNIOR CSRTs (2-3 years in position)

1. Brachytherapy CSRT - OCC
2. Brachytherapy CSRT – PM
3. Thoracic HDR Brachytherapy CSRT – JCC
4. Breast CSRT - JCC
5. Planning Image Definition and Contouring Head and Neck (H&N) CSRT - London Regional Cancer Program (LRCP)
6. Skin Cancer CSRT - LRCP
7. Stereotactic Body Radiation Therapy (SBRT) CSRT - OCC
8. Image Guided Adaptive Radiation Therapy (IGART) CSRT - PM
9. Palliative CSRT - Stronach Regional Cancer Centre (SRCC)
10. Palliative CSRT - Cancer Centre of Southeastern Ontario (CCSEO) – *on hold*
11. Palliative CSRT - Carlo Fidani Peel Regional Cancer Centre (CFPRCC)

NEW CSRTs (1 year or less in position)

1. Palliative CSRT – Simcoe Muskoka Regional Cancer Centre (SMRCC)
2. Palliative CSRT – Ottawa Hospital Regional Cancer Centre (OHRCC)
3. Palliative CSRT – R.S. McLaughlin Durham Regional Cancer Centre (DRCC)
4. SBRT Lung CSRT – SRCC
5. SBRT and SRS CSRT - CFPRCC
6. Supportive Care and Sexual Health CSRT - OCC
7. IGART Chest/Upper Abdomen - PM

Figure 2b: Summary of CSRT Positions by Clinical Area

Palliative Positions

1. Palliative CSRT - Carlo Fidani Peel Regional Cancer Centre (CFPRCC)
2. Palliative Metastatic Bone Cancer CSRT - Juravinski Cancer Centre (JCC)
3. Palliative CSRT – Odette Cancer Centre (OCC)
4. Palliative CSRT – Ottawa Hospital Regional Cancer Centre (OHRCC)
5. Palliative CSRT – Princess Margaret Cancer Centre (PM)
6. Palliative CSRT – R.S. McLaughlin Durham Regional Cancer Centre (DRCC) – position start date March 2015
7. Palliative CSRT – Simcoe Muskoka Regional Cancer Centre (SMRCC)
8. Palliative CSRT - Cancer Centre of Southeastern Ontario (CCSEO) – *on hold*
9. Palliative CSRT - Stronach Regional Cancer Centre (SRCC) – *maternity leave 2014/15*

Other Positions

1. SBRT and SRS CSRT - CFPRCC
2. Breast CSRT - JCC
3. Head and Neck Cancer CSRT – JCC
4. Thoracic HDR Brachytherapy CSRT – JCC
5. Planning Image Definition and Contouring Head and Neck (H&N) CSRT - London Regional Cancer Program (LRCP)
6. Skin Cancer CSRT - LRCP
7. Brachytherapy CSRT - OCC
8. Stereotactic Body Radiation Therapy (SBRT) CSRT - OCC
9. Skin Cancer CSRT – OCC
10. Supportive Care and Sexual Health CSRT - OCC
11. Target Visualization and Delineation CSRT, Head and Neck Site Group – PM
12. Brachytherapy CSRT – PM
13. Image Guided Adaptive Radiation Therapy (IGART) CSRT - PM
14. Patient Assessment and Symptom Management CSRT, Breast Site Group – PM
15. IGART Chest/Upper Abdomen – PM – position start date winter 2015
16. SBRT Lung CSRT – SRCC

A more detailed description of each position is provided in Appendix B. A workplan of activities all CSRTs and associated deadlines can be found in Appendix C.

1.2 Characterizing CSRT Practice

A nationally validated competency profile forms the basis for all CSRT positions (Appendix D). CSRT positions also vary from each other with respect to the emphasis that is placed on clinical, research and teaching activities, as well as other tasks. In addition, the breakdown of work responsibilities will change from time to time for a single CSRT in response to shifting programmatic pressures. To more clearly understand the variation amongst positions, the breakdown of each CSRT's work week is documented below (Table 1) under the following headings:

1. **Clinical** – any patient related activities - planning, consults, set up consults, telephone calls, on treatment reviews, follow-ups, online support groups, dictation, documentation, etc.
2. **Innovation/Knowledge Creation** – data collection/analysis, clinical trials, document writing, presentation, etc.
3. **Administrative/Quality Assurance (QA)** - documentation, meetings, committees, QA activities, etc.
4. **Referrals** – triaging, handling and sorting new patient referrals to appropriate clinics, specific physicians, services, etc.

5. **Teaching** – education and evaluation on any level.

Table 1: **Percentage of Total Workload by CSRT**

	Clinical	Innovation / Knowledge Creation	Admin/QA	Referrals	Teaching
Palliative CSRTs					
Palliative CSRT, CFPRCC	65	20	5	10	
Palliative Bone Mets CSRT, JCC	55	10		30	5
Palliative CSRT, OCC	50	25	12	8	5
Palliative CSRT, OHRCC	70	10	10		10
Palliative CSRT, PM	80		15		5
Palliative CSRT, DRCC	60		25	15	
Palliative CSRT, SMRCC	70		10	10	10
*Palliative CSRT, SRCC**					
Other CSRTs					
SBRT and SRS CSRT,CFPRCC	70	5	25		
Breast CSRT, JCC	20	25	25	15	15
H&N CSRT, JCC	55	30	15		
Thoracic HDR Brachytherapy CSRT, JCC	80	20			
Planning Image Definition & Contouring H&N CSRT, LRCP	60	20	10		10
Skin CSRT, LRCP	50		50		
Brachytherapy CSRT, OCC	70	12.5	5		12.5
SBRT CSRT, OCC	65	25			10
Skin CSRT, OCC	50	15	10	20	5
Supportive Care and Sexual Health CSRT, OCC	40		30		30
TV&D CSRT, PM	65	25	5		5
Brachytherapy CSRT, PM	50	10	40		
IGART CSRT, PM		75			25
Breast CSRT, PM	55	25	10		10
IGART Chest/Upper Abdomen, PM		40	40		20
SBRT Lung CSRT – SRCC	90		5		5

**Maternity leave 2014/15*

As reported previously, clear communication of role expectations in developing new health care professional roles presents considerable challenges, as has been the case in this project.[5] Providing a clear description of the CSRT position has been repeatedly identified as directly linked to maximizing successful integration of the position at the local level. As such, constant efforts are being put into characterizing the various positions and their clinical contexts.

[5] See, for example, CSRT Demonstration Project Summative Report, 2010.

In general, CSRT positions continue to demonstrate tremendous flexibility. There is a wide range of areas of concentration across all the categories of activities. The most consistent area of practice is in the "teaching" domain which aligns with the understanding that CSRTs are leaders, mentors and teachers. In addition, several of the senior and junior positions have evolved since last year's report. These changes are rooted in changes in local needs. To some extent, the changes come after the CSRT has been able to demonstrate advanced competence in a controlled environment and are now being deployed for more independent work either on or off-site. Departments appear to be thinking more creatively about how CSRTs can be used and this is resulting in some interesting and unique opportunities for CSRTs in a number of locations.

When comparing the palliative to the non-palliative positions, the palliative positions appear to have a more consistent format of implementation. They are more likely to be clinically focused with significant focus on referral management than the non-palliative positions, although those activities are still found in the non-palliative group. Along with this trend towards a clinical focus, there is less emphasis on research and development in these positions. It is unclear if this phenomenon is the result of a clearer understanding of how a palliative CSRT can be used (therefore requiring less investigation of the possibilities) or due to an underreporting by the palliative CSRTs about their research activities. Further work will be done by the IST to examine these distinctions going forward.

1.3 CSRT Data

As reported in 2013/14, the headings of Quantity (capacity building), Quality and Innovation/Knowledge Translation are used to categorize data collection (Figure 3). The categories reflect CCO's belief that these areas of impact are of greatest importance when considering a change in a model of care.

Figure 3: CSRT Data Collection Categories

i) Quantity

Does the new model save the system money or allow for increased patient capacity with the same money?
Does the new model allow patients to enter/move through the system more quickly?
Does the new model reduce the cost of human resources required to meet existing patient demands and/or optimize the use of human resources?
(While maintaining patient and provider experiences as well as patient outcomes)

ii) Quality

Does the new model improve patient experience, outcomes and/or provider experiences? (e.g. new services, process streamlining, standard setting, etc.)

iii) Innovation and Knowledge Translation

Does the new model bring the promise of improved patient treatment, care and/or outcomes? (e.g. new technique, adoption of new technology, etc.)

i) Quantity

Capacity building continues to be a top priority of the CSRT projects. The impact of the CSRTs related to quantity currently appears to fall into 2 categories – through direct patient care or through work behind the scenes that indirectly impacts on patient care. Direct patient care activities will lead to an increase in the number of patients seen per month as reported in Tables 2 and 3. Indirect activities, where the CSRTs perform tasks traditionally administered by a RO, save the RO time each month and allow them to focus on other, more complex cases and potentially bring more patients into the system. The breakdown of clinical activities for each position (and therefore, the resulting impact - direct versus indirect) will be affected by department goals and objectives and the team/program that the CSRT is a part of.

Highlights from this table include a reported RO time savings of 66 hours/month from the Target Volume and Delineation CSRT from PM, an increase from 50 hours/month saved in 2013/14, Similar highlights are seen in the Brachytherapy CSRT from PM saving 56 hours/month who had no reported RO time savings last year. Additionally, CSRTs have reported an increase in the number of new patients seen per month due to their direct impacts. In 2014/15, 28 new patients per month were reported seen by the Brachytherapy CSRT from OCC, a dramatic increase over the highest patient increase reported in 2013/14 of 22 patients/month. These highlight the dramatic impact CSRTs can have in their particular areas. Details of reported direct and indirect CSRT impact can be seen in Table 2.

Table 2: Range of Direct and Indirect CSRT Impact on Quantity

CSRT Grouping by experience	Range of additional patients seen per month* (Direct Impact)	Range of RO hours saved per month* (Indirect Impact)
Senior CSRTs (7-8 years experience)	**2 – 21 new pts/mo**	**5 – 66 hrs/mo**
Junior CSRTs (2-3 years experience)	**4 – 28 new pts/mo**	**2 – 56 hrs/mo**
New CSRTs (1 year or less experience)	**0 – 8 new pts/mo**	**0 – 7.5 hrs/mo**

* Of CSRTs who work in positions that are clinically focused.

Table 3 below illustrates the continued impact of the CSRTs on their particular areas, displaying the direct and indirect time savings activities in detail for each CSRT. The capacity increases for the senior CSRTs remain relatively stable as the clinical requirements of the positions have plateaued as the departments work to solidify each position. Data seems to suggest that the junior CSRTs are reaching a point in their development where their impact data is approximating those of the senior CSRTs. This would align quite closely with the nursing literature that suggests that it takes 2 – 3 years for an Advanced Practice Nurse (APN) to reach full role potential.[6] It is expected that this is similar with the CSRT role and thus, the data for the new CSRTs will reflect the limited time in their positions.

[6] Bryant-Lukosius, et al. A survey of oncology advanced practice nurses in Ontario: Profile and predictors of job satisfaction (2007)

Table 3: CSRT Impact on Quantity

Colour Legend:

Senior CSRTs	Junior CSRTs	New CSRTs

CSRT Type	Direct Time Savings Activities		Indirect Time Savings Activities	
	Description	Increased Capacity	Description	Savings (# RO hours saved)
PALLIATIVE				
Palliative CSRT, OCC	Program management has resulted in additional NP spots/month	+2 pts/month seen (17% increase)	Image fusion and target/ROI delineation – 14 pts/mo x 22 min/pt Treatment planning including target volume contouring for 40% pts – 9 pts/mo x 5 hrs (ave)/pt	5 hrs/mo 9 hrs/mo (contouring) 36 hrs/mo (planning*) **time savings for physicists*
Palliative CSRT, PMCC	+1 NP seen per clinic – 4 pts/week	+16 pts/month (NC from last year)	RO time savings through "on treatment/end of treatment review" – 52 pts/mo x 12.5 min/pt	~11 hrs/mo
Palliative Bone Mets CSRT, JCC	Telemedicine consult for SRS referrals – 2 pts/mo Additional NPs seen weekly with CSRT scheduled and adhoc bookings	+2 pts/mo (new program) +16 pts/mo (NC from last year)	Virtual simulation in place of RO - ~40 pts/mo x 20 min/sim	13 hrs/mo
Palliative CSRT, CFPRCC	Independent consult of 9 pts/wk	+28 pts/mo (~9% increase)	NA	NA
Palliative CSRT, SRCC	*NA*	*NA*	*NA*	*NA*
Palliative CSRT, DRCC	NA	NA	NA	NA
Palliative CSRT, SMRCC	NA	NA	NA	NA
Palliative CSRT, OHRCC	NA	NA	NA	NA
NON-PALLIATIVE				
Skin CSRT, OCC	New MDT clinics open permitting +10 pts/wk to be seen Increased capacity in NP clinic when CSRT present from 10 to 14 NP	+10 pts/mo seen (new program) +4 pts/clinic (40% increase)	RO time savings through Clinical mark ups - 3 pts/wk x 30 min/pt First day treatment approvals - 6 pts/wk x 20 min/pt	23.5 hrs/mo

CSRT Type	Direct Time Savings Activities		Indirect Time Savings Activities	
	Description	Increased Capacity	Description	Savings (# RO hours saved)
			Referral triaging Adhoc calls/enquiries	
H&N CSRT, JCC	NA	NA	All radical H&N pts seen by CSRT for education/ assessment – 9 pts/wk x 20 min/pt Adhoc NP consults - 6 pts/wk x 15 min/page Advise on pt set up and bolus placement – 5 pts/wk x 15 min/pt	~20 hrs/mo
TV&D CSRT, PM	NA	NA	RO time savings through Target delineation including OARs, gross and elective lymph node volumes for H&N, some endocrine and eye pts – 15 pts/week x 65 min/pt	66 hrs/mo (30% increase)
Breast CSRT, PM	Independent consult of 4 pts/wk in Quickstart Program Independent NP consult	+16 pts/month seen (50% increase) + 5 pts/mo (NC from last year)	RO time savings through On treatment review – 16 pts/mo x 6 min/pt Unscheduled patient support – 2 pts/mo x 40 min/pt Seroma contouring – 3 pts/wk x 20 min/pt	~7 hrs/mo
Breast CSRT, JCC	NA	NA	NA	NA
Thoracic HDR Brachytherapy CSRT, JCC	Acceptance of adhoc/urgent referrals during brachytherapy sessions	~ 4 pts/mo (10% increase)	RO time savings through Target delineation for esophagus HDR cases – 2 pt/mo x 30 min/pt Treatment offset planning – 10 pts/mo x 7 min/pt New patient teaching – 14 pts/mo x 22 min/pt (ave.)	~7 hrs/mo

CSRT Type	Direct Time Savings Activities		Indirect Time Savings Activities	
	Description	Increased Capacity	Description	Savings (# RO hours saved)
Planning Image Definition & Contouring H&N CSRT, LRCP	NA	NA	Time savings through Target delineation – 15 cases/mo x 40 min/case (MIN) to 2.75 hrs/case (MAX) Obtaining consent for radical RT – 15 pt/mo x 20 min/pt Initiating referrals to other health care services – 15 pt/mo x 10 min/pt	~32.5 hrs/mo (ave)
Skin CSRT, LRCP	CSRT management of skin clinics resulted in an additional 113 NP seen from Nov 2013 – April 2014 The number of C1Rs billed over 12 months increased by 42 from the pre-CSRT timeframe to the post-CSRT time.	~ 10% increase in NPs ~7% increase	Time savings through History taking in NP clinic – 5 pt/clinic X 10 min/pt Obtaining consent – 5 pt/clinic x 5 min/pt Documentation/ordering treatment – 5 pt/clinic x 4 min/pt Since 2013, the mean wait time from referral to consult for non-melanoma patients has decreased from 96 to 40 days.	6.5 hrs/mo (total) Wait time cut in half
Brachytherapy CSRT, OCC	Lean analysis of OR process led to optimized OR time and increase in pts booked	20 pts/mo (+20% increase, ave.)	Interstitial RT using MR guidance – 2 pts/mo (minimum) x 52 min/pt	~2 hrs/mo
Brachytherapy CSRT, PM	NA	NA	Intravaginal applicator insertions (2 hrs/case x 3 cases/wk) HDR intrauterine applicator treatment delivery (2 hrs/case x 4 cases/wk)	56 hrs/mo
SBRT CSRT, OCC	NA	NA	Day 1 CBCT approval – 18 pts/mo x 10 min/pt End of treatment review – 9 pt/mo x 15 min/pt With oversight from CSRT, contouring of organs at risk for Liver cases can be completed by planners in place of ROs – 6 pts/mo x 20 min/pt	~7 hrs/mo
IGART CSRT, PM	NA	NA	NA	NA

CSRT Type	Direct Time Savings Activities		Indirect Time Savings Activities	
	Description	Increased Capacity	Description	Savings (# RO hours saved)
Supportive Care and Sexual Health CSRT, OCC	NA	NA	NA	NA
SBRT and SRS CSRT - CFPRCC	NA	NA	NA	NA
IGART Chest/Upper Abdomen, PM	NA	NA	NA	NA
SBRT Lung CSRT, SRCC	CSRT conducts NP consults – 2 pt/wk	+8 pts/mo (new program)	Target delineation – 2 pt/wk x 38 min/pt On treatment review – 4 pt/wk x 10 min (ave)/pt	~7.5+ hrs/mo (total)

*Maternity leave 2014/15

In general, the degree of direct and indirect impact of each position is related to its job description as is apparent by the variability in the data. However, the data follows several trends:

1. **Time in position** – indirect savings are recognized more quickly than direct. This undoubtedly relates to the time it takes to develop individual skills that make up larger activities. The individual skills can be implemented one by one saving the RO time with each one, but the larger grouping of them is needed to assume broad activities such as “new patient consult” which is where the direct impacts lie.
2. **Palliative vs non-palliative** – it appears that the breakdown of direct vs. indirect is more consistent with the palliative positions. This could be due to a more consistent implementation of these positions and is likely connected to the sharing of ideas and information amongst the department leaders who have positions in place and those conceptualizing and implementing new positions.
3. **Focus of position** – some of the CSRT positions have a major focus in research and development in their particular team. Radiation therapy is an extremely dynamic and rapidly evolving discipline and CSRTs bring a unique skill set and perspective to the development and implementation of new techniques, the application of new technologies, and new models of caring for the patients.

In the area of indirect impact, efforts continue to quantify how these indirect time savings impact the various program and department activities. One promising proposal is the creation of unique National Hospital Productivity Improvement Program (NHPIP) codes [7] for CSRT work that will more clearly and systematically capture the work of the CSRT as part of the interprofessional team. In addition, a question has been added

[7] National Hospital Productivity Improvement Program is a listing of radiotherapy procedures with their respective measures of output. https://www.cancercare.on.ca/ext/databook/db1011/Appendix/Appendix_E_-_NHPIP_Code_List_.htm

to the front-line stakeholder survey to ask reporting team members if they can identify what they do with the time that is saved by redistributing some activities to the CSRT. This data will be collected in 2015 and will be included in the 2015/2016 report (see Section ii) b) below).

In addition, new activities are constantly in development and are designed to positively impact the number of patients seen or the efficiency of the patients' trajectory through the system. In some cases data collection for these activities is presented in this report, while other data collection activities are "planned" for this upcoming year (and therefore not included in this report). In both cases, data from these activities will be reported in future reports as the particular strategy takes root. Table 4 summarizes the number of "current" activities underway. Examples of current initiatives include the creation of a rapid response program for urgent gynaecological patients at JCC and the combining of image fusion and target delineation activities for stereotactic radiosurgery cases at OCC. This increase in activity demonstrates a significant improvement over last year, with 12 activities reported in 2013/14.

Table 4: Wait time/throughput activities that may lead to program efficiencies

Activity/Initiative	Number of current activities/initiatives All CSRTs
Wait time and patient throughput activities	30

The more detailed descriptions of the capacity building activities and wait time and throughput improvement projects can be found in Appendix E.

ii) Quality – Process Improvements

The CSRTs continue to build their practice around Quality initiatives. In general, these activities relate to:

- **Improving the patient experience** – reduction in inappropriate referrals, addition of new patient services, activities focused on streamlining workflow, etc.
- **Improving patient outcomes** – introduction/enhancement of quality assurance processes, development/introduction of treatment/care standards, etc.
- **Improving the provider experience** – activities focused on streamlining workflow, introduction of practice standards or policies, etc.

The CSRTs continually look for opportunities to modify and improve the way things are done, as well as for gaps where new services can be added to enhance patient experience and/or outcomes. In the past year, the total number of current initiatives has increased to 75 activities from 23 reported in 2013/14. Table 5 summarizes the number of activities being undertaken to either improve the quality of an existing process or activity or add a service or activity that contributes to an improved experience for the patient or the team and/or improve the quality of care, and potentially outcomes, for the patient. For example, the palliative CSRT in JCC has researched, developed and implemented a virtual consult process for patients outside of the JCC LHIN to provide consults for patients with metastatic lesions that might be suitable for stereotactic radiosurgery in Hamilton. This new process saves the patient travel time, additional (potentially unproductive) appointments and subsequently money, therefore improving the overall patient experience.

Table 5: **Quality of care activities**

Activity/Initiative Category	Number of current activities/initiatives All CSRTs
Patient experience	24
Patient outcomes	22
Provider experience	29

A detailed description of the Quality initiatives being undertaken by all CSRTs can be found in Appendix F. In many cases, the CSRT must acquire new skills and abilities to undertake these initiatives. In those cases, the CSRT measure their abilities against a gold standard to ensure they are completing the task to the level of quality that is expected within the program. A detailed description of the concordance data regarding new skills development can be found in Appendix G.

a) Patient Satisfaction

In early stages of the project, CSRTs employed the "Patient Satisfaction Questionnaire" originally designed and validated by the Rheumatism Research Unit at the University of Leeds[8] (the modified version was altered to make the questionnaire more generic for use in all clinics, rather than clinic specific).[9] The questionnaire took approximately 10 minutes to complete with a total of 46 questions responded to on a 5 point scale ("strongly agree" to "strongly disagree"). It has a Cronbach Alpha of 0.94 (reliability). However, at that time, challenges were identified relating to the length of the instrument and the targeted patient populations Given these difficulties, an abbreviated version of the form was made available to palliative patients during Phase I Extension. The survey was also made available in a telephone format if the patient consented. Unfortunately, these changes did not result in an improved patient recruitment rate. However, to ensure consistency of methodology and eventual collation of data, this abbreviated form will be employed by the "new" CSRTs in a "pre/post" survey design.

The work plan for this past year was for the new CSRTs to begin the collection of data for this activity in each of their sites. At this early stage in the development of this group of CSRTs, only pre-CSRT data has been collected. Once the CSRTs have been in their current positions for a year, they will begin to collect the post-CSRT data. These data will be reported in the 2015/16 report.

b) Frontline Stakeholder Satisfaction

Team functioning and team member job satisfaction and support for the CSRT position has been established in previous phases of the CSRT Projects.[10] To assess ongoing stakeholder support of the individual CSRT positions, health care professionals who work alongside the CSRT were surveyed for their feedback on the benefits and ongoing challenges with the positions' integration into the teams.

[8] Hill, 1997
[9] Mortimer Market Centre: Service User Satisfaction Survey; Miles et al., 2003.
[10] See for example, CSRT Demonstration Project Report 2010, CSRT Sustainability Report 2013.

At this stage in the project, new CSRTs are being asked to distribute the front-line stakeholder questionnaires. In order to streamline the process, the IST has harmonized the timing of the distribution of the questionnaires with a point in time where the new CSRTs will have been in place for approximately one year. This will ensure that stakeholders have had enough exposure to the CSRTs' work and program impacts. Final results from these questionnaires will be included in the 2015/16 report.

c) Radiation Therapy Job Satisfaction

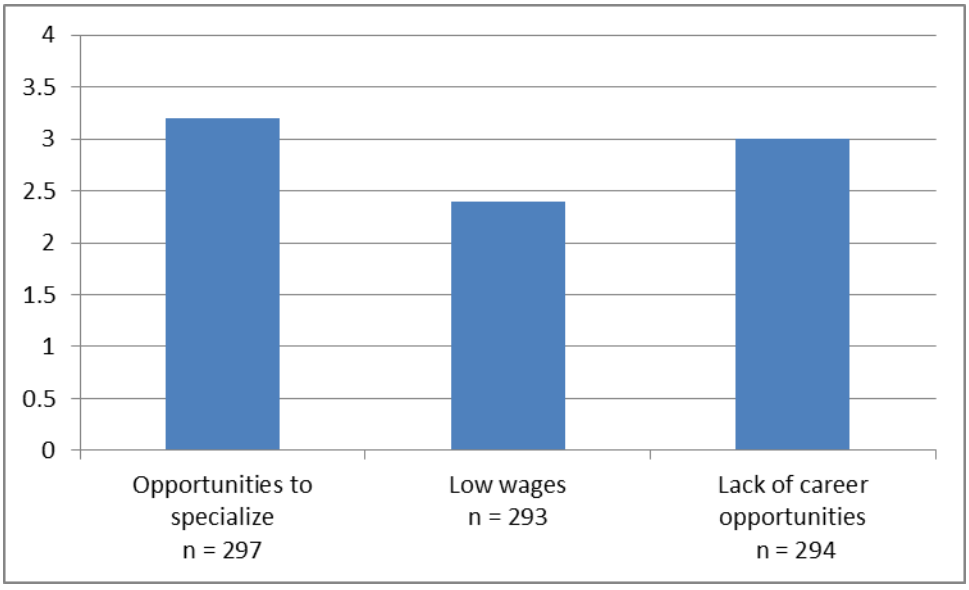
The Radiation Therapist Job Satisfaction Survey is a quantitative and qualitative questionnaire, developed by the Project during the APRT Developmental Phase that is currently being disseminated to radiation therapists in 7 of the 9 departments including most recently the three sites where a CSRT was introduced for the first time.

Detailed review of the previous, new and combined data (n = 313) reveals that radiation therapists continue to have an overall high satisfaction with their job and in general feel that the development of the CSRT role will go some distance to combat some of the previously identified challenges within the radiation therapy profession. An example of survey results is seen in the image below (Figure 4).

Figure 4: Average response of Radiation Therapists to Question 6 on survey.

Question 6: Whether you would like to become a Clinical Specialist Radiation Therapist or not, do you think this position will help positively address the three main issues impacting Radiation Therapist job satisfaction?

(Scale: 1 = Not address the issue at all, 2 = only address the issue a little bit, 2 = somewhat address the issue, 4 = strongly address the issue)



Radiation therapy job satisfaction survey results are summarized in Appendix H.

iii) Innovation and Knowledge Translation

a) Process Innovation and Knowledge Translation

Given their unique position at the intersection of technology and patient care in radiation medicine, CSRTs are ideally positioned to examine current ways of working and to suggest and implement solutions. Solutions can be drawn from the published literature, or developed de novo by the CSRT and their team. Any new activity being introduced into the clinical practice of the team should carry the promise of improved patient care, improved patient outcomes and/or improved provider experience. An example of this kind of innovative project is a project at PM where two CSRTs are working together to validate and commission a new treatment computing software that will allow for more personalized radiation treatment for patients. This will result in less radiation dose being delivered to normal tissues and hopefully decrease the occurrence of treatment side effects. Descriptions of such activities being currently undertaken by the CSRTs are outlined in detail in Appendix I. The number and categorization of the activities are summarized in Table 6 below showing the impressive number of activities CSRTs continue to participate in.

Table 6: Process Innovations and Knowledge Translation

INNOVATIONS	
Activity/Initiative Category	**Number of current activities/initiatives All CSRTs**
New services, models of care, program innovations	17
Research Projects	52
New skills development that will lead to new activities being delegated to CSRTs	20

It is evident that CSRTs continue to push boundaries in radiation therapy practice. The number of these improvement activities will vary from year to year with the natural ebb and flow of work of the CSRTs and their respective teams. In the instance where the focus of a CSRT position is changing, process innovation work may escalate as aspects of the new position and related activities are assessed.

In addition to the actual undertaking of innovation and adoption of new ways of working, these activities also translate into unprecedented academic activity for the CSRTs, reported below (Knowledge Creation and Dissemination).

b) Knowledge Creation and Dissemination

Academic activity – through knowledge creation and dissemination – is an important aspect of maximizing the contribution of the CSRT role in radiation therapy programs. CSRTs are more readily involved in practice discovery than other radiation therapists and, as such, play a significant role in ensuring these discoveries and innovations are distributed through recognized channels for review and adoption by other therapy programs. The CSRTs continue to display an impressive track record for knowledge creation and communication completing 170 activities in 2014 alone, and already completing 73 activities so far in 2015. A summary of such work is in Table 7 below.

Table 7: Knowledge Creation and Dissemination activities

Activity/Initiative		Number of activities/initiatives - ALL CSRTs							
		2008	2009	2010	2011	2012	2013	2014	2015
Presentations	• Peer reviewed podium	4	10	6	4	18	20	27	9
	• Peer reviewed poster	7	7	15	20	14	26	32	15
	• Invited/external podium	6	6	9	8	10	15	11	3
	• Intra-departmental	3	10	8	2	7	9	11	6
	• Interdepartmental	3	5	5	2	9	8	12	2
	• Workshops		2		1	6	14	8	2
Peer-reviewed publications	• Manuscripts	14	25	16	31	28	26	32	14
	• Abstracts	16	6	12	4	14	10	17	16
	• Guidelines						2	4	
Book	• Chapter			13	2		11	4	3
	• Editor			1	2		1	1	
Awards/Honors		4	3	5	9	10	14	11	3
Total Activities/ Initiatives		57	74	90	85	116	156	170	73

Notable awards highlights from the last year include:

- The Radiation Therapist Winter School Registration Scholarship Award at the Canadian Organization of Medical Physics Conference – Palliative CSRT – PM
- Award for Top Ranked Innovation Abstract RTi3 Conference– Palliative CSRT – PM
- ME Wastle Research Bursary – Sexual Health and Supportive Care CSRT - OCC

More details regarding the innovative and scholarly work being conducted by the CSRTs can be found in Appendix J.

Additionally, the video "The Clinical Specialist Radiation Therapist: Effective, Efficient, Evidence-based" has been circulated and posted on the CCO website. To date there have been over 950 views.

2. Implementation of 7 new CSRT positions

In alignment with Ontario's Action Plan for Health Care, CCO and the MOHLTC agreed to implement an additional 7 CSRT positions in Ontario. This move was designed to prioritize the needs of palliative patients in all jurisdictions by focusing on the roll out of the Palliative Radiation Therapy CSRT for the final 3 years of the project. To that end, the CSRT Sustainability/Integration Project implemented 7 additional positions (7.0 FTE). With this phase, the project brought 3 new cancer centres on board (Simcoe Muskoka Regional Cancer Centre, R.S. McLaughlin Durham Regional Cancer Centre, Ottawa Hospital Regional Cancer Centre), implementing 3 new palliative positions (bringing the total number of Palliative Radiation Therapy CSRT positions to a total of 9.0 FTE in 9 cancer centres), and added 4 "other" positions (bringing the overall total of CSRTs to 25 positions (23 active in 9 cancer centres in 2014/15 ,1 position "on hold" and 1 position on maternity leave 24.5 FTEs) in 9 cancer centres) (Figure 2).

3. Formalization of the CSRT Role

Tremendous progress continues to be made in the establishment of CSRT positions as "permanent, full-time" positions in the relevant sites. At this time, 21 of the 25 positions are considered permanent, full-time positions. This has exceeded expectations, as in 2013/14 only 6 positions were considered permanent. Where positions are not considered permanent, departments continue to work internally to complete the steps necessary to convert the remaining pilot positions accordingly and indicate that they are optimistic that this will happen. A survey of CSRT managers reveals the status of the current CSRT positions (Table 8).

Table 8: CSRT Managers Survey Data: CSRT positions

	Total # CSRTs	# permanent	# temporary	# union	# nonunion
OHRCC	**1**		**1**	**1**	
CFRCC	**2**	**2**		**2**	
OCC	**5**	**4**	**1**		**5**
SRCC	**2**	**2**			**2**
DRCC	**1**		**1**		**1**
JCC	**4**	**4**			**4**
SMRCC	**1**	**1**			**1**
PM	**6**	**6**		**5**	**1**
LRCC	**2**	**2**		**2**	
Total*	**24**	**21**	**3**	**10**	**14**

**CCSEO was not surveyed in 2014/15 due to "on hold" position status*

The members of the newly formed "CSRT Community of Practice" (CoP), under the auspices of CCO, has started to engage in activities to ensuring the standardization and consistency of the CSRT position as well as its formalization within the province, including the creation of a formalized Terms of Reference (Appendix K) and developed priorities for this first year. Noted priorities for the CoP include:

- Development of a CSRT mentorship program,
- Development of a CSRT social media team,
- Development of a CSRT working group focused on CAMRT activities,
- Centralization of concordance data collection tools, and
- Centralization of scholarly works by the CSRTs.

The IST continues to facilitate the development of the CoP.

Work also continues with the CAMRT to create a reliable and valid certification process. Current activities are focused on the compilation of a case bank and creation of the question bank and assessments for the process (Figure 5). Recruitment of senior CSRTs to participate in the pilot project is anticipated to take place in June 2015. The pilot process is expected to take one year to complete. For a copy of the draft candidate handbook, please contact RTP@cancercare.on.ca.

Figure 5: Outline of three-phase certification process at CAMRT

Contract negotiations have been finalized with the CAMRT for "terms of use" of the portfolio protocols built during the CSRT Project series. This agreement governs the ongoing use of the intellectual property built during the project. Appropriate acknowledgement of the MOHLTC, CCO and the CSRT Projects is an important part of this contract. Meetings conducted in mid-May mapped out the timelines for the pilot project. The pilot will include a training session for key RT professionals across the country for portfolio assessment and face to face oral exam and portfolio defense. Please see Appendix L for a process map of the CAMRT Certification process.

4. Models of Care

Activities continue with the Models of Care (MoC) program within CCO to identify, describe and formalize the CSRT role in policy and procedure for health human resource (HHR) forecasting and funding. Two important elements are notable:

- In January 2015, a working group was convened to attempt to combine MoC data with those from the CSRT Projects. The goal of this activity is to clearly establish the cost implications of the insertion of the CSRT role into the existing radiation therapy team for future HHR forecasting activities. Work continues on the development of this model (See Appendix M for working documents).
- Identification of the CSRT role as an accepted member of the radiation therapy team in the capacity of a "non-physician extender" as outlined in the upcoming Provincial Oncology AFP

5. Integration Support Team (IST)

In order to support existing initiatives and to nurture new initiatives contributing to province-wide adoption of the CSRT model of care, a small IST directs the activities of the project. Comprised of a Project Manager, Project Coordinators and Radiation Treatment Program Manager, the IST is utilizing tools and processes developed during previous project phases to facilitate a number of key outcomes, including:

a) Supporting the existing 18 CSRTs (17.5 FTEs) in ongoing integration and data collection as they transition to full scope of practice.
b) Supporting the implementation of 3 Palliative Radiation Therapy CSRTs (3.0 FTEs) in 3 new centres and 4 CSRTs (4.0 FTEs) in other centres that already employ CSRTs through agreement creation, assistance with CSRT selection, orientation and use of standardized metrics for initial data collection.

c) Collaborating with professional organizations to formalize the CSRT role (which may include a national certification process).
d) Conducting site visits and a labour market survey to define the activities of the CSRT within the patient care team (e.g. Palliative) and describe a new model of care delivery for the CCO "Models of Care" project that maximizes the effectiveness and efficiency of patient care in that team.
e) Conducting knowledge translation and dissemination activities (e.g. posters and presentations at conferences, papers in peer-reviewed journals, chapters in books) to facilitate understanding and uptake of this new health care professional role (including a focus on Palliative Radiation Therapy CSRTs), the labour market in which it is situated, and of its impact on health human resource planning and forecasting.

Table 9 offers a summary of the timelines for IST activities for 2014/15 including an indication of what has been completed to date.

Table 9: Timeline Summary of IST activities

Activity – 7.0 *FTE implemented in 2014/15*	**Target/Completion Date**
Evaluate professional portfolios	June 2014 √
Implement 7.0 FTE new CSRT positions	Fall 2014 √
Education and training support	Begins: Fall 2014√
Activity – ALL CSRTs 2014/15	***Target/Completion Date***
Data collection regarding key outcomes of position implementation	Ongoing
Submission of preliminary report	Feb 27, 2015√
Submission of 2014/15 final report	May 2015

Finally, the report for the 2014 Labour Market Survey Report is currently being finalized. The 2014/15 report was put on hold pending finalization of the 2013/14 report. The survey that informed this report can be found in Appendix N.

C/ DISCUSSION

With careful guidance and oversight for the last year, the CSRTs in Ontario continue to reach important milestones and have significant positive influences within their respective programs and importantly also for their patients. A number of trends are evident in the information collected for this year's report including how CSRTs are working in their programs. It appears that CSRTs are becoming more involved in development and innovation and working in more creative and fluid ways. This is likely due to the fact that their teams and supervisors are becoming more confident with their competence and ability, something also evident in the increasing number of medical directives and delegated acts associated with individual CSRT practice. Along with this, CSRTs are functioning more autonomously in many instances as well as being deployed in more decentralized ways – for example, to offsite new patient clinics.

It is also important to note that the CSRT role has become part of the natural dialogue at many of CCO tables. The concept of the CSRT is noted to come up at a variety of committee meetings such as the Radiation Oncology Professional Advisory Committee (ROPAC) and Radiation Therapy Professional Advisory Committee (RTPAC). Further to the inclusion of the CSRT in occasional committee dialogue, the project IST and CCO is working to formalize the CSRT role through policy and process. Work continues with the Models of Care program to consistently and robustly quantify the CSRT contribution to the human health resources in the regional centres. Also, policy work on the Provincial Oncology AFP agreement has articulated the CSRT as an approved physician alternative. This clause is still pending approval by the Minister, however once approved, represents a significant step forward for the permanent integration of the CSRT role.

In addition to the increased attention locally, the concept of the CSRT is being noticed in other jurisdictions, including British Columbia and Alberta as those provinces are preparing to consider this new health care provider role as an important addition to their interprofessional radiation medicine teams for improving program efficiency and effectiveness. The IST is working with those provincial teams to assist them with development and implementation of their new positions by sharing tools and strategies developed within the CSRT Project. This obviously aligns with the national strategy to develop a certification process for advanced practice in radiation therapy.

Despite the exciting advances made this year, challenges remain for the CSRT role going forward. In the current format, it appears to take two to three years for a fledgling CSRT to achieve full integration and realize full benefits. This is related to the fact that the education and training has been provided locally through one-to-one relationships. Along with the advantage of being able to teach directly to the specific needs of the program, comes the disadvantage of relying on the availability of local professionals whose priorities compete with finding time for this activity. In addition, it results in very unique and non-standard approaches to education and training that need to be reinvented de novo each time a CSRT is being implemented. While some standardization of expected level of competence will be articulated through the CAMRT certification process, how CSRTs achieve that level of competence has previously been inconsistent and somewhat random at best.

Another area of concern continues to be how the project will continue its forward momentum after the completion of the project in March 2016. The IST is a critical mechanism that provides necessary motivation

for the ICPs to continue to engage in the CSRT integration activities. Efforts are also underway to create additional mechanisms that will encourage ongoing engagement, such as the CSRT CoP that is developing a CSRT mentorship model and leading the centralization of various resources. The question remains about what will happen to this delicate role when this formal support is removed.

One of the key issues related to this question is that of funding. Identified funding sources remain sporadic and locally focused. Strategies are diverse – including the use of research monies and grant opportunities – but no single, sustainable solution has been identified. Departments need more time and guidance to envision new ways of working that will capitalize on the implementation of the CSRT in combination with other pressures that each is facing. It is strongly believed that data collection will be required beyond the current life of the project so that departments can continue to support the continuation of the positions with evidence of positive impact. A number of mechanisms for this are in place but still very new and fragile and run the risk of falling to the wayside without deliberate shepherding in a consistent fashion. In addition, the Project, in collaboration with departments, CSRTs and CCO continue to scan the environment for new ways of collecting relevant data – for example, the creation of “CSRT-specific” activity codes. Diligent oversight and ongoing monitoring of the system are both vital to the perpetuation of the CSRT model.

D/ CONCLUSIONS

The CSRT Sustainability/Integration Project has made great strides towards permanent integration in the past year. With the majority of positions considered permanent, full time positions, more stable and long-term work plans can be developed and implemented. Senior and junior CSRTs seem to have reached optimal functioning, revealing impressive positive impact on their respective programs and patients. Many activities are taking place on a number of fronts that will continue to move the goals of system-wide implementation but more work remains to be done. Sustained focus is required to ensure that tenuous systems and processes continue to function and strengthen. The maintenance of the good momentum achieved in this past year is vital to realizing the full potential of this innovative and important health human resource.

APPENDICIES

Appendix A: Project Background, Timelines and Deliverables

Project Genesis

Ontario began exploring the introduction of advanced practice for radiation therapists in 2003 in response to unprecedented and well-documented challenges in the radiation treatment environment. Unique local service pressures related to specific demographic or professional challenges, treatment delays, service expansion, health human resource issues in cancer-related disciplines, care gaps, and a desire for quality improvement and for more rapid adoption of innovation led the radiation therapy community to begin examining ways in which the provision of radiation treatment could be improved. A preliminary examination by the Ontario Radiation Therapy Advanced Practice Steering Committee concluded that there was interest and value in piloting advanced practice roles in radiation therapy. These efforts ultimately led to the development and implementation of the CSRT role in the context of the CSRT Demonstration Project, and finally, to the CSRT Sustainability Project.

Project Overview

The **Advanced Practice Radiation Therapy ("APRT") Development Project**, under the auspices of CCO, was officially launched in August 2004 following a successful application to the Ministry for funding of a two year-pilot project to August 2006. This phase of the Project was designed to examine the feasibility of developing an advanced practice role in radiation therapy as a possible strategy for addressing systematic challenges in the delivery of timely, high-quality radiotherapy services to the people of Ontario.

The APRT Development Project involved seven investigators in four Ontario Regional Cancer Centres. During the Developmental Phase investigators:

- established the scopes of practice of the proposed positions against local service needs;
- identified and quantified (where possible) the potential benefits of these new roles to patients and the cancer care system; and
- assessed the readiness of the inter-professional health care team to accept this new role.

In response to the positive findings of the APRT Development Project, the Ministry provided funding for the **CSRT Demonstration Project** as part of the HealthForceOntario strategy. **Phase I** of the CSRT Demonstration Project, which began in March of 2007, was a pilot study in which five CSRT positions were implemented at two Ontario Regional Cancer Centres in the Greater Toronto Area. Phase I evaluated the potential benefits of CSRTs to patients and the cancer care system. The Project Team developed a set of standard measurement tools for the CSRTs' use. The tools facilitated collection of consistent and reliable data that could be used to draw conclusions about the effects of CSRTs on programs and services.

In March 2008, the CSRT Project Team provided an evaluation report to the Ministry on key outcomes of Phase I of the CSRT Demonstration Project. Data and information obtained during Phase I suggested that a number of important benefits could be realized through implementation of the CSRT role, and that stakeholders – including patients and the interprofessional team – supported the role. Phase I also established that CSRTs could safely and effectively provide some services that are traditionally performed by Radiation Oncologists, allowing the Oncologists to focus on other discipline-specific activities that cannot be delegated. CSRTs were also able to achieve notable reductions in wait times and improve access to services during the period of study. The evaluation report for Phase I emphasized the flexibility offered by the CSRT within the interprofessional team by allowing programs to

shift or modify the focus of the CSRT across the patient care pathway in response to changing pressures over time.

Based on the findings from Phase I, the evaluation report recommended continued investigation of the existing positions to further evaluate the impacts of the CSRT role, add robustness to the growing database, and establish the education and training required to adequately prepare CSRTs for practice. The report also endorsed an expanded phase for the creation of new CSRT positions to test the transferability of the advanced practice concept to other cancer centre environments and patient populations.

In light of the early positive results from Phase I, and in support of the recommendations from the Project Oversight Committee, the Ministry provided additional funding to extend the Project for one year. This phase of the Project, which ran from April 2008 to March 2009, became known as **Phase I Extension**. The Extension Phase allowed the existing CSRTs to continue their clinical work, collect the data required to create a robust and rigorous CSRT-specific dataset, and fill any data gaps identified in Phase I. With the continued success of Phase I, the province also provided concurrent funding for **Phase II** of the CSRT Demonstration Project, from August 2008 to March 2010. Phase II involved the introduction of five additional CSRT positions in cancer centres outside the Greater Toronto Area, consistent with the recommendation contained in the evaluation report for Phase I of the Project.

Phase II focused on the examination of how the CSRT role could be modified to create positions that meet different system and population needs. Consistent with Ontario's broader health human resources strategy, the province hoped to establish that CSRTs could help smaller centres improve access to service, including traditionally "harder to reach" populations such as Francophone or Aboriginal communities. The Project continued to build upon existing data, address gaps, and determine whether the draft competency profile was transferable across and customizable for varying cultures and patient populations. The CSRTs added in Phase II also collected data using the standard measurement tools to expand and enhance the larger CSRT dataset. Phase II also tested the usability of the tools and methods developed in earlier phases of the Project. These materials included the CSRT Tool Kit, the site selection processes, the Prior Learning and Assessment Process and the competency profile.

The Ministry provided additional funding for a final extension of Phase I, referred to as ***Phase I Extension 2 (or IE^2)***, from April 2009 to March 2010. During this final phase, in combination with ongoing data collection, the Project turned its focus to understanding the issues related to sustainability of the role in alignment with provincial and CCO priorities. Recommendations were formulated to incorporate the CSRT role into models of care to assist in health human resource planning for the optimization of patient care. This final "Demonstration" phase was also used to begin disseminating project findings through scholarly avenues and to collaborate with national and provincial professional bodies with a view to developing mechanisms for establishing and monitoring practice standards for CSRTs. The Summative Report was submitted to the Ministry in May, 2010 including a recommendation for a "sustainability" phase of the project.

In March 2011, the Ministry awarded funding for the **CSRT Sustainability Project** – a three-year project that focused on activities necessary to ensure consistent and standard development and deployment of CSRT positions as needed throughout the system (April 1st, 2010 – March 31st, 2013). Activities included the transition of existing CSRTs into permanent team members, the development of 11 additional CSRT positions in 7 cancer centres across the province and continued work towards the formalization of the CSRT role through standard setting and valid certification processes.

Ten (9.5 FTE) new CSRT positions were implemented in the summer of 2012 in response to a formal request for proposals issued in November 2011. In October 2012, the Ministry awarded funding for the

2012/13 fiscal year and approved in principle the development of up to 4 additional CSRT positions. An additional CSRT position (1.0 FTE) was implemented in the summer of 2013 in response to a request for proposals issued in December 2012.

Based on the positive results of the CSRT Sustainability Project, the next CSRT Project phase – **the CSRT Integration Project** – started in April 2013 and focuses on the development of Palliative Radiation Therapy CSRTs, establishment of a national certification process, investigations and policy work related to new models of care in this health domain, and continued support of project data collection and knowledge translation activities.

Appendix B: CSRT Position Descriptions

SENIOR CSRTs

Title: Palliative Care Advanced Practice Radiation Therapist

Location: Odette Cancer Centre, Toronto, ON

The Palliative Care Advanced Practice Radiation Therapist specializes in palliative Radiation Therapy and has expertise in the clinical and technical perspectives of palliative radiation medicine. With a high level of autonomy, the APRT will formulate care plans in conjunction with the patient/family/caregiver and obtain informed consent where necessary. He/she will conduct ongoing assessment of the patient, provide education to the patient on expected toxicities and ongoing support for the management of those toxicities, as well as conduct weekly review and follow up care. The APRT uses advanced skills to formulate clinical/technical decisions and is able to manage specific group(s) of patients with metastatic disease. Working closely with the multi-disciplinary palliative team, the APRT has in depth knowledge of clinical assessment, available technology, treatment planning and delivery and patient support in palliative radiotherapy. The APRT contributes to the development and delivery of quality palliative services within the Program and participates in the education of peers, other health professionals, as well as patients and their caregivers and the community at large. At the patient care level, the APRT will provide direct comprehensive and holistic patient care before, during and after radiation therapy. Technically, the APRT will triage referrals to the RRRP from a variety of clinics, order appropriate tests, prescribe radiation therapy, order simulation and approve radiation therapy plans/images for specific patient group(s). Referrals to other disciplines (e.g. orthopedics will be made where necessary as judged by the APRT. From the interdisciplinary team perspective, the APRT will serve as technical and clinical consultant to the individuals or groups within the team and cancer care system. At the program level, the APRT will apply leadership, research and educational expertise to enhance the application of evidence-based practice, principles of best practice, and quality practices and will work with external stakeholders to enhance access and utilization of the service.

Key Responsibilities:
Clinical Practice

- Triage patients to ensure appropriate referral to Skin Clinic, Rapid Response Radiotherapy Program (RRRP) Bone Metastasis Clinic or Pain Clinic to assess level of urgency by reviewing pathology, imaging and test results etc.
- Perform/order additional tests or diagnostic procedures where appropriate and necessary.
- Interpret relevant diagnostic information.
- Assess patient at first appointment, before, during and after radiation therapy for physical and psychosocial distress with appropriate documentation of findings.
- Conduct assessments for patients in Emergency Room or on in-patient service to determine if radiation therapy is necessary.
- Use critical thinking skills to guide decision making in complex, unpredictable and dynamic situations.
- Communicate the results of specific tests/procedures
- Obtain informed consent
- Prescribe/administer pharmaceuticals within defined medical directives
- Consult, as part of the interdisciplinary team, on relevant patient cases
- Formulate, implement, continuously assess effectiveness of patient care/treatment plan
- Refer patients to the appropriate health professional or service e.g social work, psychology, dieticians etc.

- Conduct on-treatment review clinics for patients to monitor side effects and take appropriate action to alleviate symptoms.
- Conduct telephone triage with patients and physicians.
- Conduct follow-up clinics or perform telephone follow-up
- Plan Coordinate and Organize initiatives to integrate patient focused care.
- Develop implement and evaluate standards and clinical practice guidelines for palliative and skin cancer patients.
- Use multiple strategies (e.g. teaching, counseling, technological or pharmaceutical) to influence patient health and quality of life.
- Lead the development, integration and evaluation of best practices in accordance with SHSC philosophy of care and CCO standards.
- Develop innovative approaches to complex practice issues and evaluate care within specialty programs.
- Participates in the development of documentation systems and processes that evaluate quality of care from multiple perspectives e.g. patient, family, referring physicians etc.

Ordering and Planning Radiation Treatment:

- Provide technical and dosimetric consultation at all phases of the radiation therapy planning and treatment process
- Employ technical expertise in the area of dosimetry for the defined patient population
- Order the appropriate imaging/planning procedures
- Approve/conduct treatment localization of appropriate treatment volumes
- Identify relevant organs, target volumes and regions of interest for use in the creation of an optimized radiation treatment plan where appropriate
- Prescribe appropriate treatment dose as per standard protocols and procedures
- Approve treatment unit verification/localization images/image guidance shift trends
- Refer cases that fall out of standard protocol to radiation oncologist or other radiation medicine professional
- Apply advanced technical knowledge to improve the integration of existing, or facilitate the application of new technology throughout practice where applicable.
- Perform clinical mark-ups for skin or non-simulated palliative patients.

Leadership, Supervision and Education

- Be an expert role model in radiation therapy best practices.
- Act as Co-chair of relevant disease Site Group
- Participate in strategic planning and goal setting for the site group and radiation oncology program.
- Supervise, train and mentor junior staff in RRRP and Skin Site (Radiation Therapists, Nurses, Residents, Research Students)
- Supervise and evaluate undergraduate/graduate students.
- Evaluate radiation therapists rotating through RRRP and Skin Clinic.
- Assess learning needs of staff in RRRP and Skin Site and identify the need for remediation. Develop learning plans as required.
- Interview and select staff and students for RRRP and Skin Cancer programs in conjunction with Radiation Oncologist Site group leader.
- Optimize awareness and utilization of the Palliative and Skin Cancer services through communication, promotion and advocacy with both internally and to referring physicians.
- Act as a resource for staff rotating to skin and RRRP clinics and to radiation oncologists and residents.

- Consult as an expert clinical resource both within the hospital and the wider radiation therapy and cancer community.
- Plan, deliver, evaluate and revise education for staff orientation, referring physicians, visiting personnel, community etc.
- Participate in the development/revision of practice guidelines, protocols, policies and procedures.
- Collaborate with community groups regarding informational needs and concerns.

Research, Performance and Mentoring

- Identify and conduct independent research relevant to practice.
- Participate in the design and implementation of collaborative interdisciplinary research.
- Maintain an academic appointment in the Department of Radiation Oncology, University of Toronto at the Assistant Professor level.
- Create scholarly papers for submission to peer reviewed journals.
- Create and present, posters and presentations at scholarly conferences.
- Participate in the development of radiation medicine and overall health service evidence based knowledge by dissemination of research findings via, publications and presentations at relevant meetings.
- Collaborate with other disciplines to integrate research findings into daily practice.
- Supervise research of junior staff and students.
- Mentor junior staff, students and residents.

Title: Advanced Practice Skin Cancer Management Radiation Therapist

Location: Odette Cancer Centre, Toronto, ON

The Advanced Practice Skin Cancer Management Radiation Therapist will play an integral role for skin cancer patients referred to the Odette Cancer Centre Skin Cancer Clinic. By liaising with other service and team members, and triaging patients as required, the individual will be able to facilitate appropriate and efficient movement of the patient through the system. The individual will function within the interdisciplinary healthcare team by providing comprehensive assessment, and referral, and treatment planning and delivery services for patients with skin cancer. This individual will be responsible for ensuring quality patient care as part of the multidisciplinary health care team with a focus on ensuring continuity of care from referral to follow up. With a high level of autonomy, the APRT will formulate care plans in conjunction with the patient/family/caregiver and obtain informed consent where necessary. He/she will conduct ongoing assessment of the patient, provide education to the patient on expected toxicities and ongoing support for the management of those toxicities, as well as conduct weekly review and follow up care. From a technical standpoint, the APRT will perform clinical mark-ups and prescribe radiation doses for patients requiring radiation therapy. The APRT will serve as a consultant within the interdisciplinary team and provide education and mentorship to others. At the program level, the APRT will apply leadership, research and educational expertise to enhance the application of evidence-based practice, principles of best practice, and quality practices.
The APRT will collaborate on skin cancer research with the program team, as well as work in collaboration with other members of the patient's treatment team. The APRT will assess skin cancer patients at peripheral clinics to ensure appropriate referrals for radiation therapy are made to reduce the number of inappropriate referrals and wait times to be seen at Odette.

Key Responsibilities:
Same as above, 'Key Responsibilities' for Palliative Care Advanced Practice Radiation Therapist

Title: Clinical Specialist Radiation Therapist – Palliative Care

Location: Princess Margaret Hospital, Toronto, ON

The *CSRT – Palliative Care* role at PMH has a strong focus on components of clinical, technical, and research.

The Radiation Medicine Program (RMP) at PMH provides palliative radiation treatment to 2000+ patients annually. The *CSRT – Palliative Care* (hereafter will be referred to as 'CSRT') works within a multi-disciplinary team of oncologists, radiation therapists, physicists and nurses to deliver care to patients requiring palliative radiotherapy for symptom management. Initially, the CSRT role started out in the Palliative Radiation Oncology Program (PROP), where intensive on-the-job training was carried out in the daily morning clinics, under the supervision of the attending radiation oncologist. This included learning tasks related to assessing and understanding diagnostic reports and imaging, history-taking, performing targeted assessments of patients for palliative radiotherapy, discussing the radiotherapy treatment options available to the patients, and explaining procedures and potential side effects associated with the treatment. This was beneficial for the development of the CSRT role, as the structure and workflow of the clinics was well-established and the environment fostered excellent inter-professional education.

Because the number of patients seen in PROP is limited by patient load capacity; any patients that cannot be accommodated may be referred to the primary site groups for consideration of treatment (hereafter this group of 'overflow' patients will be referred as 'PRS' patients as they fall under the institution's "Palliative Radiation Services"), and introduction of a CSRT in palliative care was anticipated to increase the number of PRS patients that can be accommodated by RMP on a daily basis. It is in this clinical setting that the CSRT has been spending most of her clinical time since the beginning of 2010. The CSRT currently helps to manage a subset of routine palliative referrals (both PROP and PRS), such as bone, lung and brain metastases, from the point of initial consult to decision-to-treat throughout the prescriptive and planning process to treatment delivery. She initiates radiation prescriptions on behalf of the radiation oncologists, and enters electronic booking requisitions that consist of integral information such as, planning CT scan instructions, potential radiotherapy technique and patient positioning to be used for treatment, requirement for contrast injections and treatment start date.

This has been making a significant impact in the clinics by (a) providing additional time to the radiation oncologists for assessing other patients who are waiting, and (b) expediting the booking process as all requisitions were completed with adequate information (i.e. therapists working at CT scanners reported decrease in frequency and need to call/page the radiation oncologist(s) for missing information/instructions, scan limits, patient position, etc.) Because of her technical and clinical expertise as a radiation therapist, the CSRT can discuss with the patients and family about procedures and potential side effects associated with radiotherapy treatment, again saving time for the radiation oncologists.

When the decision to treat is made, since the CSRT is a certified medical dosimetrist, she also aids in the treatment planning process. Tumour volumes and treatment fields were traditionally delineated by radiation oncologists; however, through consultation in clinics and instructions provided using diagnostic imaging, the CSRT now can contour on behalf of the radiation oncologists to expedite the planning process, allowing more time for dosimetrists to generate dose distributions. The target volumes delineated by the CSRT are verified by the attending radiation oncologist(s) before final publishing of treatment plan. In the event where there is staff shortage, the CSRT can step into the role of the dosimetrist as well, and generate treatment plans for expedited same-day palliative radiotherapy treatments.

PROP patients receiving palliative radiotherapy are scheduled into a review clinic and seen by the nurse practitioner before the completion of their treatment. At this point in the patient care pathway, the CSRT provides *Discharge Care Plan* packages to the patients, documents that summarised details regarding their course(s) of treatment (i.e. reason(s) for referral, radiation dose, area(s) treated, duration/dates, and copy of their treatment digitally-reconstructed radiograph(s), etc.), potential side effects to expect post-treatment,

contact information for the attending radiation oncologist, nurse practitioner, and the CSRT. *(Note: Provision of a Discharge Care Plan to PROP patients was re-implemented by the CSRT during the Project in 2008.)*

In the event that the nurse practitioner could not see the PROP patient on review (or when she was not available), the CSRT assesses the patient on the treatment unit, conducts a review appointment on behalf of the nurse practitioner, provides the patient with their Discharge Care Plan(s), and voiced concerns from the patients(s) are raised/reported to the attending radiation oncologist(s). The same process applies to the PRS patients (i.e. being seen in review clinics and providing summary package, etc.), though the primary site group oncologists are usually responsible for seeing these patients in review clinics—it is important to note that the PRS patient group did not receive Discharge Care Plans prior to the CSRT implementation.

Overall, the CSRT provides continuity of care for both the PROP and PRS patients throughout their radiotherapy experience, being present from the point of initial consult to final day of treatment (and beyond). The CSRT is able to build a good rapport with these patients and their family members, and they have felt comfortable contacting the CSRT for radiotherapy-related questions and concerns. The CSRT has also been providing extra services, i.e. Discharge Care Plans, for PRS patients with whom she interacted. Moreover, the CSRT's ability to complete oncology-related tasks delegated by the radiation oncologists has been beneficial, allowing the radiation oncologists to spend more time with the patients, and potentially, see more patients in clinic, and attend to various specialized duties of a radiation oncologists. This will, as a result, increase access of care to patients.

Title: Patient Assessment and Symptom Management Clinical Specialist Radiation Therapist (Breast Cancer)

Location: Princess Margaret Hospital, Toronto, ON

The CSRT facilitates the provision of care by the Radiation Oncologist (RO) by undertaking the breast patient reviews. These treatment reviews are conducted as a weekly Quality Assurance measure for all patients receiving radiotherapy in the management of breast cancer. The CSRT assesses for the presence and degree of adverse acute radiotherapy treatment related sequelae and makes recommendations on their management. The CSRT also addresses patient inquiries and concerns with any non-standard events being noted and referred to the attending RO. In the future this role will continue and may potentially expand to other RO clinics.

The CSRT combines an understanding of the patient's clinical disease with radiotherapy treatment planning knowledge to assist in tailoring a treatment plan to reflect those factors unique to each patient. This is essential for locally advanced breast cancer (LABC) patient population, where radiation therapy may be given in a primary, neoadjuvant or adjuvant fashion, and treatment for these patients often differs from that provided to those women with low-risk breast cancer. The CSRT works closely with the RO to ensure that all anatomic sites at risk of harbouring disease receive a therapeutic dose while sparing normal tissues when possible. This has been shown to not only decrease the risk of locoregional recurrence but also improve the likelihood of cure.

The CSRT, with advanced clinical knowledge and planning skills, undertakes the process of target volume delineation and enhances efficiency of the planning process. Since the beginning of 2008, when the Breast site group standardized the procedure to delineate the seroma cavity for all patients undergoing breast radiotherapy to ensure adequate dose coverage to the identified primary tumour site, adoption of this practice increased the workload of the RO and prolonged the treatment planning process. The study undertaken by the CSRT to investigate the inter-observer variability between the physicians and the breast site CSRT in defining the seroma target volume has demonstrated that the seroma targets as defined by the CSRT are not significantly different from those delineated by the RO's. The CSRT will soon be involved with Advanced Research Technologies (ART) SoftScan for patient response assessment in LABC patients.

SoftScan is a novel technology platform and uses near-infrared light to retrieve 3 dimensional images of the breast.

The Breast CSRT facilitates the process flow for the QuickStart breast irradiation program. In this novel CSRT directed care path, women with early breast tumours undergo both treatment simulation and planning as well as receiving their first treatment fraction on the same day. For those women who enter into this pilot process, they receive breast radiotherapy specific education then are imaged with treatment contours placed, a state-of-the art intensity modulated radiotherapy plan generated then vetted for quality assurance with treatment delivered immediately thereafter. Currently, the process requires 2.5 hours from start to finish. It is anticipated that this time will be reduced further as the pilot progresses. The CSRT directs and manages the orderly flow of this process and co-ordinates all aspects to maintain and ensure the safety and efficiency of treatment for each patient. Due to the success of this program, the QuickStart process will be increasing in capacity to provide treatment for 3-4 patients/week.

As an educator for the radiation therapy care continuum, the CSRT serves as an essential member in disseminating supportive services information available within the hospital and the community, and provides support to patients and their family members/caregivers. In the future the CSRT will be involved in breast site teaching and tutorials for radiation therapy students.

The CSRT has facilitated improvements in the quality of the weekly breast rounds. These rounds have been undertaken as an essential quality assurance measure to ensure that patient specific treatment plans are peer reviewed. The CSRT prepares the Breast site QA spreadsheet with clinical history, pathology, treatment details of patients to be reviewed in Breast site rounds; this expedites the review process while ensuring the quality of reviews. With specific processes developed by the CSRT to increase quality assurance efficiency, 100% of women undergoing breast radiation therapy have their plans reviewed by a multi-disciplinary breast site group team.

The CSRT is currently leading a research study to improve the consistency of seroma target volume delineation, as variation in contouring will potentially limit the precision gained by advanced RT technologies such as IMRT. The study examines whether there is an improvement in the consistency of seroma cavity delineation with the use of MRI, an imaging modality found to be effective tool in identifying seroma volumes for young patients and those with low seroma visibility. The results of this study will lead to more accurate delineation of the seroma cavity, thereby ensuring optimal outcomes for patients undergoing whole breast RT treatments.

The CSRT is also involved in research to study the nodal region delineation in breast patients. Advances in target volume delineation and radiotherapy delivery technique will allow for better treatment of LABC patients. In the future the CSRT will be involved in studies relating the ART soft scan once the system is in place.

Caring voices is an online support website for cancer survivors. The CSRT currently moderates a monthly chat to answer and discuss issues relating breast radiation therapy.

Title: Clinical Specialist Radiation Therapist – Target Visualization and Delineation

Location: Princess Margaret Hospital, Toronto, ON

The Clinical Specialist Radiation Therapist – Target Visualization and Delineation (CSRT-TVD) position was one of the provincial advanced practice positions piloted at PMH, within the Head and Neck Tumour Site. The challenging anatomy of the head and neck and nature of the disease make this one of the most complex sites to manage. Two and half years since entering the position, the CSRT-TVD now competently performs contouring for the majority of head and neck cases, including organs-at-risk, gross nodal diseases

and neck nodal zone volumes. This task is a transfer of responsibility from the Radiation Oncologists; (prior to the introduction of the CSRT-TVD role it was transferred to a physician “contouring specialist”). The implementation of this new position has resulted in considerable time savings for physicians, more rapid movement of cases through the treatment planning process and has promoted consistency in contouring practice across the team. In addition to contouring the CSRT-TVD’s responsibilities also include multi-modality image registration. The CSRT-TVD is also functioning to provide expertise in bridging the gaps amongst imaging staff, planning staff, treatment therapist and oncologists. From time to time the CSRT-TVD is being consulted by other staff on imaging and contouring issues as well as research input.

The CSRT-TVD is involved in teaching activities in the multi-disciplinary team. The CSRT-TVD role has developed teaching curriculum, for oncology residents and radiation therapists, and is responsible for delivery of this curriculum by coordinating activities and teaching in the multi-disciplinary environment. The CSRT-TVD will also take on a leadership and supervisory role of other radiation therapists who may be engaged in contour delineation; through mentorship and approval of their contours.

As the role matures, the CSRT-TVD is anticipated to make a valuable contribution to the team through more involvement in research and development, quality assurance and program innovation, including (but not limited to):

- Development of evidence based imaging protocols for optimal tumour visualization.
- Complex target delineation and treatment planning required for patients undergoing retreatment for recurrent disease.
- Developing decision-making guidelines for and participate in adaptive treatment planning.

Academic contribution is expected to increase as the position develops. It is expected that the CSRT-TVD will obtain an MSc Medical Radiation Sciences (Radiographic Image Interpretation) through Charles Sturt University.

Key Responsibilities:

Target Visualization and Delineation

- Accurately locating and delineating treatment volumes and critical organs-at-risk on the planning images is time consuming and requires advanced knowledge of cross sectional anatomy and disease pathways for head and neck. However, it is resource intensive and demands the existence of new skill sets and expertise in image visualisation and delineation.
- Provide focused expertise to complete these tasks, while improving program-wide consistency. The transfer of this responsibility from oncologists frees up time that can be redistributed to other essential activities or to see additional patients.

Imaging

- Image modalities are becoming increasingly important in radiation therapy. To accurately locate the relevant disease and critical structures, it is often necessary to combine the different image sets from different modalities and relate the information accurately in 3-dimensional and sometimes even 4-dimensional (patient motion) space. CSRT-TVD expertise with imaging localisation tools and methods provides better image quality, improving registration accuracy between different modalities and therefore improve treatment accuracy, reduce delineation time and potentially improve patient outcomes in the future. The CSRT-TVD role is developing expertise in this area to perform the activity, to contribute to research, to develop practice standards for utilisation of imaging applications, to ensure optimal use of technology and quality control, and for training other therapists and members of the multi-disciplinary team.

IGRT-adaptation and re-planning

- New and improved imaging tools are available on treatment units to improve the ability to verify the accuracy and precision of treatment set-ups using imaging guidance methods. The CSRT-TVD will play a key role in the development of standards and guidelines for decision making and re-planning.

Complex Treatment Planning

- It is expected that the CSRT-TVD will deploy their advanced skills and knowledge to execute target delineation and treatment planning required for patients undergoing retreatment for complex recurrent disease. Transferring information about previous treatments to the new treatment plan requires understanding of organ deformation/movement and expertise in the use techniques available to capture this. In addition, adaptive radiation therapy is already on the horizon. The CSRT-TVD will take a lead role in developing evidence-based decision-making guidelines and participate in the team-wide implementation adaptive treatment planning.

Education

- The CSRT-TVD is involved in teaching activities in the multi-disciplinary team. With the integrated expertise in imaging, cross sectional anatomy, and treatment planning, the CSRT-TVD helps to bridge gaps between different disciplines. The CSRT-TVD role has developed teaching curriculum for oncology residents and radiation therapists, and is responsible for delivery of this curriculum by coordinating activities and teaching in the multi-disciplinary environment.

Research and Innovation

- In the future, as the role matures, the CSRT is anticipated to make a valuable contribution to the team through more involvement in research and development, quality assurance and evidence based imaging protocols for optimal tumour visualization.

Leadership, CQI and Service Enhancement

- Assumes leadership and supervisory role of other radiation therapists who may be engaged in contour delineation; through mentorship and approval of their contours; and also by providing support /guidance on planning recurrent disease. The position provides advice to imaging and planning staff to help in process improvement, problem solving as well as staff mentorship.

Academic/Scholarly Development

- Contributes to the scholarly endeavours of the team through collaboration and participation with existing studies. Over time, it is expected that the CSRT-TVD will develop an area of independent, relevant research expertise. Academic contribution is expected increase as the CSRT becomes more engaged in scholarly production through presentations and publication. Independent grant money should be sought in the future as this body of research matures. It is expected that the CSRT-TVD will obtain an academic appointment at University of Toronto.

Professional Development /Continuing Education

- The CSRT-TVD is making an invaluable contribution to the Program. In addition to knowledge and skills already acquired and demonstrated during the pilot phase, the incumbent is currently enrolled in MSc Medical Radiation Sciences (Radiographic Image Interpretation) through Charles Sturt University, Australia; which will further augment his knowledge.

Title: Bone Metastasis Clinical Specialist Radiation Therapist

Location: Juravinski Cancer Centre, Hamilton, ON

The Bone Metastasis Clinical Specialist Radiation Therapist (BMCSRT) is an experienced therapist with post-graduate qualification and experience with palliative Radiation Oncology. Working closely with a team of Radiation Oncologists, Primary Care Nurses, and the Supportive Care Team, the BMCSRT has in-depth

knowledge of clinical assessment, patient education, pain management, radiation planning and treatment delivery, and patient support in palliative radiation therapy. The BMCSRT contributes to the development and timely provision of palliative services within the Radiation Oncology Program and participates in the education of peers, other health professionals and students, as well as patients and their caregivers. The BMCSRT will be responsible for developing a portfolio of clinically relevant research including patient-related and treatment related outcomes.

The BMCSRT is a highly competent academic practitioner with advanced knowledge, skills and judgment in clinical practice in Palliative Radiation Oncology. The BMCSRT functions as a self-regulated practitioner guided by strong moral, ethical and personal values in a spectrum of environments taking into account the unique qualities of each. He/she will integrate theoretical, research and practical knowledge to exercise sound judgment across complex and varying social, cultural and organizational contexts making a unique and significant contribution to the timely provision of excellent radiation therapy treatment and patient care in the cancer care system.

Currently, the BMCSRT at the Juravinski Cancer Centre (JCC) cares for an average of 10 patients per week and is working with thirteen Radiation Oncologists. Since September 2010, the BMCSRT has been triaging Cross Referrals and New Patient Referrals for all Bone Metastases patients. This involves working closely with other Disease Site Team Coordinators, family physicians in the community and hospital in-patient care teams.

The BMCSRT role is continually evolving at the JCC. At the present time, the clinical component involves attending Bone Mets Clinic on Tuesday mornings. Three Radiation Oncologists utilize eight appointments for Brain and Bone Mets patients. These patients may be cross referrals, new consults or new patients to radiation therapy. Generally, first priority is to the Bone Mets patients and I will assist with Brain Mets patients as required. Patients that consent for radiation therapy in Bone Mets clinic are scheduled for same day simulation and treatment as clinic operations allow. As the BMCSRT triages all Bone Met referrals, patients are then pre-booked for planning to the appropriate unit (Conventional simulation vs. CT simulation) and supervisors are appraised of the additional workload for that day.

The BMCSRT role includes taking patient histories, pain evaluation and assessment, reviewing diagnostic imaging, documentation of special needs, patient requirements, field borders, scan limits and positioning requirements which are all communicated to the radiation oncologist, radiation therapists and booking clerks and dictated when appropriate.

Conventional simulation or CT field placement is performed by the CSRT and approved by the Radiation Oncologist for specified bone & brain metastases patients. Concordance studies involved the comparison of CSRT field placement to the Radiation Oncologist's. Pretreatment medications and specific patient orders are discussed as well as the Treatment Plan Prescription dosage and depth.

Telephone follow-up of Bone Mets patients is done in consultation with the radiation oncologist, patient and family where appropriate. Dictation of the telephone follow-up is performed with referrals and follow-up instructions documented.

Coordinating the implementation of the Edmonton Symptom Assessment System (ESAS) into the JCC Radiation Therapy department has been an advanced skill and extremely challenging. Compliance issues, education of staff and patients as well as presentations at staff forums have all been a part of the implementation and ongoing evolution of the initiative.

Advanced research duties include the recent Research Ethics Board approval for a study examining the variables that contribute to random set-up field displacements in patients receiving radiation therapy for

spinal metastases. The production of the First Nations Access to Care Symptom Control & Pain Management Booklet in conjunction with provincial CSRT's resulted in a Best Poster Award at the recent RTi3 conference in Toronto and future publication in the Canadian Association of Medical Radiation Technologists (CAMRT) journal.

In the current role, the system is greatly impacted in the planning of the patients for palliative radiation. Considerable radiation oncologist planning time is saved by having the BMCSRT assess and plan these specific bone& brain metastases patients. As well, through telephone follow-up, patient satisfaction is greatly achieved, patients feel that they are being extremely supported and appreciate the continuity of care.

In the future with additional funding and support ideally the BMCSRT role could expand to include working with more radiation oncologists in an expanded rapid access metastases program to several times per week. Patients and colleagues would benefit from this service and it would also provide research opportunities.

Key Responsibilities:

- Uses medical directives to undertake clinical assessment of patient and obtains informed consent for treatment.
- Discusses any deviations from the planned treatment, unfamiliar or unusual findings, with the patient's Radiation Oncologist. Such events will be recorded and reviewed and any solutions to repetitive events will be incorporated into standard practice in order to continuously develop the knowledge and expertise of the role.
- Is familiar with the use of pain control drugs their side-effects and contraindications, and will consult with the pharmacologist or palliative pain control team as required.
- Perform basic pain symptom/management evaluation using standardized evaluation tools and methods.
- Organizes pre-treatment medication as required.
- Follows medical directives to complete a requisition for planning and treatment,
- Performs patient education.
- Uses technical information during assessment of patients, prior to planning and treatment, for consideration of comfortable positioning and technical feasibility.
- Performs virtual simulation and 3-D treatment planning of complex cases that are referred from the Radiation Oncologist.
- Participates in on-treatment reviews.
- May prescribe drugs from a defined formulary list according to protocols from a medical directive.
- Refers patients to other disciplines as required, e.g. Supportive care, Psychosocial, Social Work, Dietician, and Community Care access Centre.
- Ensures appropriate discharge plans are implemented.
- Acts as a contact for patients and provides follow-up care.
- Participates in follow-up clinics.
- Promotes, advocates and employs evidence based approaches to develop and engage in best professional practice.
- Collects and reviews data, develops performance indicators for the purpose of quality assurance within the program.
- Acts a key- contact for in-patient ward and external hospitals
- Collaborates with the multi-disciplinary care team to develop efficient and process for Bone Metastases services
- Provides radiation therapy technical consult to the multi-disciplinary team.

- Contributes to the development of evidence-based treatment policies.
- Provides direct support and leadership for radiation therapists working in Bone metastases.
- Works with the Manager to develop an operational structure that is efficient and meets the service needs.
- Develops a network with referring physicians and community car agencies to provide education on the role of radiation therapy in Bone Metastases to ensure continuation of care post treatment.
- Contributes to the development and implementation of strategic goals and business plan for the bone metastases program.
- Works across boundaries to provide seamless patient care.
- Will have broad knowledge of continuing care and support programs in the community.
- Undertakes evidence-based research in Bone Metastases initiatives.
- Presents at national and international forums, publishes research activities in peer-reviewed journals.
- Contributes to multi-disciplinary education (staff and students) on the topic of Bone Metastases
- Provides instruction, functional training and guidance to staff.
- Presents at professional education forums.

Title: Head and Neck Clinical Specialist Radiation Therapist

Location: Juravinski Cancer Centre, Hamilton, ON

The Head and Neck Clinical Specialist Radiation Therapist (HNCSRT) at the Juravinski Cancer Centre is a member of a multidisciplinary Head and Neck team responsible for ensuring quality and timely patient care. In clinic the HNCSRT takes medical histories, assesses patients for treatment suitability, provides expertise for cases, orders tests, creates care plans, obtains consent and ensures seamless flow of patient care from referral to follow-up. The HNCSRT educates the patient in expected toxicities and how to manage treatment side effects. The HNCSRT provides technical and clinical consultation during the simulation and planning process and she actively participates in research and student mentoring.

Key Responsibilities:

Clinical Practice

- Uses delegated acts to undertake clinical assessment of the patient and obtain written informed consent for radiation treatment.
- Discusses any deviations from the planned treatment, unfamiliar or unusual findings, with the patient's Radiation Oncologist. Such events will be recorded and reviewed and any solutions to repetitive events will be incorporated into standard practice, in order to continuously develop the knowledge and expertise of the role.
- Is familiar with the use of drugs used in the treatment of radiation-induced reactions, their side-effects arid contraindications and will consult with the pharmacologist and oncologist as required.
- Organizes pre-treatment medications as required.
- Performs basic pain symptom/management evaluation using standardized evaluation tools and methods.
- Follows medical directives to complete a requisition for planning and treatment.
- Performs patient education.
- Uses technical information during assessment of patients prior to planning and treatment for consideration of positioning and technical feasibility.
- Supervises construction of immobilization devices for virtual simulation and IMRT treatment planning of complex cases that are referred from the oncologist.
- Participates with the approval of treatment unit verification/localization images/ image guidance shift trends.

- May administer drugs from a defined formulary list according to protocols as part of a clinical trial.
- Refers patients to other disciplines as required, e.g. Psycho-social, Dietician, Dentist, and Advanced Practice Nurse.
- Participates in follow-up care and clinics for patient on clinical trials.

Quality

- Promotes advocates and employs evidence-based approaches to develop and engage in best professional practice.
- Collects and reviews data, develops performance indicators for the purpose of Quality Assurance within the program.
- Acts as a key contact for H&N patients on the treatment floor.
- Leads weekly H&N target volumes and plan reviews with a multidisciplinary group in attendance
- Reviews new technologies and provides feedback after assessment to the reviewing committee

Leadership

- Collaborates with the multi-disciplinary care team to develop efficient and timely process for the treatment of Head and Neck patients.
- Provides radiation therapy technical consult to the multi-disciplinary team.
- Contributes to the development of evidence-based treatment policies.
- Provides direct support and leadership for Radiation Therapists planning and treating Head and Neck cancer patients.
- Works with the Manager to develop an operational structure that is efficient and meets the service needs-.
- Contributes to the development and implementation of strategic goals and business plan for the treatment of Head and Neck cancer patients.
- Works across boundaries to provide seamless patient care.
- Will have broad knowledge of continuing care and support programs in the community.

Research

- Participates in evidence-based research in Head and Neck cancer studies to develop and employ best practices.
- Presents at national and international forums, publishes research activities in peer-reviewed journals.
- Supervises a diverse range of McMaster University and Mohawk-McMaster students working on radiation therapy student research projects.

Education

- Contributes to multi-disciplinary education (staff, residents and students) on the topic of Head and Neck cancer treatments.
- Provides instruction, functional training and guidance to staff.
- Presents at professional education forums.

JUNIOR CSRTs

Title: Clinical Specialist Radiation Therapist – Brachytherapy

Location: Odette Cancer Centre, Toronto, ON

PURPOSE:

Under the direction and guidance of the Manager of Radiation Therapy and the Radiation Oncologist Head of the Brachytherapy Program, the Advanced Practice Radiation Therapist will enhance radiation therapy practice and patient-focused outcomes for patients undergoing Brachytherapy through expanded, direct and comprehensive care, education, research, professional and organizational leadership. The Advanced Practice Brachytherapy Radiation Therapist is a registered Radiation Therapist who has acquired advanced knowledge and skills through a combination of workplace learning, formal courses and/or professional development activities.

The Advanced Practice Radiation Therapist is a highly competent academic practitioner with advanced knowledge, skills and judgment in clinical practice in the management of patients undergoing brachytherapy for a variety of sites such as Gyne, Prostate and Breast. The Advanced Practice Radiation Therapist functions as a self-regulated practitioner guided by strong moral, ethical and personal values in a spectrum of environments taking into account the unique qualities of each. He/she will integrate theoretical, research and practical knowledge to exercise sound judgment across complex and varying social, cultural and organizational contexts making a unique and significant contribution to the timely provision of excellent radiation therapy treatment and patient care in the cancer care system.

DUTIES & RESPONSIBILITIES:

The **Advanced Practice Brachytherapy Radiation Therapist** will play an integral role for Brachytherapy patients referred to the Odette Cancer Centre. By liaising with various site groups and team members, and triaging patients as required, the individual will be able to facilitate appropriate and efficient movement of the patient through the system. The individual will function within the interdisciplinary healthcare team. This individual will be responsible for ensuring quality patient care as part of the multidisciplinary health care team with a focus on ensuring efficient navigation of the patient through the system. With a high level of autonomy, the APRT will formulate care plans in conjunction with the radiation oncologist, patient/family/caregiver and obtain consent where necessary. He/she will ensure the patient follows appropriate preparation instructions, conduct assessment of the patient, before and after the procedure and provide education to the patient on expected toxicities and advice for the management of those toxicities. From a technical standpoint, the APRT will perform vaginal cylinder insertions, TRUS and volume studies, contouring, treatment planning, plan assessment and image approval for patients treated with Brachytherapy. The APRT will serve as a consultant within the interdisciplinary and multi-site Brachytherapy team and provide education and mentorship to others. At the program level, the APRT will apply leadership, research and educational expertise to enhance the application of evidence-based practice, principles of best practice, and quality practices.
The APRT will collaborate on Brachytherapy research with the various site groups employing Brachytherapy e.g. Gyne, Lung, GI and GU, as well as work in collaboration with other members of the patient's treatment team.

Optimizing patient care and maximizing patient health outcomes in the realm of radiation therapy is the central focus of the Advanced Practice Radiation Therapist.

1.0 CLINICAL COMPETENCIES

Works as a member of the Brachytherapy interdisciplinary care team to provide optimal patient care for patients undergoing Brachytherapy in a variety of tumor sites in accordance with the scope of practice, medical directives/protocols and practice guidelines.

a) Educate patients on correct preparation prior to the procedure and ensure instructions are followed so procedures do not have to be cancelled.
b) Assess patient prior to during and after brachytherapy and/or related procedure and for physical and psychosocial distress with appropriate documentation of findings or referrals.

c) Recognize contraindications for performance of vaginal cylinder insertions or TRUS procedures.
d) Act as a patient navigator to ensure patients identified for Brachytherapy are steered through the process efficiently and resources are booked appropriately for maximum efficiency.
e) Interpret relevant diagnostic information
f) Perform /order additional tests/diagnostic procedures where appropriate and necessary.
g) Formulate, implement, and continuously assess effectiveness of patient care/treatment plan.
h) Communicate the results of specific tests/procedures
i) Obtain informed consent for participation in clinical studies.
j) Administer/dispense pharmaceutical within defined medical directives
k) Consult, as part of the interdisciplinary team, on relevant patient cases.
l) Act as a resource and central coordinating individual across all the site groups using Brachytherapy(e.g. Gyne, GI, GU, Lung)

2.0 TECHNICAL COMPETENCIES

Utilizes advanced technical knowledge to function as an expert in the Brachytherapy Group.
Provide technical and dosimetric consultation at all phases of the planning and treatment process.
Perform vaginal cylinder insertions for second and subsequent insertions (initial insertion will be performed by radiation oncologist)
Perform TRUS and volume studies for potential prostate cancer patients.
Employ technical expertise in the area of dosimetry for brachytherapy patients
Order the appropriate imaging/planning.
Approve/conduct treatment localization of appropriate treatment volumes
Accurately locate relevant organs, target volumes , organs at risk and regions of interest for use in the creation of an optimized treatment plan.
Perform contouring of normal structures, critical organs at risk (and target volume where applicable) for brachytherapy plans.
Perform plan assessment.
Approve verification/localization images and image guidance shift trends where applicable
Refer cases that fall out of standard protocol to the Radiation Oncologist.
Apply advanced technical knowledge to improve the integration of existing, or facilitate the application of new technology throughout practice where applicable

3.0 PROFESSIONAL COMPETENCIES

Functions as a leader, role model, educator, researcher and mentor in all aspects of radiation therapy practice especially within the brachytherapy patient population.

Service and Quality Enhancement (Q)

a) Promote, advocate and employ evidence-based approaches to develop and engage in best professional practice
b) Select cases and participate in brachytherapy QA rounds.
c) Participate in overall program review and external program/service audit (e.g. accreditation processes)
d) Ensure brachytherapy treatment and planning is coordinated to make the most efficient use of resources (i.e. OR Suite, anesthesia, CT) and minimize wait times.
e) Proactively plan for and order equipment for the Brachytherapy program.

Leadership (L)

a) Contribute to the optimal function of the health care team through continual assessment, evaluation and self-reflection
b) Optimize awareness and utilization of a program/service through communication, promotion and advocacy
c) Participate in the selection, mentoring, supervision and evaluation of junior staff

d) Participate in strategic planning and goal setting for the program.
e) Engage in personal and professional reflective practice

Research (R)

a) Contribute to the scholarly endeavors of the Brachytherapy Team through collaboration and participation in existing studies.
b) Participate in and lead research new research projects for the Brachytherapy group.
c) Collect, maintain and analyze data required by the Brachytherapy Program
d) Present research findings at conferences, rounds and in-services.
e) Facilitate the translation of research findings into treatment practice.

Education (E)

a) Assess learning needs of new radiation therapists rotating to brachytherapy suite.
b) Create learning plans and materials as required.
c) Provide training to radiation therapists in brachytherapy suite on any new protocols/ techniques/equipment.
d) Deliver presentations and educational sessions.
e) Assess staff knowledge of brachytherapy, identify need for remediation and collaborate with Educator to provide remediation.

4.0 OTHER

Perform other related duties and activities as assigned.

QUALIFICATIONS:

- Qualified Radiation Therapist Registered with CMRTO
- Minimum 5 years' experience in the field of Radiation Therapy
- Bachelor of Science Degree (Master's Degree obtained or in progress required upon acceptance of position)
- CPR Certified.
- Strong interpersonal and team based skills
- Demonstrated leadership skills
- Able to work independently with a minimum of direction.
- Excellent communication and organizational skills
- Demonstration of leadership and research experience required
- Strong knowledge of SBRT, indications, treatment planning, imaging etc. physiology, disease progression and management of radiation therapy related side effects
- Awareness of legislation relevant to the position

Title: Clinical Specialist Radiation Therapist – Stereotactic Body Radiation Therapy

Location: Odette Cancer Centre, Toronto, ON

PURPOSE:

Under the direction and guidance of the Manager of Radiation Therapy and the Radiation Oncologist Head of the SBRT group, the Advanced Practice Radiation Therapist will enhance radiation therapy practice and patient-focused outcomes for patients undergoing SBRT through expanded, direct and comprehensive care, education, research, professional and organizational leadership. The Advanced Practice SBRT Radiation Therapist is a registered Radiation Therapist who has acquired advanced knowledge and skills through a combination of workplace learning, formal courses and/or professional development activities.

The Advanced Practice Radiation Therapist is a highly competent academic practitioner with advanced knowledge, skills and judgment in clinical practice in the management of patients undergoing SBRT for a

variety of tumor sites. The Advanced Practice Radiation Therapist functions as a self-regulated practitioner guided by strong moral, ethical and personal values in a spectrum of environments taking into account the unique qualities of each. He/she will integrate theoretical, research and practical knowledge to exercise sound judgment across complex and varying social, cultural and organizational contexts making a unique and significant contribution to the timely provision of excellent radiation therapy treatment and patient care in the cancer care system.

DUTIES & RESPONSIBILITIES:

The **Advanced Practice SBRT Radiation Therapist** will play an integral role for SBRT patients referred to the Odette Cancer Centre. By liaising with various site groups and team members, and triaging patients as required, the individual will be able to facilitate appropriate and efficient movement of the patient through the system. The individual will function within the interdisciplinary healthcare team by providing comprehensive assessment, and referral, and contouring, treatment planning, plan assessment and image approval for patients treated with SBRT. This individual will be responsible for ensuring quality patient care as part of the multidisciplinary health care team with a focus on ensuring continuity of care from referral to follow up and efficient navigation of the patient through the system. With a high level of autonomy, the APRT will formulate care plans in conjunction with the radiation oncologist, patient/family/caregiver and obtain consent where necessary. He/she will conduct ongoing assessment of the patient, provide education to the patient on expected toxicities and ongoing support for the management of those toxicities, as well as participate in weekly review and follow up care. From a technical standpoint, the APRT will perform lung contours, contouring of normal structures and organs at risk in certain defined cases, target volumes. The APRT will attend at the treatment unit on the first day of treatment in place of the oncologist and will approve set-up and treatment images. The APRT will serve as a consultant within the interdisciplinary and multi site SBRT team and provide education and mentorship to others. At the program level, the APRT will apply leadership, research and educational expertise to enhance the application of evidence-based practice, principles of best practice, and quality practices.
The APRT will collaborate on SBRT research with the various site groups employing SBRT e.g. Lung, GI and GU, as well as work in collaboration with other members of the patient's treatment team.

Optimizing patient care and maximizing patient health outcomes in the realm of radiation therapy is the central focus of the Advanced Practice Radiation Therapist.

1.0 CLINICAL COMPETENCIES

Works as a member of the SBRT interdisciplinary care team to provide optimal patient care for patients undergoing SBRT in a variety of tumor sites in accordance with the scope of practice, medical directives/protocols and practice guidelines.

a) Triage patients to ensure identify patients suitable for SBRT and the various trials and protocols at the appropriate urgency level
b) Assess patient at first clinic appointment, before, during and after radiation therapy, for physical and psychosocial distress with appropriate documentation of findings or referrals.
c) Act as a patient navigator to ensure patients identified for SBRT are steered through the process efficiently.
d) Interpret relevant diagnostic information
e) Perform /order additional tests/diagnostic procedures where appropriate and necessary.
f) Formulate, implement, and continuously assess effectiveness of patient care/treatment plan.
g) Communicate the results of specific tests/procedures
h) Obtain informed consent and consent for participation in clinical studies.
i) Administer/dispense pharmaceutical within defined medical directives
j) Consult, as part of the interdisciplinary team, on relevant patient cases.

k) Act as a resource and central coordinating individual across all the site groups using SBRT (e.g. Lung, GI, GU)

2.0 TECHNICAL COMPETENCIES

Utilizes advanced technical knowledge to function as an expert in the SBRT Group.

a) Provide technical and dosimetric consultation at all phases of the radiation therapy planning and treatment process
b) Employ technical expertise in the area of dosimetry for SBRT patients
c) Order the appropriate imaging/planning.
d) Approve/conduct treatment localization of appropriate treatment volumes
e) Accurately locate relevant organs, target volumes, organs at risk and regions of interest for use in the creation of an optimized treatment plan.
f) Perform contouring of normal structures, critical organs at risk (and target volume where applicable) for SBRT plans.
g) Perform plan assessment.
h) Approve treatment unit verification/localization images and image guidance shift trends where applicable
i) Refer cases that fall out of standard protocol to the radiation oncologist.
j) Apply advanced technical knowledge to improve the integration of existing, or facilitate the application of new technology throughout practice where applicable

3.0 PROFESSIONAL COMPETENCIES

Functions as a leader, role model, educator, researcher and mentor in all aspects of radiation therapy practice especially with the patient population receiving SBRT.

Service and Quality Enhancement (Q)

a) Promote, advocate and employ evidence-based approaches to develop and engage in best professional practice
b) Select cases and participate in SBRT QA rounds.
c) Participate in overall program review and external program/service audit (e.g. accreditation processes)
d) Ensure SBRT treatment and planning is coordinated to make the most efficient use of resources (i.e. Hexapod equipped treatment units) and minimize wait times.
e) Proactively plan for and order equipment for the SBRT program.

Leadership (L)

a) Contribute to the optimal function of the health care team through continual assessment, evaluation and self-reflection
b) Optimize awareness and utilization of a program/service through communication, promotion and advocacy
c) Participate in the selection, mentoring, supervision and evaluation of junior staff
d) Participate in strategic planning and goal setting for the program or service
e) Engage in personal and professional reflective practice

Research (R)

a) Contribute to the scholarly endeavors of the SBRT team through collaboration and participation in existing studies.
b) Participate in and lead research new research projects for the SBRT group.
c) Collect, maintain and analyze data required by the SBRT Program
d) Present research findings at conferences, rounds and in-services.
e) Facilitate the translation of research findings into treatment practice.

Education (E)

a) Assess learning needs of new radiation therapists rotating to SBRT machines.
b) Create learning plans and materials as required.
c) Provide training to radiation therapists in Simulator or Treatment Units on any new SBRT protocols/ techniques/equipment.
d) Deliver presentations and educational sessions.
e) Assess staff knowledge of SBRT, identify need for remediation and collaborate with Educator to provide remediation.

4.0 OTHER

Perform other related duties and activities as assigned.

QUALIFICATIONS:

- Qualified Radiation Therapist Registered with CMRTO
- Minimum 5 years' experience in the field of Radiation Therapy
- Bachelor of Science Degree (Master's Degree obtained or in progress required upon acceptance of position)
- CPR Certified.
- Strong interpersonal and team based skills
- Demonstrated leadership skills
- Able to work independently with a minimum of direction.
- Excellent communication and organizational skills
- Demonstration of leadership and research experience required
- Strong knowledge of SBRT, indications, treatment planning, imaging etc. physiology, disease progression and management of radiation therapy related side effects
- Awareness of legislation relevant to the position

Title: Clinical Specialist Radiation Therapist – Brachytherapy

Location: Princess Margaret Cancer Centre, Toronto, ON

Job Summary

The Advanced Practice Radiation Therapist, Gynecological Brachytherapy is a highly competent clinical and academic practitioner with advanced knowledge, skills and judgment in specialized area of brachytherapy practice. The APRT (GB) utilizes advanced knowledge of the brachytherapy patient population and their disease, associated processes of care, and technical applications of radiation therapy planning and treatment, to play a key leadership role within the multi-disciplinary Brachytherapy team The Advanced Practice Radiation Therapist functions as a self-regulated independent practitioner with the brachytherapy cohort of gynecological patients, as well the APRT assumes a leadership and oversight role within the overall brachytherapy program.. He/she will integrate theoretical, research and practical knowledge to exercise sound judgment across complex and varying social, cultural and organizational contexts making a unique and significant contribution to the timely provision of excellent radiation therapy treatment and patient care in the cancer care system.

The Advanced Practice Radiation Therapist will enhance radiation therapy practice and patient-focused outcomes for gynecological brachytherapy cancer patients through expanded, direct and comprehensive care, education, research, professional and organizational leadership Activities fall within the domains of advanced radiation therapy practice and include: i) the application of theoretical and clinical expertise in Gynecological Brachytherapy to: undertake patient assessment in preparation for treatment during and post

treatment, provide patient education and obtain patient consent, target visualization using 3d imaging, treatment planning, ii) utilizing knowledge and skills in side effects, symptom management and quality of life assessment to monitor treatment outcomes during the care pathway including survivorship; iii) performing supervisory responsibilities e.g. performance evaluation and development, policy and procedure development and evaluation; design, implementation and evaluation of innovative protocols and processes and other quality initiatives; iv) fulfill their academic mandate through participation in the research process and contribution to the education and professional development of radiation therapists, radiation medicine interdisciplinary staff, students and the professional community within area of specialization; v) functioning as a role model, resource and consultant to individuals and groups within the organization; vi) undertaking of activities that strengthen and further develop the practice of the radiation therapy profession. To realize the full scope and potential of the role, the CSRT has the support of, and works in collaboration with the multi-disciplinary team, and organizational leadership—professional and administrative.
Optimizing patient care and maximizing patient health outcomes in the realm of radiation therapy is the central focus of the Advanced Practice Radiation Therapist.

Responsibilities
Clinical Practice
Utilizes and demonstrates a comprehensive theoretical knowledge base and advanced level of clinical competence in patient care and radiation therapy practice to ensure a ensure provision of quality care that is safe, effective and efficient.
a) Patient Care

- Review and interpret clinical information including pathology, imaging and test results etc. to determine appropriate patient care plan and clinical target definition
- Perform/order additional tests or procedures where appropriate and necessary.
- Consult, as part of the interdisciplinary team, on relevant patient cases
- Assess patient at first appointment, before, during and after radiation therapy for physical and psychosocial distress with appropriate documentation of findings.
- Use critical thinking skills to guide decision making in complex, unpredictable and dynamic situations.
- Communicate the results of specific tests/procedures
- Obtain informed consent
- Prescribe/administer pharmaceuticals within defined medical directives
- Refer patients to the appropriate health professional or service e.g. social work, psychology, dieticians etc.
- Conduct patient review to monitor side effects and take appropriate action to alleviate symptoms.
- Initiate discharge plan, act as patient advocate and support during treatment and into survivorship
- Provides sexual health counseling to patients a part of carpe plan , including during survivorship
- Facilitate peer support networks though caring voices.
- Conduct telephone triage with patients and physicians.
- Conduct follow-up clinics or perform telephone follow-up
- Plan Coordinate and Organize initiatives to integrate patient focused care.
- Develop implement and evaluate standards and clinical practice guidelines for patient population
- Use multiple strategies (e.g. teaching, counseling, technological or pharmaceutical) to influence patient health and quality of life.
- Develop innovative approaches to complex practice issues and evaluate care within specialty programs.

b) Application of technical knowledge

- Provide technical and dosimetric consultation at all phases of the radiation therapy planning and treatment process
- Employ technical expertise in the area of patient preparation (e.g. applicator sizing), target visualization and dosimetry for the defined patient population
- Order the appropriate imaging/planning procedures
- Approve/conduct treatment localization of appropriate treatment volumes
- Identify and contour relevant organs, target volumes and regions of interest for use in the creation of an optimized radiation treatment plan where appropriate
- Perform image fusion of multiple modalities in order to enhance anatomical visualization and identification for planning purposes.
- Utilizes expert technical knowledge of systems to manipulate images in order to clearly define area of interest
- Perform image segmentation for target and OAR Volumes
- Perform HDR vaginal brachytherapy insertions
- Approve treatment unit verification/localization images/image guidance shift trends
- Refer cases that fall out of standard protocol to radiation oncologist or other radiation medicine professional

1. Quality

Performs quality improvement responsibilities

- Provides leadership in the development, implementation and evaluation of quality management programs/initiatives
- Participates in the development of documentation systems and processes that evaluate quality of care from multiple perspectives e.g. patient, family, referring physicians etc.
- Lead the development, integration and evaluation of best practices in accordance with established standards
- Apply advanced technical knowledge to improve the integration of existing, or facilitate the application of new technology throughout practice where applicable.
- Uses Quality improvement tools to effectively monitor processes and improve the quality of services
- Participates in the defining of performance goals for the Brachytherapy program, establishes and tracks performance indicators to monitor progress.

2. Leadership, Supervision and Education

Plays a leadership role and performs administrative responsibilities. Delivers, coordinates and participates in education and professional development activities/programs. Performs activities to further develop and strengthen the profession

Organizational Leadership

- Function as expert role model in radiation therapy best practices.
- Participate in strategic planning and goal setting and performance evaluation for the brachytherapy program, the gynecological site and radiation medicine program.
- Participate in the development/revision of practice guidelines, protocols, policies and procedures
- Provide leadership on working groups and task forces
- Membership on key committees such as Interventional Radiation Therapy Committee
- Supervise, train and mentor staff (Radiation Therapists, Nurses, Residents, Research Students)
- Evaluate radiation therapists working in the brachytherapy program. Responsible for selection of therapists, evaluation, appraisal, remediation, discipline and removal from those roles if not successful. .

- Assess learning needs of staff in brachytherapy and identify the need for remediation. Develop learning plans as required.
- Assign work to be done, methods to be used, and take responsibility for all the work of the group
- Act as a resource for staff assigned to brachytherapy area and to radiation oncologists and residents.
- Provide technical or functional guidance to other staff.
- Supervise and evaluate undergraduate/graduate students

Professional Leadership

- Optimize awareness and utilization of their specialty area of cancer services through communication, promotion and advocacy internally and to referring physicians.
- Consult as an expert clinical resource both within the hospital and the wider radiation therapy and cancer community.
- In conjunction with program /site leadership and /educators, plan, deliver, evaluate and revise education for staff orientation, referring physicians, visiting personnel, community etc.
- Collaborate with community groups regarding informational needs and concerns.
- Actively participates on professional association activities; e.g. by serving on committee, participating on task forces or working groups
- Collaborate with provincial APRT/'S in similar roles through the communities of practice to foster best practice across the province

3. Research and Innovation
Performs research activities involving effectively integrating research into the clinical role.

- Identify and conduct independent research relevant to brachytherapy practice, for example image-guided brachytherapy; treatment outcomes, survivorship and sexual health
- Seeks funding sources to support research activity
- Participate in the design and implementation of collaborative interdisciplinary research.
- Analyzes critically research findings for applicability to radiation therapy practice.
- Create scholarly papers for submission to peer reviewed journals.
- Create and present posters and presentations at scholarly conferences.
- Participate in the development of radiation medicine and overall health service evidence based knowledge by dissemination of research findings via, publications and presentations at relevant meetings.
- Collaborate with other disciplines to integrate research findings into daily practice.
- Assign projects to, and supervise research of junior staff and students.
- Mentor junior staff, students and residents.
- Facilitates use of evidence based research
- Pursues and maintains an academic appointment in the Department of Radiation Oncology, University of Toronto at the Assistant Professor level

4. Performs cross-functional and/or other duties consistent with the job classification, as assigned or requested

Education and Training Requirements
Education Masters in Radiation Therapy
Minimum Experience as Radiation Therapy 5 years, with at least 1 year in brachytherapy
Professional Certification/Registration

- CAMRT Radiation Therapy Certification
- Current Registration with CMRTO

- CPR Certification (Annual re-certification required)
- BCLS certification required

Professional Membership CAMRT

Required Skills/Competencies:

- Expert clinical skills to perform responsibilities outlined.
- Completion of formal education courses in subjects relative to area of practice an asset
- Possesses skills/knowledge relevant to the core competencies of the position
- Demonstrated knowledge of gynecological cancer pathology, physiology, treatments and disease progression
- Advanced technical knowledge of Radiation Treatment Planning and Delivery
- Working knowledge of equipment used
- Interpretation of 3d images to identify normal anatomy, tumour, critical structures for optimal treatment planning
- Demonstrated leadership skills
- Critical Thinking
- Problem Solving
- Mentoring/Coaching
- Team work Skills
- Organizational/Time Management skills, able to multi-task, prioritize and manage multiple deadlines
- Interpersonal skills
- Communication Skills
- Presentation skills
- Research Skills
- Conflict resolution
- Awareness and understanding of legislation and local policy relevant to the position
- Willingness to participate in further study and learning activities in order to exercise the full scope of the role.
- Motivated to succeed

Title: Clinical Specialist Radiation Therapist – Image Guided Adaptive Radiation Therapy

Location: Princess Margaret Cancer Centre, Toronto, ON

The Clinical Specialist Radiation Therapist (CSRT), Adaptive Radiation Therapy (ART), for the pelvic site group, is a highly competent clinical and academic practitioner with advanced knowledge, skills and judgment in the clinical and technical aspects of Radiation Therapy. The CSRT (ART) utilizes advanced knowledge of the pelvic cancers (gynecologic, gastrointestinal, genitourinary) and their disease pathways, 3 dimensional pelvic anatomy and physiology of pelvic organs, associated processes of care, and technical applications of radiation therapy planning and treatment, to play a key role within the multi-disciplinary pelvic team. The CSRT functions as a self-regulated independent practitioner, as well the CSRT assumes a leadership and oversight role within the overall ART program. He/she will integrate theoretical, research and practical knowledge to exercise sound judgment across complex and varying clinical contexts making a unique and significant contribution to the timely provision of excellent radiation therapy treatment and patient care in the cancer care system.

The Clinical Specialist Radiation Therapist will enhance radiation therapy practice and patient-focused outcomes through expanded, direct and comprehensive care, education, research, professional and organizational leadership. Activities fall within the domains of advanced radiation therapy practice and include, but are not limited to:

i. Undertaking patient assessment to identify external/internal motion minimization strategies/interventions in preparation for treatment,
ii. Clinical application of theoretical and clinical expertise in ART for image interpretation, disease targeting and adaptive treatment using 3d imaging, treatment planning, deformable registration, dose reconstruction and image fusion
iii. Utilizing knowledge and skills in side effects, symptom management and quality of life assessment to monitor toxicity and treatment outcomes during the care pathway including survivorship;
iv. Performing leadership responsibilities, e.g., performance development, policy and procedure development and evaluation; design, implementation and evaluation of innovative protocols and processes and other quality initiatives;
v. Fulfilling their academic mandate through participation in the research process and contribution to the education and professional development of radiation therapists, radiation medicine interdisciplinary staff, students and the professional community within area of specialization;
vi. Functioning as a role model, resource and consultant to individuals and groups within the organization;
vii. Undertaking of activities that strengthen and further develop the practice of the radiation therapy profession.

Title: Clinical Specialist Radiation Therapist – Thoracic HDR Brachytherapy

Location: Juravinski Cancer Centre, Hamilton, ON

Description of the Position

The Thoracic Brachytherapy Clinical Specialist Radiation Therapist (*tHDR-CSRT*) is an experienced therapist with post-graduate qualification and expertise in the treatment of upper GI cancers with high dose rate brachytherapy. The *tHDR-CSRT* will be a member of a multidisciplinary team responsible for ensuring quality patient care and the seamless flow of care from referral to follow-up. The *tHDR-CSRT* will liaise with and will provide technical and clinical consultation with the Radiation Oncologists, Surgeons, Medical Oncologists, Primary Care Nursing, Brachytherapy Nursing, Respirologists, Gastroenterologists, Cardiology, Anesthesia, Radiation Therapists, Medical Physicists, Supportive Care, Aboriginal Patient Navigator and Dietitians to ensure efficient, timely and high-quality care. The *tHDR-CSRT* will be responsible for triaging and assessing the patient, obtaining patient history, ordering appropriate staging diagnostic and laboratory tests, educating the patient for the procedure, reviewing patient medication history and allergies and contraindications to conscious sedation, creating a care plan, obtaining consent, educating the patient on expected toxicities, post treatment management, and follow-up care. The *tHDR-CSRT* will provide comprehensive patient care before, during and after radiation therapy.

The *tHDR-CSRT* will be responsible for developing a portfolio of clinically relevant research including patient-related and treatment-related outcomes, management of post treatment sequelae and toxicities and ordering appropriate interventions such as multidisciplinary referral, anti-fungal treatment or dilatation.

The *tHDR-CSRT* is a highly competent academic practitioner with advanced knowledge, skills and judgement in clinical practice in the treatment of thoracic upper GI lesions with high dose rate brachytherapy. The *tHDR-CSRT* functions as a self-regulated practitioner guided by strong moral, ethical and personal values in a spectrum of environments taking into account the unique qualities of each. He/She will integrate theoretical, research and practical knowledge to exercise sound judgement across complex and varying social, cultural and organizational contexts making a unique and significant contribution to the timely provision of excellent radiation therapy treatment and patient care in the cancer care system.

Title: Clinical Specialist Radiation Therapist – Breast

Location: Juravinski Cancer Centre, Hamilton, ON

JOB SUMMARY

The Breast Clinical Specialist Radiation Therapist (*Breast-CSRT*) is an experienced therapist with post-graduate qualification and expertise in the treatment of breast cancers. The *Breast-CSRT*will be a member of a multidisciplinary team responsible for ensuring quality patient care and the seamless flow of care from referral to follow-up. The *Breast-CSRT* will liaise with and will provide technical and clinical consultation with the Radiation Oncologists, Surgeons, Medical Oncologists, Primary Care Nursing, Radiation Therapists, Medical Physicists, and Supportive Care Specialists to ensure efficient, timely and high-quality care. The *Breast-CSRT* will be responsible for triaging and assessing the patient, obtaining patient history, educating patients with respect to appropriate staging diagnostic and laboratory tests, reviewing patient medication history and allergies, creating a care plan, obtaining consent, educating the patient on expected toxicities, post treatment management, and follow-up care. The *Breast-CSRT* will provide comprehensive patient care before, during and after radiation therapy.

The *Breast-CSRT* will be responsible for developing a portfolio of clinically relevant research including patient-related and treatment-related outcomes, management of post treatment sequelae and toxicities and ordering appropriate interventions such as multidisciplinary referral.

The *Breast-CSRT* is a highly competent academic practitioner with advanced knowledge, skills and judgment in clinical practice in the treatment of breast cancers. The *Breast-CSRT* functions as a self-regulated practitioner guided by strong moral, ethical and personal values in a spectrum of environments taking into account the unique qualities of each. He/She will integrate theoretical, research and practical knowledge to exercise sound judgment across complex and varying social, cultural and organizational contexts making a unique and significant contribution to the timely provision of excellent radiation therapy treatment and patient care in the cancer care system.

KEY RESPONSIBILITIES
Clinical Practice:

- Uses medical directives to undertake clinical assessment of the patient and obtain written informed consent for treatment.
- Discusses any deviations from the planned treatment, unfamiliar or unusual findings with the Radiation Oncologist (RO). Such events will be recorded and reviewed and any solutions incorporated into standard practice.
- Is familiar with the use of drugs used in the treatment of radiation-induced reactions, their side effects and contraindications and will consult with the pharmacologist and radiation oncologist as required.
- Performs basic pain and symptom management evaluation using standardized evaluation tools and methods such as ESAS.
- Performs comprehensive patient and family assessments (psychosocial, cultural and ethnic factors affecting health needs).
- Follows medical directives to complete a requisition to order diagnostic tests or laboratory tests prior to treatment.
- Performs patient education regarding treatment planning and possible immobilization making procedures, pre-procedure preparation such as Breath Hold simulation technique, and highlights expected acute and long-term side effects and their management.
- Organizes pre-treatment medications as required.
- Uses technical information during assessment of patients prior to planning and treatment for consideration of positioning and technical feasibility.

- Participates with the drawing of organs at risk and target volume contours, the approval of treatment volume, prescription point and fractional dose.
- Supervises construction of immobilization devices, bolus design, virtual simulation and boost treatment planning of complex cases that are referred from the oncologist.
- Participates with the approval of treatment unit verification/localization images/ image guidance shift trends.
- Participates in on-treatment reviews.
- May prescribe drugs from a defined formulary list according to protocols from a medical directive under supervision.
- Performs Adaptive Radiation Therapy by reassessing the treatment plan during the course of radiation treatment and prepares and submits adjusted plans as necessary to the Radiation Oncologist.
- Refers patients to other disciplines as required, e.g. Supportive Care, Psychosocial,
- Dietitian, and Advanced Practice Nurse.
- Ensures appropriate discharge plans are implemented.
- Participates in follow-up care and clinics.

Quality:

- Promotes, advocates and employs evidence-based approaches to develop and engage in best professional practice.
- Collects, reviews data and develops performance indicators for the purpose of Quality
- Assurance within the program.
- Acts as a key contact for in-patient ward, external hospitals and other cancer centres.

Leadership:

- Collaborates with the multi-disciplinary care team to develop efficient and timely process for the treatment of breast cancer patients.
- Triages CT simulation and immobilization device-making appointments for appropriateness.
- Provides radiation therapy technical consult to the multi-disciplinary team.
- Contributes to the development of evidence-based treatment policies.
- Works with the Manager to develop an operational structure that is efficient and meets the service needs.
- Provides leadership in the development, implementation and evaluation of policies and procedures and recommends policy changes based on research outcomes or evidence based practice.
- Develops a network with referring physicians and community care agencies to provide education on the role of radiation therapy in breast tumours to ensure continuation of care post treatment.
- Contributes to the development and implementation of strategic goals and business plan for the treatment of breast cancer patients.
- Works across boundaries to provide seamless patient care.
- Exhibits broad knowledge of continuing care and support programs in the community.

Research:

- Participates in evidence-based research in breast cancer studies to develop and employ best practices.
- Presents at national and international forums, publishes research activities in peer– reviewed journals.
- Develops and designs novel radiation planning and treatment techniques to facilitate ease of treatment.

Education:

- Contributes to multi-disciplinary education (staff and students) on the topic of breast cancer treatments.
- Maintains links with academic institutions through collaborative projects and cross appointment.
- Provides instruction, functional training and guidance to staff.
- Presents at professional education forums.
- Performs activities to further develop and strengthen the radiation therapist profession.

JOB REQUIREMENTS

Education:

- Graduate of recognized Radiation Therapy Training Program and a member of the CMRTO.
- Bachelor of Science Degree or Equivalent (based on PLAR).
- Master's degree (or equivalent) in Radiation Therapy preferred, or registered in a
- Master's program.
- BCLS qualifications.

Experience:

- Minimum of 5 years' experience in Radiation Therapy.
- Previous experience in breast cancer treatments.
- Previous experience in leadership and research preferred.

Additional Skills:

- Excellent leadership skills.
- Excellent computer skills.
- Exercises initiative and good judgment.
- Ability to multitask.
- Excellent organizational, interpersonal and communication skills.
- Compliance with confidentiality requirements.
- Knowledge of applicable legislative and departmental policies.
- Excellent research skills and analytical skills.
- Ability to work independently.
- Strong knowledge of breast pathology, physiology, CT anatomy and disease progression.
- Pharmacology knowledge, allergies and contraindications.

Title: Clinical Specialist Radiation Therapist – Planning Image Definition and Contouring Head and Neck

Location: London Regional Cancer Program, London, ON

The advanced practice radiation therapist (APRT) is responsible for the contouring and planning image definition of radiation therapy patient images used for radiation treatment. The APRT will perform precise localization of anatomy using multi-modalities used in the planning process (CT, PET, MR). The APRT is responsible for the continuing education of staff, students and residents in the realm of contouring and will provide collaborative consultation for multi-disciplinary case conferences.

Patient Safety

- Maintains a daily focus on patient safety as everyone's responsibility;
- Complies with patient safety initiatives, e.g. hand hygiene protocols

- Keeps alert to patient hazards and takes prompt action to eliminate unsafe conditions, e.g. not exposing patients or co-workers to your illness;
- Reports adverse events or near misses to appropriate management by using the organizational adverse event reporting system;
- Encourages and supports patients and families to be actively involved in their health care, e.g. asking questions to ensure clear understanding;
- Advocates for safe, quality patient care by making safety improvement suggestions and promoting safety initiatives.

Staff Safety
- Complies with the LHSC Code of Conduct, Occupational Health and Safety Act, applicable regulations and procedures, e.g. wearing appropriate personal protective equipment;
- Keeps alert to possible job hazards and takes prompt action to eliminate unsafe conditions;
- Participates in health and safety orientation, education and training and stays informed about safety requirements;
- Advocates for a safe work environment by making safety improvement suggestions and promoting safety initiatives

Patient Case Preparation
- Ensures all relevant information is available for clinical decision making
- Reviews available information against established guidelines in advance of patient appointment
- Identifies when patient cases or information results in uncertainty and refers cases to radiation oncologist or appropriate health care professional

Clinical Activities
- Employs appropriate imaging studies to optimize visualization of the regions of interest for planning purposes
- Develop strategies to optimize the use of available technology
- Incorporates all relevant clinical, diagnostic and technical information based on site protocols
- Establishes when protocol should be followed or when an individualized approach is required
- Identifies/delineates GTV, CTV and ROI's in accordance with international standards
- Uses available images and image registration/fusion software

Professional Activities
- Promote, advocate and employ evidence-based approaches to develop and engage in best professional practice
- Creates and uses databases
- Establishes quality indicators
- Contributes to the research and development of new imaging techniques/procedures
- Develops protocols and procedures related to disease site target definition
- Develops QA processes to ensure accuracy in image acquisition and target localization
- Collaborates with specialists in radiation oncology, radiology, physics and other medical specialists on projects aimed at improving process and patient outcomes
- Provides supervision to other therapists undertaking defined contour activities
- Takes responsibility for scope of practice
- Effectively negotiates solutions to problems identified in the patient care pathway
- Undertakes activities related to the conduct of research e.g. literature review, research design, proposal/grant writing, data collection, publications, etc.

Education
- Participates in knowledge dissemination through communication, promotion and advocacy e.g. presentations and publications
- Mentor and supervise junior staff – develop action plans to improve performance, provides constructive feedback
- Participates in multi-disciplinary training including radiation oncology residents in the area of contouring

Title: Clinical Specialist Radiation Therapist – Skin Cancer

Location: London Regional Cancer Program, London, ON

The advanced practice radiation therapist (APRT) is the primary resource for the patient/family/caregiver and is responsible for the education of staff and students in the realm of skin cancer, conducting new and follow-up patient assessments and the development of care plans for patients with skin cancer. The APRT will triage referrals to this disease site group, review and communicate pathology results, perform clinical markups for patients receiving treatment and/or delineate the treatment area for photodynamic therapy (PDT).

Patient Safety
- Maintains a daily focus on patient safety as everyone's responsibility;
- Complies with patient safety initiatives, e.g. hand hygiene protocols
- Keeps alert to patient hazards and takes prompt action to eliminate unsafe conditions, e.g. not exposing patients or co-workers to your illness;
- Reports adverse events or near misses to appropriate management by using the organizational adverse event reporting system;
- Encourages and supports patients and families to be actively involved in their health care, e.g. asking questions to ensure clear understanding;
- Advocates for safe, quality patient care by making safety improvement suggestions and promoting safety initiatives.

Staff Safety
- Complies with the LHSC Code of Conduct, Occupational Health and Safety Act, applicable regulations and procedures, e.g. wearing appropriate personal protective equipment;
- Keeps alert to possible job hazards and takes prompt action to eliminate unsafe conditions;
- Participates in health and safety orientation, education and training and stays informed about safety requirements;
- Advocates for a safe work environment by making safety improvement suggestions and promoting safety initiatives

Patient Case Preparation
- Ensures all relevant information is available for clinical decision making
- Reviews available information against established guidelines in advance of patient appointment
- Identifies when patient cases or information results in uncertainty and refers cases to radiation oncologist or appropriate health care professional

Clinical Activities
- Assesses the patient's general condition using all available relevant information and techniques including physical/clinical examination, patient history, pathology reports and other pertinent information
- Establishes eligibility for radiation therapy and/or photodynamic therapy
- Differentiates between radiation induced side effects and symptoms of disease progression or other treatment/conditions

- Refers patients to other programs/services as appropriate
- Determines the treatment goal and develops a care plan
- Communicates the results of tests identifying a disease as it pertains specifically to the skin disease site team
- Includes patient/family/caregiver in decision-making
- Presents the plan disclosing fully all available alternatives including advantages and disadvantages of each to patient/family/caregiver
- Obtains informed consent
- Continually monitors patient compliance and acceptance of care plan
- Revises care plan as necessary
- Prescribe/dispense correct pharmaceutical from defined approved list (as per medical directive) for specified conditions (eg. pain management, skin reactions due to radiation or PDT)
- Provides technical consultation at all phases of radiation and/or PDT planning and treatment process (eg. starting, holding or adapting treatment)
- Employs clinical decision making skills to intervene when planned treatment is no longer possible due to a change in the patient's condition, anatomical changes
- Develops strategies to optimize the use of available technology

Professional Activities

- Promote, advocate and employ evidence-based approaches to develop and engage in best professional practice
- Creates and uses databases
- Establishes quality indicators
- Contributes to the research and development of new imaging techniques/procedures
- Develops protocols and procedures related to disease site target definition
- Develops QA processes to ensure accuracy in image acquisition and target localization
- Collaborates with specialists in radiation oncology, radiology, physics and other medical specialists on projects aimed at improving process and patient outcomes
- Provides supervision to other therapists undertaking defined contour activities
- Takes responsibility for scope of practice
- Effectively negotiates solutions to problems identified in the patient care pathway
- Undertakes activities related to the conduct of research e.g. literature review, research design, proposal/grant writing, data collection, publications, etc.

Education

- Participates in knowledge dissemination through communication, promotion and advocacy e.g. presentations and publications
- Mentor and supervise junior staff – develop action plans to improve performance, provides constructive feedback
- Participates in multi-disciplinary training including radiation oncology residents in the area of contouring

Title: Clinical Specialist Radiation Therapist – Palliative

Location: Carlo Fidani Peel Regional Cancer Centre, Mississauga, ON

The Palliative Care Clinical Specialist Radiation Therapist (PCCSRT) is a highly competent academic practitioner with advanced knowledge, skills, and judgment in a specialized area of practice. The PCCSRT functions as a self-regulated independent practitioner with a defined cohort of patients for whom he/she is responsible for clinical assessment, consultation, triaging, prescribing, treatment planning, treatment delivery, patient education, pain management and follow up care. The PCCSRT will integrate theoretical,

research, and practical knowledge to exercise sound judgment across complex and varying social, cultural, and environmental organizational contexts by making a unique and significant contribution to the timely provision of excellent radiation therapy treatment and patient care in the Radiation Oncology Program.
The PCCSRT serves as an innovative leader and expert consultant within a specific area of expertise in radiation therapy. The PCCSRT educates and collaborates with students and other healthcare professionals throughout the health care community. The PCCSRT brings the profession's perspective to influence policy locally and in the wider health care system, and contributes globally to the advancement of radiation therapy science and practice.
The PCCSRT promotes and works within an evidence-based framework to develop and employ best practices and contribute to research, gathering and analyzing evidence to inform and transform practice. Professional practice issues are addressed through academic enquiry and consultation. The PCCSRT challenges fundamental assumptions to find new ways of working in the inter-professional environment and to inspire and facilitate the integration of new knowledge into practice.
The PCCSRT is seen as a role model and mentor in both clinical and academic practice, demonstrating commitment to the radiation therapy community as a whole. The PCCSRT employs excellent interpersonal skills to provide outreach and to create new networks and partnerships within his/her own department and within the wider community.
Optimizing patient care and maximizing patient health outcomes in the realm of radiation therapy is the central focus of the PCCSRT.
All competencies will be conducted:

- With the patient as a central focus
- In accordance with professional Code of Ethics and Standards of Practice
- In accordance with all relevant provincial and national legislation
- In accordance with departmental protocol, practice and policy
- With due regard for radiation protection and overall safety

Duties or Responsibilities
The Palliative Care Clinical Specialist Radiation Therapist (CSRT) specializes in the area of palliative radiation therapy and has expert knowledge and experience in the clinical and technical aspects of palliative radiation treatment for metastatic disease.
The CSRT triages the patients referred for consideration of palliative radiation therapy for their metastatic disease and ensures the most appropriate clinic appointment based on the urgency of the patient. The CSRT triages at all points of the patients' care maximizing optimum utilization. The CSRT has advanced skills to manage the care of a specified group of patients with metastatic disease and uses their skills, knowledge, and ability to make the clinical and technical decisions required. The CSRT works closely with the inter-professional radiation oncology team and serves as a valuable technical and clinical resource by using their advanced knowledge of available radiation therapy technology, treatment planning and delivery, radiation therapy software system, as well as patient care in palliative radiation therapy.
The CSRT contributes to the delivery and continuous development of quality palliative services within the Cancer Program and the LHINs. The CSRT will facilitate knowledge transfer for peers, other health care professionals, students, and caregivers. The CSRT will utilize their research skills to continuously scan the environment for changes and enhancements to principles of best practice. The CSRT will work with external stakeholders to improve access and utilization of palliative radiation therapy across the LIHNs.

Clinical Competencies
The CSRT works in consultation with the inter-professional care team to provide optimal care for the palliative patient population as delegated by another health professional. The CSRT will:

a) Triage the patient to the RADPALL clinic ensuring all pertinent information to make treatment decisions is complete
b) Ensure all pertinent diagnostic information is available and do a preliminary diagnostic interpretation

c) Use medical directives to undertake clinical assessment of the patient to establish eligibility for radiation treatment
d) Communicate the results of tests and procedures
e) Establish patient treatment goals
f) Formulate, implement, and monitor the patient care plan
g) Obtain informed consent
h) Be familiar with the use of pain control drugs, their side-effects and contraindications, and will consult with the pharmacologist or palliative pain control team as required.
i) Perform basic pain and symptom evaluation and management using standardized evaluation tools and methods
j) Organize pre-treatment medication as required
k) Discuss any deviation from the planned treatment that falls outside of standard protocol with the Radiation Oncologist Supervisor
l) Ensure an appropriate discharge plan is implemented
m) Act as a contact for patients and providers for follow-up care
n) Administer and follow up with ESAS scores and actionable items

Technical Competencies
The Palliative Care CSRT utilizes advanced knowledge to function as an expert in the specialized program within which they work for the defined population of patient. The CSRT will:

a) Follow medical directives to complete a requisition for planning and treatment
b) Provide technical and treatment planning consultation at all phases of the radiation planning and treatment process
c) Employ technical expertise in the area of treatment planning for patients with metastatic disease receiving radiation therapy for palliative intent
d) Order the appropriate imaging and planning procedures for optimal visualization of regions of interest
e) Be responsible for the delineation and localization of appropriate treatment volumes and organs at risk
f) Approve treatment unit verification/localization images
g) Prescribe appropriate treatment dose for a clearly defined group of patients
h) Discuss any deviation from the planned treatment cases that falls outside of standard protocol with the radiation Oncologist Supervisor

Professional Competencies
The CSRT functions as a leader, role model, educator, researcher, and mentor in all aspects of radiation therapy practice especially in their area of specialization. The Clinical Specialist Radiation Therapist Competency Profile (Briefing Document Companion Document #4) states that the CSRT:
Service Quality and Enhancement

- Is a competent academic practitioner with advanced knowledge, skills, and judgment in clinical practice in an area of specialty.
- Is a self-regulated practitioner guided by strong moral, ethical, and personal values in a spectrum of practice related environments taking into account the unique qualities of each.
- Will integrate theoretical, research, and practical knowledge to exercise sound judgment across complex and varying social, cultural, and organizational contexts.
- Will make a unique and significant contribution to the timely provision of excellent radiation therapy treatment and patient care in the cancer care system.

Leadership

- Serves as an innovative leader and expert consultant within a specific area of expertise in radiation therapy.
- Educates and collaborates with students and other health care professionals throughout the health care community.
- Brings the profession's perspective to influence policy, locally and in the wider health care system.
- Contributes globally to the advancement of radiation therapy science and practice.

Research

- Promotes and works within an evidence-based framework to develop and employ best practice.
- Is an avid consumer of and contributor to research, gathering and analyzing evidence to inform and transform practice.
- Addresses practice issues through academic enquiry, analysis, and consultation.
- Challenges fundamental assumptions to find new ways of working in the inter-professional environment and to inspire and facilitate the integration of new knowledge into practice.

Education

- Is a role model and mentor in both clinical and academic practice, demonstrating commitment to the radiation therapy community as a whole.
- Provides outreach and creates new networks and partnerships within his/her own department and within the wider community.

QUALIFICATIONS

Education:

- Graduate of a recognized Radiation Training Program and current membership with the CMRTO
- Bachelor of Science degree or equivalent – based on PLAR
- Masters degree in Radiation Therapy preferred, or willing to obtain a Masters degree.
- Current Basic Cardiac Life Support (BCLS) certification
- Membership in the CAMRT strongly recommended

Experience:

- Minimum 7 years experience in the field of radiation therapy preferred
- Demonstrated leadership skills, previous experience in leadership preferred
- Research experience recommended
- Planning experience preferred

Other Skills:

- Self-motivated
- Excellent communication and organizational skills
- Strong knowledge of disease site pathology, physiology, treatments, disease progression and symptom management
- Excellent skills in all computer applications

QUALIFICATIONS SPECIFIC TO THIS CSRT ROLE

- Demonstrated Symptom Assessment Management skills
- Creativity
- Innovative and creative thinking skills
- Demonstrated knowledge and experience of treatment planning system

- Understanding of program clinical computer applications and linkages to hospital systems

Title: Clinical Specialist Radiation Therapist – Palliative

Location: Stronach Regional Cancer Centre, Newmarket, ON

Job Summary:
The Advanced Practice Radiation Therapist (APRT) is a highly competent and academic member of the department of radiation therapy who demonstrates leadership and advanced knowledge, skills and judgment in the clinical and technical aspects of the care of patients receiving palliative radiation therapy for whole brain and spinal bone metastases. The APRT is a self-regulated professional who works towards and attains autonomous practice in the triaging, assessing, prescribing, planning and coordination and management of a defined group of patients referred to Southlake for palliative radiation treatment. S/he will integrate research, theory and practical knowledge to exercise sound judgment within a variety of socio-cultural and organizational contexts, to bring a unique and significant contribution to the delivery of timely, patient-centered care of patients at the Stronach Regional Cancer Centre (SRCC) at Southlake Regional Health Centre (SRHC). The APRT will collaborate with radiation therapists and with the multidisciplinary team of oncologists, physicists, nurses, dieticians and social workers to optimize care of patients and to promote research, education and other strategic goals of the program. As such, his/her accountability and responsibility will include clinical and technical practice, quality, education, research, innovation and leadership activities and initiatives. The APRT also performs cross-functional and/or other duties consistent with the job classification, as assigned or required by the program.

Required Qualifications:

- Completion of a Bachelor's degree (Radiation Therapy) or recognized equivalent
- Graduate of accredited radiation therapy training program
- Master's degree in relevant field of study an asset
- 5 years practical experience preferred
- Previous experience and expertise in patient assessment an asset
- Knowledgeable of performance measurement including the development of indicators and benchmarking
- Ability to document procedures and write reports
- Ability to effectively lead a team
- Current Registration with CMRTO
- Current CPR Certification
- Current CAMRT membership
- Expert clinical skills to perform responsibilities of role
- Advanced knowledge of oncology, physics, radiobiology and anatomy in area of specialization
- Proven ability to attend work regularly as per the Attendance Support Policy #HA30 and Procedure #HA35.

Title: Clinical Specialist Radiation Therapist – Palliative

Location: Cancer Centre of Southeastern Ontario, Kingston, ON

PRIMARY FUNCTION:
The APRT has advanced expertise in the clinical and technical perspectives of palliative radiation therapy. The APRT, working in collaboration with a multi-disciplinary team, will share their expertise in clinical assessment, technical knowledge, treatment planning and delivery and supportive care through the treatment trajectory.

The APRT will provide excellence in comprehensive and holistic patient care before, during and after treatment.

The APRT will contribute to the development and delivery of quality services within the program and will participate in the education of peers, other health care professionals within the Local Health Integration Network (LHIN), as well as patients and their caregivers and the community at large.

The APRT will apply leadership, research and educational expertise to enhance the application of evidence-based practice, principles of best practice and quality practice and will partner with external stakeholders to enhance access and efficient utilization of rapid response palliative radiation treatment.

Education & development programs

- Design, prepare and implement education program for department staff
- Assists in the tuition of other staff /learners within the Division of Radiation Oncology
- Assures all evaluation procedures & activities associated with staff education are achieved in the required time frame
- Coaches and mentors MRTTs
- Develop & review patient education material to ensure accuracy of content

Professional Development & Workplace Learning

- Provides resources to assist and support professional development and work place learning opportunities
- Assist in the development & improvement of cancer patient's education in collaboration with other health care professionals
- Collaborates to meet the educational needs of other health care professionals within KGH
- Promotes the discipline of radiation therapy and educates the LHIN community in the roles and responsibilities of MRTTs

Research

- Participates in, and actively encourage others to undertake research and appropriate publications

Health & Safety

- Adheres to responsibilities as set out in the Occupational Health & Safety Act, hospital safety policies, and dept/unit established procedures at all time
    - Being aware of workplace hazards and educate staff
    - Where appropriate, following up on reported employee workplace injuries/incidents to provide corrective instruction.

Workplace Conduct

- Understands and is familiar with all pertinent KGH policies and procedures including those relating to workplace conduct. Complies with the KGH Commitment to uphold the Workplace Conduct and Reporting of Inappropriate Conduct policy and behaves in a manner that is consistent with the guiding principles and expectations.

NEW CSRTs

Title: Clinical Specialist Radiation Therapist – Stereotactic Body Radiation Therapy and Stereotactic Radiosurgery

Location: The Carlo Fidani Regional Cancer Centre (CFRCC) Mississauga Halton/Central West Regional Cancer Program, Credit Valley Hospital (CVH)

DEPARTMENT: Regional Cancer Program Radiation Therapy
REPORTS TO: Jointly to Manager Radiation Therapy and Regional Director
Job Summary

The Clinical Specialist Radiation Therapist (CSRT) is a highly competent academic practitioner with advanced knowledge, skills, and judgement in a specialized area of practice. The CSRT functions as a self-regulated independent practitioner with a defined cohort of patients for whom he/she is responsible for clinical assessment, consultation, triaging, prescribing, contouring, treatment planning, treatment delivery, patient education, pain management and follow-up care. The CSRT will integrate theoretical, research, and practical knowledge to exercise sound judgement across complex and varying social, cultural, and environmental organizational contexts by making a unique and significant contribution to the timely provision of excellent radiation therapy treatment and patient care in the Radiation Oncology Program.

CSRT, SBRT/SRS Treatment
With an advanced, in-depth knowledge of lung and metastatic brain cancer, the CSRT is competent in the assessment and management of treatment and related side effects and toxicities in a defined subset of SBRT/SRS patients enabling him/her to independently participate in the management of patients along the trajectory of the care.
The CSRT integrates his/her advanced knowledge and in-depth understanding of external beam radiation therapy planning and delivery to contribute at a high level to the care of patients with lung and metastatic brain cancer. Performing as a consultant to the Thoracic and CNS teams, the CSRT assesses the patient and extent of disease for consideration for radiation therapy. The Oncology Program advocates a rapid treatment mandate approach to SBRT/SRS treatment. The CSRT will oversee the process from confirming consent (previously obtained by the oncologist during new patient consult) through the scanning, planning and quality assurance activities. The CSRT undertakes “on-treatment review” of a specified sub-population of SBRT/SRS patients. The CSRT will also utilize her/his new advanced skills when participating in the Quality Assurance Rounds. It is anticipated the CSRT involvement will contribute to consistent approaches to care for SBRT/SRS patients.

The CSRT oversees and brings a consistent and thorough approach to the quality assurance rounds within the program. Identifying the gaps in the current process and creating workflow guidelines to manage this activity, should increase compliance with departmental standards for patient care review.

Future directions:
The development of this position will include the addition of several clinical components as well as enhanced involvement in research and innovation activities, including:

Key Responsibilities:
1. Clinical Practice
Utilizes and demonstrates a comprehensive theoretical knowledge base and advanced level of clinical competence in patient care and radiation therapy practice to ensure the provision of quality care that is safe, effective and efficient.
a) Patient care (application of clinical knowledge)

- Review referral information to assess level of urgency by reviewing pathology, imaging and test results etc.
- Perform / order additional tests or diagnostic procedures where appropriate and necessary.
- Interpret relevant diagnostic information.
- Consult, as part of the inter-professional team, on relevant patient cases.

- Assess patient at first appointment, before, during and after radiation therapy for physical and psychological distress with appropriate documentation of findings.
- Use critical thinking skills to guide decision making in complex, unpredictable and dynamic situations.
- Communicate the results of specific tests/procedures.
- Obtain informed consent.
- Prescribe/administer pharmaceuticals within defined medical directives.
- Refer patients to the appropriate health professional or service e.g. Social Work, Psychology, Dietician, etc.
- Conduct on-treatment review clinics for patients to monitor side effects and take appropriate action to alleviate symptoms.
- Conduct follow-up clinics or perform telephone follow-up.
- Plan, coordinate and organize initiatives to integrate patient focused care.
- Develop, implement and evaluate standards and clinical practice guidelines for patient population.
- Use multiple strategies (e.g. teaching, counselling, technological, or pharmaceutical) to influence patient health and quality of life.
- Develop innovative approaches to complex practice issues and evaluate care within specialty programs.

b) Ordering and Planning Radiation Treatment (application of technical knowledge)

- Provide technical and dosimetric consultation at all phases of the radiation therapy planning and treatment process.
- Employ technical expertise in the area of dosimetry for the defined patient population.
- Order the appropriate imaging /planning procedures.
- Approve/conduct treatment localization of appropriate treatment volumes.
- Identify and contour relevant organs, target volumes and regions of interest for use in the creation of an optimized radiation treatment plan where appropriate.
- Perform image fusion of multiple modalities in order to enhance anatomical visualization and identification for planning purposes.
- Utilize expert technical knowledge of systems to manipulate images in order to clearly define area of interest.
- Prescribe appropriate treatment dose as per standard protocols and procedures.
- Approve treatment unit verification/localization images/image guidance shift trends.
- Refer cases that fall out of standard protocol to radiation oncologist or other radiation medicine professional.

2. Quality

- Performs quality improvement responsibilities:
- Provide leadership in the development, implementation and evaluation of quality management programs/initiatives for the SBRT/SRS patients.
- Participate in the development of documentation systems and processes that evaluate quality of care from multiple perspectives, e.g. patient, family, referring physician, etc.
- Lead the development, integration and evaluation of best practices in accordance with established standards.
- Apply advanced technical knowledge to improve the integration of existing, or facilitate the application of new, technology throughout practice where applicable.

1. Leadership, Mentorship, Supervision and Education

- Plays a leadership role and performs administrative responsibilities. Delivers, coordinates and participates in education and professional development activities/programs. Performs activities to further develop and strengthen the profession.
- Function as an expert role model in radiation therapy best practices.
- Participate in strategic planning and goal setting for the site group and radiation oncology program.
- Provide leadership / input on committees and task forces.
- Supervise and evaluate undergraduate/graduate students.
- Supervise, train and mentor staff (Radiation Therapists, Nurses, Residents, Research Students). Assign work to be done, methods to be used, and take responsibility for all the work of the group.
- Provide technical or functional guidance to other staff.
- Evaluate radiation therapists working in their specialty site. Responsible for selection of therapists, evaluation, appraisal, remediation, discipline and removal from those roles if not successful. Full responsibility for selection of research students annually, appraisal, evaluation and supervision.
- Assess learning needs of staff in relevant site and identify the need for remediation. Develop learning plans as required.
- Participate in interviewing and selection; appraisal, remediation, discipline of staff.
- Optimize awareness and utilization of their specialty area of cancer services through communication, promotion and advocacy internally and to referring physicians.
- Act as a resource for staff assigned to specialty area and to radiation oncologists and residents.
- Mentor junior staff, student and residents.
- Consult as an expert clinical resource both within the hospital and the wider radiation therapy cancer community.
- In conjunction with program/site leadership and educators, plan, deliver, evaluate and revise education for staff orientation, referring physician, visiting personnel, community etc.
- Participate in the development/revision of practice guidelines, protocols, policies and procedures.
- Collaborate with community groups regarding informational needs and concerns.
- Actively participate on professional association activities, e.g. by serving on committees.

4. Research Performance
Perform research/scholarly activities involving effectively integrating research into clinical practice.

- Identify and conduct independent research relevant to practice.
- Seek funding sources to support research activities.
- Participate in the design and implementation of collaborative inter-professional research.
- Create and present posters and presentations at scholarly conferences.
- Create scholarly papers for submission to peer reviewed journals.
- Participate in the development of radiation medicine and overall health service evidence based knowledge by dissemination of research findings via publications and presentations at relevant meetings.
- Collaborate with other disciplines to integrate research findings into daily practice.
- Assign projects to, and supervise research of, junior staff and students.
- Facilitate use of evidence based research.

5. Other
Perform cross-functional and/or other duties consistent with the job classification, as assigned or requested.

Education and Training Requirements
1. Minimum Education
- Master’s Degree

2. Minimum Experience
   - 7 years

3. Professional Certification/Registration
   - CAMRT Radiation Therapy Certification
   - Current Registration with CMRTO
   - CPR Certification (Annual re-certification required)

4. Professional Membership
   - CAMRT

5. Required Skills / Competencies:
   - Expert clinical skills to perform responsibilities outlined.
   - Advanced knowledge of oncology, physics, radiobiology and anatomy in area of specialization.
   - Advanced technical knowledge of radiation treatment planning and delivery.
   - Critical thinking.
   - Problem solving.
   - Mentoring / coaching.
   - Team work skills.
   - Organization/time management skills.
   - Interpersonal skills.
   - Communication skills.
   - Presentation skills.
   - Research skills.
   - Conflict resolution.

Title: Clinical Specialist Radiation Therapist – Palliative

Location: The R.S McLaughlin Durham Regional Cancer Centre

A Palliative Radiation Therapy CSRT is an experienced academic radiation therapist with advanced knowledge, skills and judgment in the palliative radiation therapy domain. The CSRT employs graduate level educational preparation to practice at an advanced level in clinical radiation therapy with a central focus on optimizing radiation treatment and improving patient care and health outcomes for palliative patients. This is achieved by affecting changes on the existing system that will

- *Increase access*
- *Reduce wait times*
- *Improve quality of patient*
- *Improve the efficiency of the palliative radiation therapy program*

The Palliative RT CSRT can be deployed at various phases of the patient care journey, optimizing different competencies as the system pressures dictate. They are expected to function as an autonomous clinician while maintaining an active academic load that complements their clinical practice and their research interests.

This competency profile describes the competencies that CSRT is expected to **possess/obtain** in their area of specialization. It is expected that the CSRT will practice:

- with the patient as the central focus
- in accordance with professional Code of Ethics and Standards of Practice

- in accordance with all relevant provincial and national legislation
- in accordance with departmental protocol, practice and policy
- as guided by Delegation or as outlined in a Medical Directive
- with due regard for radiation protection and overall safety

In addition, certified CSRTs are accountable for:

- their decisions and actions
- working within their scope of practice
- limiting their practice to the patient population for whom they have the necessary knowledge, skills and judgment to manage
- collaborating with the members of the interprofessional team in the best interest of their patients
- employing best practices in all aspects of patient care and treatment

maintaining competence through regular clinical practice of advanced radiation therapy practice in their area of specialization.

Focus of Palliative CSRT Position at RCC:
A phased approach to build the position will be used.

PHASE I: The Palliative CSRT will focus on coordinating transition to simulation, treatment and follow-up from a technical and "efficiency" perspective. Expected outcomes include decrease in number of patient appointments prior to start of treatment (by increasing use of 'sim & treat'), decrease in time line from consult to treatment for palliative patients.

PHASE II: Focus on furthering efficiencies. Expected outcomes include improved patient experience, increase capacity for palliative consults.

PHASE III: Expected outcomes include increase utilization of palliative radiation therapy. Further development of outcomes from previous phases.

Title: Clinical Specialist Radiation Therapist – Supportive Care and Sexual Health

Location: The Odette Cancer Centre, Sunnybrook Health Sciences Centre, Toronto, Ontario

Summary of Duties:

This will initially be a 1 year position as part of the Provincial CSRT Continuation of the position will be evaluated at the end of 1 year.

The Advanced Practice Radiation Therapist (APRT) functions as a self independent practitioner for all patients as part of the supportive care program. The Advanced Practice Radiation Therapist is a registered Radiation Therapist who has acquired advanced knowledge and skills through a combination of formal courses, (Master's Degree) workplace learning, and professional development activities. Responsibilities include: Triage patients for appropriate supportive care services to address concerns/issues in physical, sexual and emotional domains. Act as a patient navigator. Assess patient for physical, sexual and psychosocial distress. Interpret and communicate assessment information. Formulate and implement treatment and patient care plan. Develop and implement an interprofessional program dedicated to sexual health. Acting as clinical and academic co-coordinator across all disease sites. Initiate research and scholarly activities. Professional and organizational leadership.

Qualifications/Skills:

The APRT is a registered Radiation Therapist who has acquired advanced knowledge and skills through a combination of formal courses, workplace learning, and professional development activities Candidates must either have a graduate degree or will be required to complete a Masters Program within in a defined time period if the position becomes permanent at the end of the evaluative phase.

Graduate of a recognized Radiation Therapy training program with registration with the College of Medical Radiation Technologists of Ontario (CMRTO). Minimum 7 years experience as a Radiation Therapist. Current CPR certificate is required. Demonstrated teaching, research, project initiation & management as well as, presentation skills. Strong interpersonal skills and the ability to work both independently and within an interprofessional team.

Title: Clinical Specialist Radiation Therapist – Image Guided Adaptive Radiation Therapy (Chest/upper abdomen)

Location: Princess Margaret Cancer Centre

Job Summary:
The Advanced Practice Radiation Therapist (APRT), Image Guided Adaptive Radiation Therapy (IGART) is a highly competent clinical and academic practitioner with advanced knowledge, skills and judgment in the clinical and technical aspects of Radiation Therapy. The APRT IGART utilizes advanced knowledge of the lung and liver cancers and their disease pathways, 3d chest anatomy and physiology, associated processes of care, and technical applications of radiation therapy planning and treatment, to play a key role within the multi-disciplinary team. The APRT functions as a self-regulated independent practitioner, as well the APRT assumes a leadership and oversight role within the overall IGART program. He/she will integrate theoretical, research and practical knowledge to exercise sound judgment across complex and varying clinical contexts making a unique and significant contribution to the timely provision of excellent radiation therapy treatment and patient care in the cancer care system.
The Advanced Practice Radiation Therapist will enhance radiation therapy practice and patient-focused outcomes through expanded, direct and comprehensive care, education, research, and professional and organizational leadership. Activities fall within the domains of advanced radiation therapy practice and include:

Clinical Practice:
• Undertaking patient assessment to identify external/internal motion minimization strategies/interventions in preparation for treatment.
• The application of theoretical and technical expertise in IGART for target visualization using 3d imaging, treatment planning, for dosimetric assessment using deformable registration and dose reconstruction and for plan adaptation.
• Utilizing knowledge and skills in side effects, symptom management and quality of life assessment to monitor toxicity and treatment outcomes.

Quality:
• Participates in the defining of performance goals for the IGART program, establishes and tracks performance indicators to monitor progress.
• Utilizes quality systems and methods to design, implement, monitor and evaluate IGART processes and associated activities.

Leadership:
• Performing leadership responsibilities, e.g., performance development, policy and procedure development and evaluation, lead projects, program planning and other administrative responsibilities.
• Supervise, train and mentor and evaluate staff/students engaged in the IGART process.

Professional:
• Fulfilling their academic mandate through conducting research to develop IGART tools, techniques and practice; and contributing to the education and professional development of radiation therapists, radiation medicine interdisciplinary staff and students.
• Functioning as a role model, resource and consultant to individuals and groups within the organization;
• Undertaking of professional activities that strengthen and further develop the practice of the radiation therapy profession.
To realize the full scope and potential of the role, the APRT has the support of, and works in collaboration with the multi-disciplinary team, and organizational leadership—professional and administrative.
Optimizing patient care and maximizing patient health outcomes in the realm of radiation therapy is the central focus of the Advanced Practice Radiation Therapist.

Education and Training Requirements:
Minimum Education:
Masters in Radiation Therapy or equivalent.

Minimum Experience:
5 years as Radiation Therapists, with at least 1 year planning experience preferred.
Minimum of 1 year experience working with chest tumor sites preferred.
Professional Certification/Registration:
CAMRT Radiation Therapy Certification.
Current Registration with CMRTO.
CPR Certification (Annual re-certification required).

Professional Membership:
CAMRT

Required Skills/Competencies:
• Expert clinical skills to perform responsibilities outlined.
• Advanced knowledge of oncology, biology, physiology and pelvic anatomy.
• Advanced technical knowledge of Radiation Treatment Planning and Delivery.
• Working knowledge of equipment used.
• Interpretation of 3d images to identify normal anatomy, tumour, critical structures.
• Proven research skills.
• Excellent interpersonal skills.
• Excellent communication skills.
• Excellent organizational/time management/problem solving skills.
• Good presentation skills.
• Conflict resolution.
• Team player
• Mentoring/coaching.
• Project management skills.
• Knowledge of process mapping and quality improvement principles and tools such as LEAN, FMEA, PDSA, etc., experience in application an asset.

Title: Clinical Specialist Radiation Therapist –Palliative

Location: Royal Victoria Regional Health Centre, Simcoe Muskoka Regional Cancer Centre, Barrie, Ontario
Qualifications:
Education:
I. Completion of Bachelor's degree (Radiation Therapy) or recognized equivalent

II. Master's degree in relevant field of study an asset
Experience:
I. Minimum of 3 years practical experience
Competencies:
I. Excellent technical, communication, organizational, patient assessment, analytical, critical thinking and leadership skills.
II. Demonstrated adaptability, compassion, initiative and interpersonal skills
III. Strong organizational and time management skills including the ability to prioritize work load
IV. Demonstrated knowledge of palliative care, current disease processes and treatment techniques
V. Solid understanding of research with applicable experience
VI. Excellent/advanced computer skills
VII. Ability to work independently
Other:
- registered with the College of Medical Radiation Technology of Ontario (CMRTO)
- current CPR certification
- Completion of Prior Learning Assessment and Recognition (PLAR)

Position Summary:
The CSRT is a mature, experienced radiation therapist who is instrumental in the timely provision of patient-centred, palliative services to SMRCC patients. The CSRT, while working closely with a varied interdisciplinary team, is responsible for integrating research, theory and practical knowledge to improve clinical outcomes and optimize patient care for palliative cancer patients. The CSRT integrates radiation-therapy specific expertise for patients receiving palliative radiation therapy for whole brain and bone metastases while demonstrating leadership and advanced knowledge, skills and judgement. The CSRT works toward autonomous practice in triaging, assessing, prescribing and coordination and management of care for these patients.

Responsibilities:
Clinical:
- Clinical assessment of/consultation with SMRCC palliative patients referred for radiation therapy
- provide education/counselling to patient and their families consult on relevant patient cases
- refer cases that fall out of standard protocol to Radiation Oncologist or other professional as required
- obtain informed consent
- refer patients to appropriate health professional or service ie. Social work, dietician
- perform basic pain management/symptom evaluation using standardized evaluation tools and methods - organize pre-treatment medication
- prescribe appropriate treatment dose as per standard protocols and procedures
- identify and contour appropriate organs, target volumes etc. for planning purposes
- approve treatment verification/localization images
- conduct on-treatment reviews with patient
- acts as primary contact for patient and provides follow up care by telephone interview
- assist patients in accessing end of life and hospice care through liason with community palliative services

Research:
- identify and conduct independent research relevant to practice
- participate in the design and implementation of collaborative interdisciplinary research
- disseminate research findings via publications in peer-reviewed journals, presentations at scholarly conferences, meetings
- collaborate with interdisciplinary team to integrate research findings into daily practice
- employ evidence-based principles to revise practice
Education:

- contribute to multi-disciplinary education regarding palliative care
- optimize awareness and utilization of radiation therapy through communication, education, promotion and advocacy to community partners and referring physicians

Leadership:
- functions as an expert role model in radiation therapy best practices; acts as a clinical resource
- particpates in strategic planning and goal setting and program development
- participates on committees, as applicable

Exhibits the core values of Royal Victoria Regional Health Centre: Excellence, Compassion, Collaboration, Accountability, Innovation)

Health and Safety Responsibilities:
Adheres to Occupational Health & Safety responsibilities under Section 28 of the Occupational Health and Safety Act including:
a) Works in compliance with the provisions of the Occupational Health and Safety Act and the regulations;
b) Uses or wears the equipment, protective devices or clothing that the worker's employer requires to be used or worn;
c) Reports to his/her supervisor the absence of or defect in any equipment orprotective device of which the worker is aware and which may endanger himself, herself or another worker; and
d) Reports to his/her supervisor any contravention of the Occupational Healthand Safety Act or the regulations or the existence of any hazard of which he/she knows.

Participates in a culture of safety which encourages prevention, reduces errors and safeguards patients from harm.

Supervision:
Potential supervisor responsibilities of radiation therapy student

Contacts: Internal:Patients, Radiation Oncologists, Medical Oncologists, Nurses, Radiation Therapists, pyscho-social support professionals,
External: Patients, community palliative support services, referring physicians, Cancer Care Ontario staff
Physical
Demands:
The job demands analysis is available upon request.
Working Conditions:
• Keyboarding is required for data entry.
• Direct patient contact 50% of time
• Reaching/bending to retrieve equipment, files/documents
• Personal protective equipment is required to be worn while handling infectious patients or hazardous substances, e.g. exposure to radiation, lead/cerrobend

Title: Clinical Specialist Radiation Therapist –Palliative

Location: The Ottawa Hospital Regional Cancer Centre
JOB DESCRIPTION

1. Job Identification:

Job Title: Med Radiation Therapist, Senior Working Title: Clinical Specialist Radiation Therapist (CSRT), Palliative Care
Department: Radiation Therapy, Immediate Supervisor: Chief, Radiation Therapy

1. Purpose of the Position:

The Palliative Radiation Therapy CSRT is an experienced academic radiation therapist with advanced knowledge, skills and judgment in the palliative radiation therapy domain. The purpose of this position is to optimize radiation treatment and improving patient care and health outcomes. This is achieved by affecting changes on the existing system to increase radiation utilization and access, reduce wait times, and improve quality of patient care and the overall efficiency of the palliative radiation therapy program.

2. Major Responsibilities Performed:

Responsibility #1: Out-Patient Service 40%
- Main clinical contact responsible for the design, implementation and sustenance of a Rapid Palliation Clinic
- Liaise with referring physician, new patient registration team and patient to ensure all diagnostic material is available for initial assessment
- Participate in the patient assessment, decision to treat, informed consent and treatment planning phases to gain clinical insight and expedite care as needed

Responsibility #2: In-Patient Service 30%
- Triage inquiries around treatment options coming from various potential referral sources
- Arrange for patient assessment and coordination of radiation treatment for patients admitted at The Ottawa Hospital
- Assess pain levels and participate in the elaboration of a pain management plan for the patient to complete their radiation treatment.

Responsibility #3: Community Links10%
- Establish links with community hospitals and general practitioners
- Oversee the development and distribution of a newsletter to keep the community informed of the services offered
- Facilitate the creation of a continuing education program for referring facilities and physicians
-

Responsibility #4: Clinical Expertise and Research 10%
- Provide clinical expertise in the treatment coordination, simulation and treatment planning of palliative patients
- Participate in various research projects geared towards improving palliative care for patients with advanced disease.
-

Responsibility #5: Continuing Education 10%
- Develop and deliver continuing education content relating to Palliative Care for Radiation Therapists

Title: Clinical Specialist Radiation Therapist –SBRT Lung

Location: Stronach Regional Cancer Centre, Newmarket, ON

The Advance Practice Radiation Therapist (APRT) is a highly competent and academic member of the department of radiation therapy who demonstrates leadership and advanced knowledge, skills and judgment in the clinical and technical aspects of the care of patients receiving palliative radiation therapy.

The APRT is a self-regulated professional who works towards and attains autonomous practice in the triaging, assessing, prescribing, planning and coordination and management of a defined group of patients referred to the Stronach Regional Cancer Centre (SRCC) for Stereotactic Ablative Radiotherapy (SABR) for lung cancer. S/he will integrate research, theory and practical knowledge to exercise sound judgment within a variety of socio-cultural and organizational contexts, to bring a unique and significant contribution to the delivery of timely, patient-centered care of patients at SRCC. The APRT will collaborate with radiation therapists and with the multidisciplinary team of oncologists, physicists, nurses, dieticians and social workers to optimize care of patients and to promote research, education and other strategic goals of the program. As such, his/her accountability and responsibility will include clinical and technical practice, quality, education, research, innovation and leadership activities and initiatives. The APRT also performs performance reviews and discipline of assigned staff, along with other duties consistent with the job classification as assigned or required by the program. In addition, this APRT will provide support and coverage for the existing APRT

Appendix C: Project Workplans

NEW CSRTs

CSRT INTEGRATION PROJECT TIMELINE - New CSRTs																			
	ORIENTATION PHASE					DEVELOPMENTAL PHASE													
	Oct 2014	**Nov 2014**	**Dec 2014**	**Jan 2015**	**Feb 2015**	**Mar 2015**	**Apr 2015**	**May 2015**	**Jun 2015**	**Jul 2015**	**Aug 2015**	**Sept 2015**	**Oct 2015**	**Nov 2015**	**Dec 2015**	**Jan 2016**	**Feb 2016**	**Mar 2016**	**Apr 2016**	**May 2016**
CSRT Meetings / Communications	**October 27**	New reporting template to be circulated				RTi3 **March 6-7** CSRT CoP **March 5**													
Updated Process Maps			Due **December 8**		Data in draft report - **February 9**				→						Update data in 15/16 draft report **December 21**	→			Final data in 15/16 final report **April 27**	
Learning Objectives			Due **December 8**		Data in draft report - **February 9**			Update progress in 14/15 final report **May 4**	→						Update data in 15/16 draft report **December 21**	→			Final data in 15/16 final report **April 27**	
Patient Satisfaction			Identify method by **December 12**; identify process/ person for distribution	Complete REB application by **January 9** REB approval; begin distribution to control/pre-CSRT group Preliminary "pre-CSRT" data in draft report - **February 9**				Available "pre-CSRT" data in 14/15 final report **May 4**						Begin distribution to "Post - CSRT" group **November** Preliminary "Post-CSRT" data in draft report - **December 21**						
Concordance Activities			Ideas discussed with NH by **December 19**		Metrics/Project established by **February 9** in 14/15 preliminary report		Begin data collection	Preliminary data in 14/15 final report **May 4**	→						Update data in 15/16 draft report **December 21**	→			Final data in 15/16 final report **April 27**	
Competency Assessment												Distribute Assessment **Sept 14** Collect completed assessments **Sept 28**	→		Report data in 15/16 draft report **December 21**				Final data in 15/16 final report **April 27**	
RT Satisfaction NEW CENTRES ONLY							Begin data collection	Final data in 14/15 final report **May 4**												
FL Stakeholder Satisfaction							Begin data collection	Final data in 14/15 final report **May 4**												

Safety Data	Enter monthly data	→	→	→	Preliminary data in draft report - **February 9**	→	→	Current data in 14/15 final report **May 4**	→	→	→	→	→	→	Update data in 15/16 draft report **December 21**	→	→	→	Final data in 15/16 final report **April 27**	
Wait times			Identify/meet the staff who control wait time data Ideas for wait time projects as per process map discussed with NH by **December 19**		Metrics/method established by **February 9** in 14/15 preliminary report	Begin "pre-CSRT" data collection **March 2 to March 31.**	Data entry completed by **April 13**. Send to NH and LZ	Final "pre-CSRT" data in 14/15 final report **May 4**	→	→	→	Begin "post-CSRT" data collection **October 2 to December 31.**	→	→		Data entry completed by **February 15**. Send to NH and LZ	→	Final "post-CSRT" data in 14/15 final report **April 27**	
Throughput and Time Savings			Identify/meet the staff who control wait time data Ideas for throughput projects as per process map discussed with NH by **December 19**		Metrics/method established by **February 9** in 14/15 preliminary report			Updated data in 14/15 final report **May 4**	→	→	→	→	→	→	Update data in 15/16 draft report **December 21**	→	→	→	Final data in 15/16 final report **April 27**	
Process Improvements				Identify potential areas of impact by **January 23**	Preliminary ideas in draft report - **February 9**	→	→	Updated data in 14/15 final report **May 4**	→	→	→	→	→	→	Update data in 15/16 draft report **December 21**	→	→	→	Final data in 15/16 final report **April 27**	
Innovation, Development and KT	Capture information as activities implemented	→	→	identify potential areas of impact. Finalize these ideas with NH/Laura by **January 23, 2015**	Preliminary data in draft report - **February 9**	→	→	Updated data in 14/15 final report **May 4**	→	→	→	→	→	→	Update data in 15/16 draft report **December 21**	→	→	→	Final data in 15/16 final report **April 27**	
Direct Supervisor Interview													CSRT project staff to contact direct supervisor for Interview schedule **October 5**	CSRT project staff to complete interviews by **November 2**	CSRT project staff to report data in 15/16 draft report **December 21**					
Manager Questionnaire													CSRT project staff to Contact manager for Questionnaire **October 5**	CSRT project staff to complete questionnaire by **November 2**	CSRT project staff to report data in 15/16 draft report **December 21**					

Updated CV							Data entry completed by **April 13**. Send to NH and LZ	Updated data in 14/15 final report **May 4**	→	→	→	→	→	→	Update data in 15/16 draft report **December 21**	→	→	Final data in 15/16 final report **April 27**	

JUNIOR CSRTs

CSRT INTEGRATION PROJECT TIMELINE - JUNIOR CSRTS																			
	ORIENTATION PHASE		**DEVELOPMENTAL PHASE**																
	Oct 2014	**Nov 2014**	**Dec 2014**	**Jan 2015**	**Feb 2015**	**Mar 2015**	**Apr 2015**	**May 2015**	**Jun 2015**	**Jul 2015**	**Aug 2015**	**Sept 2015**	**Oct 2015**	**Nov 2015**	**Dec 2015**	**Jan 2016**	**Feb 2016**	**Mar 2016**	**Apr 2016**	**May 2016**
CSRT Meetings / Communications	→	→	→	→	→	RTi3 **March 6-7** CSRT CoP **March 5**	→	→	→										
Advanced Practice Skills					Update data in 14/15 draft report **February 9**	→		Updated data in 14/15 final report **May 4**	→	→	→	→	→	→	Update data in 15/16 draft report **December 21**	→	→	→	Final data in 15/16 final report **April 27**	
Current Job Description					Update data in 14/15 draft report **February 9**			Updated data in 14/15 final report **May 4**	→	→	→	→	→	→				→	Final data in 15/16 final report **April 27**	
Concordance Activities	→	→	→	→	List new activities to be reported in May.	→	→	New data in 14/15 final report **May 4**	→	→	→	→	→	→	Update data in 15/16 draft report **December 21**	→	→	→	Final data in 15/16 final report **April 27**	
Competency Assessment									Redistribute assessment form **June**	→	→	→	→	→	Submit new data in 15/16 draft report **December 21**	→	→	→	Final data in 15/16 final report **April 27**	
FL Stakeholder Satisfaction							Begin Data Collection	Preliminary Data in 14/15 final report **May 4**	→	→	→	→	→	→	Update data in 15/16 draft report **December 21** (if needed)					
Safety Data	→	→	→	→	→	→	→	New data in 14/15 final report **May 4**	→	→	→	→	→	→	Update data in 15/16 draft report **December 21**	→	→	→	Final data in 15/16 final report **April 27**	

Wait times	→	→	→	→	Update existing data as requested, Itemize new activities in draft report - **February 9**	→	→	Final data in 14/15 final report **May 4**	→	Update data in 15/16 draft report **December 21**	→	Final data in 15/16 final report **April 27**	
Throughput and Time Savings	→	→	→	→	Update existing data as requested, Itemize new activities in draft report - **February 9**	→	→	Final data in 14/15 final report **May 4**	→	Update data in 15/16 draft report **December 21**	→	Final data in 15/16 final report **April 27**	
Process Improvements	→	→	→	→	Update existing data as requested, Itemize new activities in draft report - **February 9**	→	→	Final data in 14/15 final report **May 4**	→	Update data in 15/16 draft report **December 21**	→	Final data in 15/16 final report **April 27**	
Innovation, Development and KT	→	→	→	→	Itemize new activities in draft report - **February 9**	→	→	Final data in 14/15 final report **May 4**	→	Update data in 15/16 draft report **December 21**	→	Final data in 15/16 final report **April 27**	
Current Research Involvement	→	→	→	→	Itemize new activities in draft report - **February 9**	→	→	Final data in 14/15 final report **May 4**	→	Update data in 15/16 draft report **December 21**	→	Final data in 15/16 final report **April 27**	
Updated CV	→	→	→	→	→	→	→	Updated data in 14/15 final report **May 4**	→	Update data in 15/16 draft report **December 21**	→	Final data in 15/16 final report **April 27**	

SENIOR CSRTs

CSRT INTEGRATION PROJECT TIMELINE - SENIOR CSRTS																			
	DEVELOPMENTAL PHASE																		
	Oct 2014	**Nov 2014**	**Dec 2014**	**Jan 2015**	**Feb 2015**	**Mar 2015**	**Apr 2015**	**May 2015**	**Jun 2015**	**Jul 2015**	**Aug 2015**	**Sept 2015**	**Oct 2015**	**Nov 2015**	**Dec 2015**	**Jan 2016**	**Feb 2016**	**Mar 2016**	**Apr 2016**	**May 2016**
CSRT Meetings / Communications						RTi3 **March 6-7** CSRT CoP **March 5**													
Advanced Practice Skills					Itemize new activities in draft report - **February 9**	→		Updated data in 14/15 final report **May 4**	→						Update data in 15/16 draft report **December 21**	→			Final data in 15/16 final report **April 27**	
Current Job Description					Itemize new activities in draft report - **February 9**	→		Updated data in 14/15 final report **May 4**	→										Final data in 15/16 final report **April 27**	
Concordance Activities	→				Itemize new activities in draft report - **February 9**	→		Updated data in 14/15 final report **May 4**	→						Update data in 15/16 draft report **December 21**	→			Final data in 15/16 final report **April 27**	
Wait times	→				Update existing data as requested, Itemize new activities in draft report - **February 9**	→		Final data in 14/15 final report **May 4**	→						Update data in 15/16 draft report **December 21**	→			Final data in 15/16 final report **April 27**	
Throughput and Time Savings	→				Update existing data as requested, Itemize new activities in draft report - **February 9**	→		Final data in 14/15 final report **May 4**	→						Update data in 15/16 draft report **December 21**	→			Final data in 15/16 final report **April 27**	
Process Improvements	→				Update existing data as requested, Itemize new activities in draft report - **February 9**	→		Final data in 14/15 final report **May 4**	→						Update data in 15/16 draft report **December 21**	→			Final data in 15/16 final report **April 27**	
Innovation, Development and KT	→				Itemize new activities in draft report - **February 9**	→		Final data in 14/15 final report **May 4**	→						Update data in 15/16 draft report **December 21**	→			Final data in 15/16 final report **April 27**	

Current Research Involvement	→	→	→	→	Itemize new activities in draft report - **February 9**	→	→	Final data in 14/15 final report **May 4**	→	Update data in 15/16 draft report **December 21**	→	Final data in 15/16 final report **April 27**	
Updated CV	→	→	→	→	→	→	→	Updated data in 14/15 final report **May 4**	→	Update data in 15/16 draft report **December 21**	→	Final data in 15/16 final report **April 27**	

Appendix D: CSRT Competency Profile

ADVANCED PRACTICE RADIATION THERAPIST COMPETENCY PROFILE

1. CORE CLINICAL COMPETENCIES

Works as a member of the interprofessional care team to provide optimal patient care for patients

Competency	Indicators of Performance

1. Ensure that all relevant patient information is available for clinical decision making	• Analyzes/synthesizes available information against established guidelines in advance of patient appointment
	  • To determine if information is complete to proceed with booking/assessing patient
	  • To order to specific diagnostic tests that have not been completed/are not available as per protocol

2. Assess the patient's physical condition	• Establishes eligibility for, initiation of or continuation of radiation therapy
	• Differentiates between radiation induced side-effects and symptoms of disease progression or other treatments/conditions
	• Interprets all available relevant information and techniques including:
	  • Physical/clinical examination
	  • Patient history
	  • Diagnostic imaging, laboratory and pathology tests
	  • Other pertinent information
	• Redirects patient referrals to other more appropriate services/programs

3. Assess the patient's emotional condition	• Interprets all available relevant information and data including:
	  • Patient discussions/counseling
	  • ESAS, other validated tools
	  • Discussions with family members/care givers
	  • Other symptoms/indicators
	• Redirects patient referrals to other more appropriate services/programs

4. Obtain informed consent for required	• Explains and ensures understanding of the following:

diagnostic procedures, therapeutic interventions or radiation therapy treatments	○ the nature of the treatment; ○ the expected benefits of the treatment; ○ the material risks of the treatment; ○ the material side effects of the treatment; ○ alternative courses of action; and ○ the likely consequences of not having the treatment
5. Formulate and prescribe an effective plan for patient care and/or treatment	• Synthesizes available data and information to determine patient care and treatment goals • Includes patient/family/caregiver as partners in the decision making process (e.g. patient preferences and limitations, etc.) • Presents the plan fully disclosing all available alternatives including the advantages and disadvantages of each to the patient/family/caregiver • Provides the necessary information/support for the patient/family/caregiver to understand and comply with the plan
6. Implement an effective plan for patient care and/or treatment	• Continually monitors patient compliance and acceptance of care plan • Revises care plan as necessary • Ensures patient and family/caregiver understanding of the plan and its goals
7. Communicate the results of specific tests/procedures	• Adheres to appropriate guidelines regarding patient confidentiality and privacy issues • Uses appropriate language to communicate a disease or disorder findings to the patient • Uses appropriate language to communicate a disease or disorder findings to other health care professionals
8. Prescribe/dispense correct pharmaceutical from defined and approved formulary	• Assesses for the discrete and specified conditions described (e.g. pain management, radiation treatment sequelae, etc) • Follows dispensary protocols and in accordance with department protocol and patient care guidelines • Conducts patient education prior to prescription/administration • Monitors patient response to medication and takes appropriate action in the event of an adverse reaction

2. CORE TECHNICAL COMPETENCIES

Uses advanced oncologic, radiobiological and dosimetric knowledge to optimize the use of available technology for the provision of tailored radiation therapy treatment to patients

Competency	Indicators of Performance

1. Provide autonomous technical consultation for all relevant clinical, diagnostic and technical information at all phases of the radiation therapy planning and treatment process and technical advice to team members or other health care professionals	• Consultation is provided for:
	  • Plan optimization/acceptability
	  • Patient immobilization
	  • Field placement
	  • Treatment accessories
	  • Changes in anatomical and treatment volumes
	  • Image guidance results
	• Advice is provided for:
	  • Treatment planning, particularly in complex/non-standard cases
	  • Starting treatment
	  • Holding treatment
	  • Adapting treatment

2. Implement clinical decisions by interpreting and integrating available imaging and clinical information.	• Visualizes relevant anatomy and target volumes for the purposes of:
	  • Prescribing a course of radiation therapy
	  • Optimizing treatment plans, particularly in complex/non-standard cases
	  • Starting treatment
	  • Holding treatment
	  • Adapting treatment
	• Employs available technical information:
	  • Selects most suitable imaging technology(s) (x-ray, CT, MR, PET, etc.) based on local availability and department protocols/policies
	  • Develops strategies to optimize the use of available technology
	  • Establishes when protocol should be followed or when an individualized approach is required
	  • Identifies/delineates/assessing GTV, CTV, ROIs, in accordance with international standards (ICRU 50 and 62) and local protocols

	• Employs available clinical information (e.g., changes in patient condition, anatomical changes, results of imaging, equipment variations) to inform and adapt plan

3. CORE PROFESSIONAL COMPETENCIES

Uses research and evidence-based practice principles to serve as a quality champion, role model, mentor and innovator in radiation therapy and especially in their area of specialization.

A) RESEARCH AND EVIDENCE-BASED PRACTICE	
Competency	**Indicators of Performance**
1. Conduct original research to contribute to the professional knowledge base	• Identifies areas for research • Initiates and leads platform development including project development, grant application, long range planning, etc. • Undertakes activities related to the conduct of research – e.g. literature review, research design, proposal/grant writing, ethics submissions, data collection and analysis, communication of results, publications, etc. • Assume responsibility for project management including establishing and meeting external and internal deadlines • Ensures work meets standards for publication
2. Lead and participate in continuous quality improvement of program/service/department as a member of the interprofessional health care team	• Employs research and program evaluation methods to assess program/service/department quality • Uses available key performance and quality indicators • Collects and assesses available evidence in accordance with established criteria • Formulates judgments and conclusions • Suggests strategies for programmatic change
3. Lead the ongoing development of best professional practices using evidence-based approaches	• Undertakes all aspects of an evidence-based approach – e.g. Creating and using databases, establishing quality indicators, analysis of existing literature and practices, research activity, risk management considerations, etc. • Works with people/programs/services to understand, implement and assess evidence based approaches

B) LEADERSHIP	
Competency	**Indicators of Performance**
1. Optimize the function of the health care team through continual assessment, audit, evaluation and strategic visioning as a key member of the interprofessional health care team	• Takes responsibility for ensuring role clarity for advanced practice in radiation therapy and possible contributions to the existing team • Develops strategies for addressing Identified barriers to/gaps in optimal team functioning • Effectively negotiates solutions to problems identified in the patient care pathway • Suggests strategies for new/improved service provision or models of care • Proactively identifies opportunities to develop new partnerships • Maintains networks of community stakeholders (referring physicians, community agencies, etc.) • Advocates for the role of the radiation therapist

2. Create and maintain a team to ensure safe and effective practice	• Identifies necessary resources (physical and human) to address identified need
	• Develops implementation plan to meet project/program goals
	• Hires, supervises and conducts performance appraisals of relevant staff
	  • Participates in candidate interviews
	  • Supervises staff
	  • Contributes to performance evaluation when requested

3. Coach and mentor staff, students, other health care providers	• Provides constructive guidance and feedback to mentees (including undergraduate and graduate trainees) and staff • Provides guidance and assists with the development of action plans with mentees and staff to improve performance and achieve career goals
C) EDUCATION	
Competency	**Indicators of Performance**
1. Develop an educational activity to address an identified need/gap	• Identifies an educational need • Uses a variety of formats as appropriate for the specific activity (formal/informal, didactic/clinical, lecture/hands on, written/electronic, etc.) • For any target population (undergraduate and graduate students,

	patients/family/caregiver, community, other health care professionals, etc.) • In a variety of professional environments (clinic, classroom, workshop, conference, one-on-one, etc.) • Assesses learning needs • Creates plan and materials for learning • Delivers educational intervention • Evaluates effectiveness of the activity

Appendix E: Impact on Wait Times and Throughput

CSRT	Category	Description
PALLIATIVE CSRTs		
Palliative CSRT, CFPRCC	Quantity – Wait times Quantity – Throughput	The CSRT currently sees approximately 9 new cases per week and assumes primary responsibility for the Radiation Oncologist duties of initiating the Radiation Therapy process, requesting CT simulation, performing contouring and field placement, and plan review. With her assistance with these palliative cases, the Radiation Oncologists were actually able to see more new patients than the year prior. In fact, an average of 18 additional new patients was seen per month. In addition, the presence of the CSRT at the offsite clinic has indirectly allowed for an increase in new patient consults due to additional in-patient consults and double bookings that are accommodated when she is present. Currently assisting with the coordination of the regional referrals to ensure that patients are being seen in a timely manner, that urgent cases are taking priority, and that patients are getting the first available appt slot within the region, regardless of location 2012/2013 = 81.56% 2013/2014 = 92.03% 2014/2015 (Feb YTD) = 88.76%
Palliative Bone Mets CSRT, JCC	Quantity	Patients diagnosed with early stage lung cancer, brain metastases or oligometastases from outside the Hamilton LHIN who previously may not have been eligible for radiation therapy are now being referred to JCC for stereotactic radiotherapy. Virtual RO consults allow patients to be assessed for their suitability without travelling to Hamilton, and if suitable, do present for treatment.
Palliative CSRT, OCC	Quantity – Throughput	Increased program capacity (12 pts/wk to 14 pts/wk) realized through the assumption of the following tasks by the CSRT • Case coordination (14 pts/wk) • Image fusion and target contouring (14 pts/wk) • SRS treatment planning (6 pts/wk) • Managing adhoc calls/enquiries (8 – 10 calls/wk)
Palliative CSRT, OHRCC	NA	A new rapid response palliative clinic was piloted from January – March 2015. This permits patients deemed urgent to be simulated and treated on the same day, a service not previously available in Ottawa. Data analysis is currently underway.
Palliative CSRT, PM	Quantity - Throughput	Indirect time savings for RO realized through a variety of activities: • History/Physical Assessments • eBooking requisitions/MosaiQ Rx • Target Contouring • Field Placement

		• Pages from the Unit • Review Clinic Appointments Final numbers to be reported in final report.
Palliative CSRT, DRCC	NA	NA
Palliative CSRT, SMRCC	Quantity – Wait times Quantity – Throughput	From May 2015 to July 2015 (tentative dates), the direct impact on patient capacity and indirect savings for the RO will be tracked • Conducting new patient consults • Target delineations/Field placements • Patient Follow-Up Calls These results will be reported in the 2015/16 report.
		The time to complete the "contour needed" phase of the patient planning process was analyzed for RO only pre-CSRT implementation, CSRT only and RO post-CSRT implementation. The CSRT was able to complete the task in 2 hrs compared to the RO post-CSRT at 11.5 hrs. The delegation of this task to the CSRT will radically improve the time from DTT-Treatment for these palliative patients and result in time savings for the RO that will be redirected towards more medically relevant activities.
*Palliative CSRT, SRCC**	*NA*	*NA*
OTHER CSRTs		
SBRT and SRS CSRT - CFPRCC	Quantity – Wait times Quantity – Throughput	Introduction of reserved weekly CT, Trial Set Up and Treatment Appointment Slots SRS Brain Lab Patients: • Supports expedited timeline required in SRS treatment plan and patient treatment • Facilitates the scheduling of SRS trained CT, treatment, physics and RO staff, ensuring availability To measure patient wait times for the Stereotactic Radiosurgery population for a 3 month period prior to the implementation of the CSRT (Sept – Nov/14) and 1 year after the introduction of the CSRT (Oct – Dec/15). • Referral to Consult • Consult to Tmt time
		Indirect time savings for RO realized through the following: • Approving CBCT registrations This will also reduce the wait time in the treatment unit and wait time for the patient.
Breast CSRT, JCC	Quantity – Wait times Quantity - Throughput	Adjustment of the breast planning CTSIM booking times (based on changes implemented by CSRT) should free up over 800 minutes/mo for other patients to be booked. The following timeframes will be compared to pre- and post-implementation: • Consult to CTSIM time • Consult to Tmt time • # of CTSIM bookings per week.

		Time slot change was implemented in April 2015. Impact will be reported in the 2015/16 report.
	Quantity – Throughput	Data from Technical support calls have been collected and will be analysed to show activities of the CSRT represent significant time savings for the RO. For example, for set up issues the CSRT is called to the set up and will determine the need for conventional sim or ReCT independently of the RO and will communicate this with the RO and Physicist. The CSRT is present to evaluate images for simulation-the RO is not required to be present but is notified of the CSRT's decision regarding trt and the outcome of simulation by CSRT. Indirect time savings for RO realized through a variety of activities: • Evaluate CTSIM images • Troubleshoot set up issues • Pages to the Unit Final numbers to be reported in final report.
H&N CSRT, JCC	Quantity – Throughput	Contouring and nomenclature consensus adopted from H&N CoP. This has facilitated the creation of automated QA scripts that speed up and streamline the review process. These changes help facilitate QA reviews. Increase of cases reviewed 6 to 10 in the same time period (increase of 66%)
		The HNCSRT is paged on average 6 times a week by therapists or clerks to see a patient who has questions about their care plan, or having clinical issues. Depending on the complexity of the issue the CSRT will send anywhere between 10 to 30 min (average= 15 min) in a discussion with the patient and their family. (6 pages x 15 min=90 min).
		The HNCST leads a review clinic for all radical cases on their first 2 weeks of treatment. This is a new service spearheaded by the CSRT in collaboration with the dietitian and it substitutes review with the RO. Patients are not booked to see their RO when they are booked into RAD2 clinic. In clinic the CSRT will see 6 to 13 patients every week and on average she sees 9 patients a week. Consultation time per person varies from 10 to 30 minutes and on average is 20 minutes long (9 patients x 20 min=180 min).
		The HNCSRT is paged on average 5 times a week by therapists in the simulators to advise on patients' set-up, immobilization devices, scan limits and protocols, as well as to determine the need for bolus and to clinically delineate it. Consultation is on average 15 minutes long. (5 pages x 15 min=75 min).
Thoracic HDR Brachytherapy CSRT, JCC	Quantity - Throughput	Indirect time savings for the RO are realized through a variety of activities: • Brachy teaching and preparation for all radical gynae patients within their first 2 weeks (n = 10 pts/week (ave), range: 6 – 13 pts/week) • Managing all radical gynae and rapid access cases (scheduling, navigation, patient support) • Definition of treatment length and offset for all HDR esophagus patients (n = ~10 pts/mo) • Delineation of target volumes and OARs for all EBRT esophagus patients (n = 2 pts/mo)
		With the increasing experience of the CSRT, the GI program capacity has increased by ~10% between 2013 and 2014. Total number of esophagus cases in 2013 and 2014 were 154 and168

		respectively. This is achieved through the ability to accept adhoc/urgent cases when the CSRT is present in the brachy sessions.
		Rapid access to brachytherapy for urgent gynae cases is being piloted. ~4 pts/mo are seen for same day consult + brachy. The CSRT will consent the patient, replace the RO during the sim process and verification of treatment set up (90 min/pt).
Planning Image Definition & Contouring H&N CSRT, LRCP	Quantity – Throughput	Indirect time savings for RO realized through a variety of activities: • Obtaining consent • Consulting with dentistry, speech pathology and treatment units Final numbers to be reported in final report.
Skin CSRT, LRCP	Quantity – Wait times Quantity – Throughput	Indirect time savings for RO realized through a variety of activities: • History/Physical Assessments • Patient teaching • Obtaining consent • Target delineation and treatment set up • Trouble shoot difficult set ups • Telephone assessment (during/after treatment) Final numbers to be reported in 2015/16 report. With the introduction of CSRT-facilitated triage clinics and extra MDT clinics, the number of patients waiting for consultation appointments has reduced from 219 in October 2013 to 72 in April 2014. The average waiting period from referral to consult dropped from 96 days to 50 days. The goal of achieving a 14 day wait period from referral to consult will be achievable for 2014. As a result of the reduction of the wait time for consultation, access to radiation therapy and PDT has significantly improved. The overall waiting period for surgery has not been impacted, although early access to consultation ensures more accurate triage of surgical cases. Having the CSRT manage the skin practice and bookings has resulted in a reduction in mean wait time by 56 days from 96 to 40 days.
Brachytherapy CSRT, OCC	Quantity - Throughput	Since August 2014, the gynaecological brachytherapy program at the OCC has expanded to include the treatment of interstitial cases for recurrent endometrial, primary vaginal vault or large cervical disease. As part of the pre-treatment work-up, all patients undergo an MRI with the template and cylinder in place. Traditionally, the RO inserts the applicator, and remains at Imaging for the duration of the scans to be completed, assess the scans, make any adjustments to the applicator if necessary then remove the apparatus at the end of treatment. Since November 2014, five patients have undergone MRI scans and removal of the interstitial applicator by the CSRT-Brachytherapy. Average time to complete scan and remove applicator was 48 min (range: 36-63 mins)
		Waiting for treatments can have a significant impact on treatment outcomes, prognosis and patients' quality of life. Lean methodology identified two key strategic areas for quality

		improvement; booking/scheduling and pre-assessment. Pre intervention, the average prostate brachytherapy wait time was 5.9 weeks. Post-intervention the average prostate brachytherapy wait time was 4.8 weeks. The daily use of the brachytherapy suite was found to be underutilized. Pre-intervention prostate brachytherapy treatments were scheduled one day only. Post intervention, prostate treatments are scheduled in any non-used times. We were able to reduce the prostate brachytherapy treatment wait times by 1.1 weeks moving us closer to our < 4 week target.
		Removal of interstitial sutures/template/cylinder/catheters from perineum for interstitial gyne patients – currently being evaluated
SBRT CSRT, OCC	Quantity – Throughput	Indirect time savings for RO realized through a variety of activities: • Approving CBCT registrations (14 cases/mo) Last day treatment reviews (9 cases/mo)
Skin CSRT, OCC	Quantity – Wait times	With patient volumes increasing, CSRT participates in 2 additional new patient clinics/month resulting in 10 additional new patients seen per month. Indirect time savings for RO realized through a variety of activities: • History taking for all new patients • Completing clinical mark ups for all non-melanoma EBRT patients • Approval of first day set ups. Final numbers to be reported in final report.
		In the Photodynamic Therapy clinic, the CSRT assumes responsibility for debriding, education, medication application
		Indirect time savings for RO realized through a variety of activities: • Completing clinical mark ups for all non-melanoma EBRT patients (3 pts/wk) • Approval of first day set ups (6 pts/wk) • Referral triaging (100 min/wk) • Adhoc calls/enquiries as first point of contact (30 – 40 calls/wk)
Supportive Care and Sexual Health CSRT, OCC	NA	No pre-CSRT comparator exists for this new position. This is a new service provided to patients receiving radiation therapy to the pelvic area and to staff treating these patients. Absolute data will be collected and reported for this new service.
Brachytherapy CSRT, PM	Quantity – Throughput	Perform the following activities in place of the RO: • Intravaginal applicator insertions (2 hrs/procedure x 3 cases/wk) • HDR intrauterine applicator treatment delivery (2 hrs/procedure x 4 cases/wk)
IGART CSRT, PM	Quantity – Throughput	Image-Guided Adaptive Radiotherapy (IG-ART), a process of adapting the treatment to the anatomical changes of individual patients, is to be implemented for the purpose of providing personalized cancer care to improve treatment quality and patients' outcome. The major components of the IG-ART process are: 1) Volume delineation on multiple image datasets acquired during the course of treatment; 2) Deformable image registration; 3) Dose accumulation;

		and 4) Re-optimization of radiation distribution. The tools for performing these components are now available on a single platform recently acquired and undergoing testing and validation. Once validated for clinical use, the automated process will reduce errors and improve efficiency of administering IG-ART. This will be measured once the system goes live.
IGART Chest/Upper Abdomen, PM	NA	No clinical responsibilities at this time.
Breast CSRT, PM	Quantity - Throughput	CSRT will assume the contouring of breast seroma – time to contour (which translates into direct time saving to ROs) will be evaluated and presented in final report.
	Quantity – Wait times	The Quickstart program for early stage breast cancer patients allows these new patients to receive CTSIM and first treatment all on the day of first consult. The CSRT has doubled the number of patients seen in this clinic from 2 – 4 patients weekly (100% increase).
SBRT Lung CSRT, SRCC	NA	No pre-CSRT comparator exists for this new Lung SBRT program. Before this program, patients requiring SBRT were referred to other centres in the province. Absolute data will be collected and reported for this new service. The indirect impact on patient capacity and time savings for the RO will be tracked • Conducting new patient consults • Obtaining consent • Target delineations • Ontreatment review • Patient Follow-Up Calls These results will be reported in the 2015/16 report.

**Maternity leave 2014/15*

Appendix F: Quality of Care Initiatives

CSRT	Category	Description
PALLIATIVE CSRTs		
Palliative CSRT, CFPRCC	Patient Experience Patient Outcome Provider Experience	Revised the documentation package for sending facilities (including the patient handover tool, letter to sending facilities, and fax cover sheet for the referrals office). Since the start of implementation, the number of incidents has decreased from 3/month in RT alone to 2 incidents over the last 5 months.
		Assisted in the development/facilitation of an interprofessionally-led patient education class on cancer fatigue management: Cancer fatigue is the most commonly occurring symptom amongst cancer patients. The class was developed in response to a need to address this highly prevalent symptom.
		Facilitating an emotional care series for interprofessional front-line staff: Emotional care is a part of the job of every healthcare professional but many HCP's do not feel they have the knowledge and skills (or the time) to perform basic emotional care at the front-line. This series was first offered to nursing staff through the De Souza Institute but has been revised for use in the radiation therapy program at the CFRCC.
Palliative Bone Mets CSRT, JCC	Patient experience Provider experience	Telemedicine consultation for patients referred from out of LHIN for SRT consultation (April 2014 - Feb 2015) • Provides cost and travel time savings - The distance between the referral and consultation site is approximately six hundred kilometers. Each virtual consultation saves each patient 7 hours and $100 (accounting for fuel, food and parking) • CSRT developed disease specific clinical protocols to provide this innovative service. Extensive planning/needs assessments completed to achieve technical and clinical site readiness. The CSRT was responsible for the coordination and communication between the OTN Regional Manager, the director of radiation oncology, administration, management of information technology, patient referrals and registration, nursing, radiation oncology and the referring telemedicine program at the Windsor Regional Cancer Centre (WRCC).
Palliative CSRT, OCC	Patient experience Patient outcomes Provider experience	Initiate pre-treatment QA for all SRS cases (important to identify any issues/deviations/errors) before large doses of radiation delivered. • Since its inception in August 2014, 134 cases have been booked for SRS treatment. 98% have undergone peer review before initial treatment
		Assuming the coordination of the SRS program results in improved access to the technique as well as improved experience in the program for patients and providers.
		Assuming contouring and planning duties for SRS patients results in fewer handoffs between professionals, reducing the time to move from DTT – Treatment and reducing the risk of errors.

Palliative CSRT, OHRCC	Patient Experience Provider Experience	More accurate use of the electronic booking tools will result in • Reduction in inappropriate referrals • accurate workload capturing
	Patient Experience Patient Outcome Provider Experience	To create a patient-centered timely and efficient rapid palliative clinic at TOHCC that includes a CSRT-initiated telephone follow up call: • to decrease wait times for patients to access radiation therapy (A patient satisfaction survey will be handed out to patients for completion to measure patient experience). • to improve patients post-RT experience and connection with the TOHCC • to increase the ability to track response to palliative radiation therapy
	Patient Outcomes	Past practice - place fields for palliative cases and perform a simple calculation to the isocentre – will be compared to new practice in the rapid palliative clinic that will include a computer-generated distribution (except whole brain techniques). • The number of incidents between prior cases (using placed fields and 2 levels of quality assurance) to the cases treated at the rapid palliative clinic (using a computer generated distribution and 3 levels of quality assurance) will be compared.
Palliative CSRT, PM	Patient Experience Patient Outcomes Provider Experience	Palliative Radiation Treatment Summary (PaRTS) for patients completing palliative radiotherapy (RT) within the PROP program, as well as those patients seen by the CSRT outside of the PROP program • package includes RT treatment details (i.e. dose, dates, RT area, DRRs), associated/potential side effects, adjustments to medications, follow-up appointments scheduled, and contact information for the team. • improves post-treatment continuity of care as follow-up currently defaults back to the referring physician. The discharge summary gives patients the opportunity to contact the radiation medicine team should they have further questions and concerns. • Patients are provided customized information regarding potential side effects of palliative RT, and are in a better place to self-manage when they occur. • NEW service for continuity of care for patients. Preliminary results showed patients and caregiver like the PaRTS, and have either used it for self-care and/or shared with referring MD at follow-up appointment.
	Patient Experience Patient Outcome	All PROP and other CSRT-related palliative patients are seen during treatment either on the day of the review clinic, or seen at the treatment unit for review. • Patients' questions and concerns addressed prior to completion of palliative RT; adjustment of meds, and educational reinforcement of post-RT side effects and care. • Review clinic is run by CSRT, now with help of PROP NP. (n = 224 patients for 7 months from January to December 2014).
Palliative CSRT, DRCC	NA	NA

Palliative CSRT, SMRCC	Patient Experience Patient Outcome Provider Experience	Plans underway to: • Develop a consistent procedure for the whole brain clinical mark up process • Implement a new streamlined referral process for urgent palliative patients • Introduction and process development for the clinical use of Radium-223 for patients with bony metastases from castrate resistant prostate cancer • Introduction of CSRT led follow-up phone calls for patients with brain and/or bony metastases who received radiation therapy
*Palliative CSRT, SRCC**		
OTHER CSRTS		
SBRT and SRS CSRT - CFPRCC	Patient Experience Patient Outcome Provider Experience	Development of SRS CT, Treatment and Planning Policies and Procedures: • Consistency: reduced variation between staff members performing tasks • Improve productivity/reduce time to perform tasks • Reduce Errors • Improve quality assurance, can see where process is not working • Increase staff and patient safety • Good tool for staff / student training
	Patient Experience Provider Experience	Introduction of Reserved weekly CT, Trial Set Up and Treatment Appointment Slots SRS Brain Lab Patients: • Supports condensed timeline required in SRS treatment plan • Facilitates the scheduling of SRS trained CT, Treatment, Physics and Radiation Oncology staff, ensuring availability • Ensure Patient treated in a timely manner meeting RTTD
	Patient Outcome Provider Experience	Mandatory Trial Set Up for all SRS Brain Lab Plans: • Ensure the safe deliverability of every SRS plan • Improve Quality Assurance • Reduce Errors • Increase Safety to Patient
Breast CSRT, JCC	Patient Experience Patient Outcomes Provider Experience	OOST-Business case including strategic alignment, cost analysis was presented to BDST chair. Proposed change to photon boost with CT based planning including • Cost analysis • Literature search comparing efficacy of clinical mark up vs CTSIM With approval and transition to this new practice, will result in • Increase departmental efficiency • Eliminate 3 planning appointments for patients
	Patient Experience Provider Experience	CSRT developing evidence based protocol and guideline for breast imaging (April/May 2015) including lit review, stakeholder input, cost analysis. This will • Provide clear directive to Radiation Therapists regarding what and when to image as well

		as how to evaluate the images • Result in fewer repeat images • Improve consistency of care
	Patient Experience Patient Outcome Provider Experience	CSRT to implement dedicated breast machines to develop expertise in breast radiation therapy • Provide clear directive to the BDST • Improve consistency and quality of care
	Patient outcome	New process for virtual bolus • Out of 12 patients, replacing the clinically placed bolus with virtual bolus designed using the CT simulation image set significantly reduced the area of normal skin under bolus in 9 patients (75%) and significantly improved dose coverage of the superficial CTV in 3 patients (25%). Therefore, all plans benefitted when virtual bolus based on CTV geometry replaced bolus that was designed based on clinical assessment. • Virtual bolus was then tested in a pilot with 10 patients which demonstrated that although virtual bolus was dosimetrically preferable it resulted in increased planning time. So now virtual bolus is used when bolus cannot be marked clinically. • We now have a formal procedure to plan, fabricate and assess virtual bolus.
		QA rounds • Contouring and nomenclature consensus adopted from H&N CoP. This has facilitated the creation of automated QA scripts that speed up and streamline the review process • These changes help facilitate QA reviews. Now we can review 10 cases in the same time we previously reviewed only 6 cases
		Literature review done by CSRT to determine optimum IV contrast CT scanning protocols for H&N. Instructions for the new protocol procedure were created for sim-therapist by the CSRT.
H&N CSRT, JCC	Patient experience Provider experience	Individuals treated with high doses of radiation to the jaw are at risk for osteoradionecrosis after dental extractions. Dose documentation and communication with community dentists was inconsistent and increased patients' risks for jaw complications. The CSRT designed a Dental Assessment form to document radiation dose to the jaw and inform dentists, as well as developed a process to complete, record, and make this form readily available when needed.
Thoracic HDR Brachytherapy CSRT, JCC	Patient Experience Provider Experience	CSRT has initiated patient teaching and preparation for all radical gynae patients within their first 2 weeks of treatment • Improves patient experience by preparing them for the brachytherapy phase of treatment that occurs in 3rd week (n = 10 pts/week (ave., range – 6 – 13)) • Redistributes activity from RO permitting more focused care and discussion. Managing all radical gynae and rapid access cases (scheduling, navigation, patient support) • Improves patient experience by streamlining workflow and patient care • Improves provider experience by serving as central manager of all the aspects of patients care

		Rapid access to brachytherapy for urgent gynae cases is being piloted. ~4 pts/mo are seen for same day consult + brachy. The CSRT will consent the patient, replace the RO during the sim process and verification of treatment set up (90 min/pt). It is expected that this will reduce the time from decision to treat to treatment. Data to be presented in the 2015/16 report.
Planning Image Definition & Contouring H&N CSRT, LRCP	Patient Outcomes	Produced and implemented guidelines for BID treatments during Christmas and Easter breaks to compensate dose for extended treatment breaks (radiobiological disadvantage): • Between 2011 and 2014, the number of patients receiving some sort of dosage compensation increased from 9% (2/22) to 65% (15/23). This is an increase of 56% with the implementation of these new guidelines.
		The implementation of a CSRT-led contouring process resulted in the proportion of cases requiring modification after QA review decreasing from 30% (for RO-led contouring) to 7.5%.
Skin CSRT, LRCP	Patient Experience Provider Experience	Adding CSRT to the skin consultation clinic and having CSRT serve as primary contact following initial consult has resulted in • patients reporting feeling better informed about their diagnosis and treatment options. • an opportunity to ask any further questions after they have had time to consider the options presented. • ROs at the consultation clinic reporting feeling less rushed and more organized
		CSRT developed a revised approach to patient care in the face of major changes in departmental policy related to access to specific medications. With a combination of research, advocacy, communication, training and evaluation, the CSRT developed new policies and processes for management of actinic keratosis with Photodynamic Therapy.
Brachytherapy CSRT, OCC	Patient Outcomes Patient Experience Provider Experience	Care Coordinator RVH (Barrie) cervical cancer patients and endometrial cancer patients: The CSRT manages the coordination of care for cervical and endometrial cancer patients to be treated with brachytherapy at the Odette Cancer Centre.
		Patient navigator Interstitial Gynae Patients: The CSRT manages and coordinates care for interstitial gynae patients treated with brachytherapy.
		Patient Education tool: Development and creation of a new e-education tool for endometrial cancer patients undergoing vaginal vault brachytherapy treatments
		Outcome Monitoring and Analysis: The CSRT has created and manages a database which collects information on all cervical cancer cases treated with radiation therapy. Outcomes measured includes: disease free survival, severity and dissipation of treatment related sequalae, time to recurrence, second primaries, long term complications, persistent disease etc. Outcome Monitoring and Analysis: The CSRT has created and manages a database which collects information on all interstitial gynae cases treated with brachytherapy. Outcomes measured includes: disease free survival, severity and dissipation of treatment related sequalae, time to recurrence, second primaries, long term complications, persistent disease etc.
SBRT CSRT, OCC	Patient Outcomes	• Implementation of ABC for Liver SBRT - Reduction in PTV volume and potential to further dose escalate.

	Provider experience	Evaluation of utilization of chest board for lung SBRT to replace evacuated cushions for immobilization (n = 20 evaluated for residual error on post treatment CBCT). Change in practice has resulted in • Decrease in departmental resources for purchase of cushions and storage • Less time is spent in simulator • Eliminate the need for resimulation due to leaky cushions.
	Patient Experience Provider Experience	CSRT has assumed the review of first day CBCT images for all SBRT patients. Treatment time has been reduced to reflect the decrease in time that the treatment unit staff have to wait for the images to be reviewed before initiation of treatment.
	Patient Outcomes	CSRT has assessed and implemented the use of ABC for Liver cancer patients where necessary. This permits a reduction in PTV volume and ultimately dose escalation to render improved patient outcomes.
	Patient Outcomes Provider experience	CSRT developed contouring guidelines for Liver SBRT so that contouring of organs at risk could be delegated to planning staff saving the RO about 1 hr/pt.
	Patient Experience Provider Experience	The CSRT evaluated and implemented the use of a chest board for Lung SBRT patients in place of vaclok bags. This saves the department money, eliminates the need for resimulations and decreases simulation time at first appointment.
	Provider Experience	After assuming responsibility for the operation and management of peer review rounds, the number of patients being reviewed before first treatment has increased by 50%.
	Provider Experience	The CSRT developed a series of elearning modules on SBRT to educate multidisciplinary teams about the safe and appropriate use of this novel technique and how to set up a SBRT program.
Skin CSRT, OCC	Patient Experience	The CSRT serves as central contact for all skin cancer patients attending the centre fielding 6 – 8 calls per day (15 min/call, ave). This saves RO time, secretary time and nurse time as well as giving the patient one person to talk with.
	Provider Experience	CSRT is also first point of contact for the new patient booking office and for referring physicians (4 + 4 calls/week, ave).
Supportive Care and Sexual Health CSRT, OCC	Patient experience	Development of New Patient Education Materials on Radiation Therapy and Sexual health: A guide for Men/Women. • No previous education Materials on this topic within our institution
	Patient outcomes	Needs Assessment on the Sexual Health needs of Prostate Cancer Patients • REB approval has just been received. Data collection will begin mid May 2015.
TV&D CSRT, PM	Patient Outcome Provider Experience	Image-Guided Adaptive Radiotherapy (IG-ART), a process of adapting the treatment to the anatomical changes of individual patients, is to be implemented. The automated process will • Provide more personalized cancer care • reduce errors • improve efficiency of administering IG-ART. This will be measured once the system goes live.

Brachytherapy CSRT, PM	Provider Experience	Streamline workflow – review of policy and existing practice resulted in RNs no longer being required to stay with patient during MR-acquisition. This allows them to redirect that time to other duties.
	Patient experience	A new patient education resource was developed for patients being treated for cervix cancer at the time of discharge. These patients now receive standardized information and instructions from nursing staff.
IGART CSRT, PM	Patient Outcome Provider Experience	Image-Guided Adaptive Radiotherapy (IG-ART), a process of adapting the treatment to the anatomical changes of individual patients, is to be implemented. The automated process will • Provide more personalized cancer care • Reduce errors • Improve efficiency of administering IG-ART. This will be measured once the system goes live.
Breast CSRT, PM	Patient experience Patient outcome Provider experience	The Quickstart program for early stage breast cancer patients allows these new patients to receive CTSIM and first treatment all on the day of first consult. Expedited by the CSRT, this new process affords the following benefits: • Reduction in time from decision to treat to treat from 12 days to 3 hours • Redistribution of first day consult activities from RO to CSRT
SBRT Lung CSRT, SRCC	Patient Experience Patient Outcome Provider Experience	SBRT program development and implementation • Decrease number of SBRT referrals sent out pre-implementation vs post-implementation • Reduction in patient handoffs • Decrease in errors/Improved quality of care • Time-savings

**Maternity leave 2014/15*

Appendix G: Concordance Data for New Skills Development

CSRT	Category	Description
Palliative CSRTs		
Palliative CSRT, CFPRCC	NA	NA
Palliative Bone Mets CSRT, JCC	NA	NA
Palliative CSRT, OCC	NA	NA
Palliative CSRT, OHRCC		Patient treatment decision consensus: comparison of techniques chosen after initial consult and review of diagnostic tests. (currently underway) Target delineation: Radiation Oncology will assess OAR, VOI, PTV contours completed by CSRT. (currently underway)
Palliative CSRT, PM	NA	NA
Palliative CSRT, DRCC	NA	NA
Palliative CSRT, SMRCC		Prescription selection: The CSRT will determine the treatment prescription for 30 prospective patients and will be reviewed and assessed by supervising RO. (currently underway). Target Volumes: The CSRT will contour target volumes (GTV's) on all 5 datasets (exhale, inhale, helical, AVG, MIP) of the patient's plan to be compared against volumes contoured by the Radiation Oncologists. Preliminary results from April 2015 show high level of concordance. (data collection ongoing) Organs at Risk: The CSRT will contour organs at risk (main bronchus, brachial plexus) on the primary dataset of the patient's plan to be compared against volumes contoured by the Radiation Oncologists. (currently underway)
*Palliative CSRT, SRCC**		
Other CSRTs		
SBRT and SRS CSRT,CFPRCC		Target delineation: OAR contours (brainstem, chiasm, Lt and Rt optic nerve for 10 pts) completed by CSRT will be compared to those of the RO using the DICE index. Concordance was acceptable and this activity will be transitioned to the

		CSRT thereby reducing the time required of the RO during the planning phase. Approval of first day CBCT images for stereotactic patients (lung, spine, brain): 100% concordance was achieved between the CSRT and RO. This activity will be transitioned to the CSRT to save the RO time. (time study currently underway).
Breast CSRT, JCC	NA	NA
H&N CSRT, JCC		Using conformity index (CI) analysis it was demonstrated that the nodal volumes contoured by the HNCSRT were consistently identified and highly comparable to those of the RO. The average concordance for high dose volume 96.4% (Std. Dev. 3.20%), and for low dose volume was 94.1% (Std. Dev.5.37%). This study supports role expansion for the HNCSRT in outlining nodal volumes for treatment planning in this patient population.
Thoracic HDR Brachytherapy CSRT, JCC	NA	NA
Planning Image Definition & Contouring H&N CSRT, LRCP	NA	NA
Skin CSRT, LRCP	NA	NA
Brachytherapy CSRT, OCC		Currently, a pilot study is being conducted to compare dose distributions between conventional and MR guided brachytherapy for locally advanced cervical cancer patients. To date, seven patients have signed informed consent to participate in this trial, underwent and MR scan post brachytherapy treatment. The MRI scans were imported into MiMVista for contouring by 4 Gyne Radiation Oncologists and one CSRT. Following GEC-ESTRO guidelines, volumes contoured included: GTV, HRCTV, IRCTV and OARS (bladder, rectum, sigmoid). CSRT contours were compared with the gold standards using conformality index. Data analysis currently being conducted. Removal of interstitial sutures/template/cylinder/catheters from perineum for interstitial gyne patients – currently being evaluated
SBRT CSRT, OCC	NA	NA
Skin CSRT, OCC	NA	NA
Supportive Care and Sexual	NA	NA

Health CSRT, OCC		
TV&D CSRT, PM	NA	NA
Brachytherapy CSRT, PM	NA	NA
IGART CSRT, PM	NA	NA
Breast CSRT, PM	NA	NA
IGART Chest/Upper Abdomen, PM	NA	NA
SBRT Lung CSRT – SRCC	NA	NA

**Maternity leave 2014/15*

Appendix H: Radiation Therapy Job Satisfaction Data

The collection of information on radiation therapist's job satisfaction, and their knowledge and opinion regarding the impact of the CSRT role was collected from 12 CSRTs. The data represents radiation therapist responses from seven different cancer centres within Ontario, totaling 313 individuals. The table below provides the detailed analysis of these surveys. All scores and comment themes are in alignment with previous data collection from senior CSRTs, representing the overall high level of job satisfaction for radiation therapists and the ability of the CSRT role to combat some of the known limitations of the profession (lack of career opportunities, low wages, and opportunities to specialize).

Question	Respondents	Average	Mode
1. Knowing what you know now, if you had to decide all over again whether to take the type of job you now have, what would you decide?	n = 313	'Decide without hesitation to take the same job' – 'Have some second thoughts' Avg = 2.6 Sd = 0.6	'Decide without hesitation to take the same job' Mode = 3 (64%)
Comments: Responses reflect the positive satisfaction level participants have for the profession. Satisfaction was highly associated with the enjoyment received from helping patients and contributing to the betterment of society. Reasons for joining the same profession again, outside of the mentioned, included, 1) ability to continually learn and be challenged (technology change), 2) ability to create good work – life balance (hours, wage, benefits, duties), and 3) opportunities to do a variety tasks and duties in the workplace. For those that listed reasons why they would have second thoughts about the career or change jobs stated that the lack of vertical movement, job stagnation, and unsatisfactory remuneration for work as the greatest negatives.			
2. If you were free right now to go into any type of job you wanted, what would your choice be?	n = 310	'Take the same job' – 'Take a different job' Avg = 2.4 Sd = 0.7	'Take the same job' Mode = 3 (54%)
Comments: Similar to question #1, participants reiterated their positive and negative perspective on the profession and their specific jobs. No additional major themes were present.			
3. If a friend of yours told you he/she was interested in working in a job like yours, what would you tell him/her?	n = 308	'Strongly recommend it' – 'Have doubts about recommending it' Avg = 2.5 Sd = 0.6	'Strongly recommend it' Mode = 3 (56%)
Comments: A new theme emerged in this question. Participants were highly concerned with ensuring that persons seeking a career in radiation therapy should know of the limited job opportunities and that the person should have specific personality characteristics to fit the profession (e.g., compassionate , good communication, team player, ability to handle stress).			
4. All in all, how satisfied would you say you are with	n = 311	'Very satisfied' – 'Somewhat Satisfied'	'Very satisfied' Mode = 4 (48%)

your job?		Avg = 3.4 Sd = 0.7	
5.How familiar are you with the CSRT role and the position(s) at your centre?	n = 304	'Very satisfied' – 'Somewhat Satisfied' Avg = 3.2 Sd = 0.7	'Somewhat Satisfied' Mode = 3 (54%)
6. Whether you would like to become a Clinical Specialist Radiation Therapist or not, do you think this position will help positively address the three main issues impacting Radiation Therapist job satisfaction:			
i. Lack of career opportunities	n = 294	'Strongly address the issue' – 'Somewhat address the issue' Avg = 3.0 Sd = 0.9 % Positive = 72%	'Somewhat address the issue' Mode = 3 (42%)
ii. Low wages	n = 293	'Strongly address the issue' – 'Somewhat address the issue' Avg = 2.4 Sd = 1.0 % Positive = 47%	'Somewhat address the issue' Mode = 3 (34%)
iii. Opportunities to specialize	n = 297	'Strongly address the issue' – 'Somewhat address the issue' Avg = 3.2 Sd = 0.8 % Positive = 81%	'Strongly address the issue' Mode = 4 (44%)
7. Do you have any patient safety concerns associated with the Clinical Specialist Radiation Therapist role?	n = 298	'No' Avg = 0.1 Sd = 0.3	'No' Mode = 0 (88%)
Comments: For those that provided a comment on safety concerns, it was emphasized that: 1) adequate education and training in the specific area of the position is required, 2) the training and application of training should be properly supervised (checks and balances), 3) there is potential for role / duty confusion, and 4) for those roles that are not clinically based, there is a possibility of decreased frontline knowledge that can hinder the position across time.			
8. How likely is it that you will find a new job in the next year?	n = 297	'Not at all' – 'Somewhat' Avg = 1.2 Sd = 0.5	'Not at all' Mode = 1 (82%)

Appendix I: Process Innovation and Knowledge Translation

CSRT	DESCRIPTION
Palliative CSRTs	
Palliative CSRT, CFPRCC	Palliative Care CSRT seeing NP consults at off-site clinics: Since August of 2014, the CSRT has been seeing palliative patients at one of the regional radiation oncology satellite clinics. Anecdotally, this has improved interprofessional relationships between the CFRCC and the oncology and palliative care staff at the other site, reduced the need for palliative in-patient transfers for radiation consults, streamlined the booking and transfer of in-patients for CT simulation and treatment, and helped to decrease RO workload occurring as a result of double bookings and in-patient consults.
	Facilitating an emotional care series for interprofessional front-line staff: Emotional care is a part of the job of every healthcare professional but many HCP's do not feel they have the knowledge and skills (or the time) to perform basic emotional care at the front-line. This series was first offered to nursing staff through the De Souza Institute but has been revised for use in the radiation therapy program at the CFRCC.
	Assisted in the development/facilitation of an interprofessionally-led patient education class on cancer fatigue management: Cancer fatigue is the most commonly occurring symptom amongst cancer patients. The class was developed in response to a need to address this highly prevalent symptom.
Palliative Bone Mets CSRT, JCC	Telemedicine consultation for patients referred from out of LHIN for Stereotactic RT. CSRT developed disease specific clinical protocols to provide this innovative service. Extensive planning/needs assessments completed to achieve technical and clinical site readiness. The CSRT was responsible for the coordination and communication between the OTN Regional Manager, the director of radiation oncology, administration, management of information technology, patient referrals and registration, nursing, radiation oncology and the referring telemedicine program at the Windsor Regional Cancer Centre (WRCC).
Palliative CSRT, OCC	Formalization of the Stereotactic Radiosurgery Program for patients with brain metastases. The CSRT serves as the program coordinator and content matter expert. This treatment offers several dosimetric and outcomes benefits for appropriate patients and requires extensive coordination to implement.
Palliative CSRT, OHRCC	Patients coming through the rapid response palliative clinic will have treatment planning distributions created to improve the quality of the treatment and reduce the risk of errors due to the increase in quality reviews using this approach.
Palliative CSRT, PM	NA
Palliative CSRT, DRCC	NA
Palliative CSRT, SMRCC	Member of interdisciplinary team that developed a stereotactic ablative radiation therapy program at the local centre. The CSRT was responsible for developing the radiation therapy protocols/process including CTsim, treatment planning, treatment delivery, image guidance. Prior to this, patients suited for SABR had to be referred to other centres at a greater distance from home.
*Palliative CSRT, SRCC**	

Other CSRTs	
SBRT and SRS CSRT,CFPRCC	NA
Breast CSRT, JCC	NA
H&N CSRT, JCC	NA
Thoracic HDR Brachytherapy CSRT, JCC	NA
Planning Image Definition & Contouring H&N CSRT, LRCP	NA
Skin CSRT, LRCP	CSRT developed a revised approach to patient care in the face of major changes in departmental policy related to access to specific medications. With a combination of research, advocacy, communication, training and evaluation, the CSRT developed new policies and processes for management of actinic keratosis with Photodynamic Therapy.
Brachytherapy CSRT, OCC	NA
SBRT CSRT, OCC	CSRT has assessed and implemented the use of ABC for Liver cancer patients where necessary. This permits a reduction in PTV volume and ultimately dose escalation to render improved patient outcomes.
	CSRT developed contouring guidelines for Liver SBRT so that contouring of organs at risk could be delegated to planning staff saving the RO about 1 hr/pt..
	The CSRT evaluated and implemented the use of a chest board for Lung SBRT patients in place of vaclok bags. This saves the department money, eliminates the need for resimulations and decreases simulation time at first appointment.
	After assuming responsibility for the operation and management of peer review rounds, the number of patients being reviewed before first treatment has increased by 50%.
	The CSRT developed a series of elearning modules on SBRT to educate multidisciplinary teams about the safe and appropriate use of this novel technique and how to set up a SBRT program.
Skin CSRT, OCC	Development and implementation of a new Photodynamic Therapy technique. CSRT responsible for development of protocols using existing literature, policies, education of staff, development of patient education materials, equipment QA processes.
Supportive Care and Sexual Health CSRT, OCC	NA
TV&D CSRT, PM	NA
Brachytherapy	New Technique – MR-guided Interstitial HDR Treatment for Cervix Ca recurrence using GYN Template: Commissioned this

CSRT, PM	new technique since December 2014, CSRT liaised with the appropriate departments (CPD, in-patient ward, machine shop for modification of the device) of the hospital to enable this to take place. Then the CSRT established the protocols by communicating with radiation oncologist, physicist, MR technologists and radiation therapist the appropriate parameters of HDR treatment delivery.
	New Technique - MR-guided Intracavitary HDR Treatment for Rectum Ca Patients: Commissioned this new technique since November 2014, CSRT liaised with the appropriate departments (CPD & in-patient ward) of the hospital to enable this to take place. Then the CSRT established the protocols by communicating with radiation oncologist, physicist, MR technologists and radiation therapist the appropriate parameters of HDR treatment delivery.
	New Technique - CT-guided Interstitial HDR Treatment for Sarcoma to the limb: This was a rare sarcoma recurrence to the limb (arm), if HDR treatment was not available, this patient would have needed amputation of her arm. The sarcoma team thinks that this is a very rare case and do not see a constant referral of patients in this population. The role of CSRT in this case was to commission this technique and document all necessary information for future patient bookings.
IGART CSRT, PM	The CSRT undertook a rigour, retrospective assessment of an autosegmentation tool for possible clinical implementation. Results show that the tool has potential for time savings related to segmentation of anatomical regions however performance of the tool remains suboptimal. Issues identified are being further analyzed for possible improvement strategies.
Breast CSRT, PM	NA
IGART Chest/Upper Abdomen, PM	NA
SBRT Lung CSRT – SRCC	NA

**Maternity leave 2014/15*

Appendix J: CSRT Scholarly Work and Innovations

Palliative Bone Metastases CSRT, JCC

Activity/Initiative		Number of activities/initiatives							
		2008	2009	2010	2011	2012	2013	2014	2015
Presentations	Peer reviewed podium			1		1	3		1
	Peer reviewed poster			2		1	4		
	Invited/external podium			1			1		
	Intra-departmental		9	2		3	2		
	Interdepartmental		3	1	2	1	2	2	
	Workshops								
Peer-reviewed publications	Manuscripts								
	Abstracts								
	Guidelines								
Book	Chapter								
	Editor								
Awards/Honors						1			

Thoracic HDR Brachytherapy CSRT, JCC

Activity/Initiative		Number of activities/initiatives							
		2008	2009	2010	2011	2012	2013	2014	2015
Presentations	Peer reviewed podium	1	2			2	1	2	3
	Peer reviewed poster		2			1	2	4	2
	Invited/external podium				1				1
	Intra-departmental					1	1	1	
	Interdepartmental					1			
	Workshops					1			
Peer-reviewed publications	Manuscripts							5	3
	Abstracts								
	Guidelines						1		
Book	Chapter								
	Editor								
Awards/Honors						1	2	1	

Patient Assessment and Symptom Management, Breast Cancer CSRT, PM

Activity/Initiative		Number of activities/initiatives							
		2008	2009	2010	2011	2012	2013	2014	2015
Presentations	Peer reviewed podium			1	1	1		2	
	Peer reviewed poster	1		3	2	3	4	4	
	Invited/external podium				1	3	1		
	Intra-departmental			1	1			2	
	Interdepartmental					3			1
	Workshops					1	2		
Peer-reviewed publications	Manuscripts					4	1		1
	Abstracts	3	1	3	2	3	2	5	1
	Guidelines								
Book	Chapter								
	Editor								
Awards/Honors				2	5		3	1	

SBRT CSRT, Odette

Activity/Initiative		Number of activities/initiatives							
		2008	2009	2010	2011	2012	2013	2014	2015
Presentations	Peer reviewed podium					1	1	3	
	Peer reviewed poster				1		7	3	1
	Invited/external podium						1	1	1
	Intra-departmental					1	1		
	Interdepartmental	1					1		
	Workshops						4	2	
Peer-reviewed publications	Manuscripts							2	1
	Abstracts							4	
	Guidelines								
Book	Chapter								
	Editor								
Awards/Honors						1	1	2	

Breast Cancer CSRT, JCC

Activity/Initiative		Number of activities/initiatives							
		2008	2009	2010	2011	2012	2013	2014	2015
Presentations	Peer reviewed podium							1	2
	Peer reviewed poster								
	Invited/external podium					2	2	1	
	Intra-departmental					1	2	5	3
	Interdepartmental					1	1	6	
	Workshops					2	2	2	1
Peer-reviewed publications	Manuscripts								2
	Abstracts							1	
	Guidelines								
Book	Chapter								
	Editor								
Awards/Honors		2			1	1	5	1	

Target Visualization and Delineation, Head and Neck Cancer CSRT, PM

Activity/Initiative		Number of activities/initiatives							
		2008	2009	2010	2011	2012	2013	2014	2015
Presentations	Peer reviewed podium		1	1	1				
	Peer reviewed poster	2						3	
	Invited/external podium		1						
	Intra-departmental								
	Interdepartmental		1						
	Workshops		1			1	1		
Peer-reviewed publications	Manuscripts						1		
	Abstracts	2	1	1	1	1	1	3	
	Guidelines								
Book	Chapter								
	Editor								
Awards/Honors									

Head and Neck Cancer CSRT, JCC

Activity/Initiative		Number of activities/initiatives							
		2008	2009	2010	2011	2012	2013	2014	2015
Presentations	Peer reviewed podium				1	1	2	1	
	Peer reviewed poster		2	1	3	1	1	1	
	Invited/external podium								
	Intra-departmental					1	2	1	
	Interdepartmental								
	Workshops								
Peer-reviewed publications	Manuscripts							1	1
	Abstracts			1			1		
	Guidelines						1		
Book	Chapter								
	Editor								
Awards/Honors									

Palliative CSRT, SRCC – *Maternity Leave*

Activity/Initiative		Number of activities/initiatives							
		2008	2009	2010	2011	2012	2013	2014	2015
Presentations	Peer reviewed podium						1	2	
	Peer reviewed poster					1			
	Invited/external podium						1		
	Intra-departmental								
	Interdepartmental								
	Workshops								
Peer-reviewed publications	Manuscripts								
	Abstracts								
	Guidelines								
Book	Chapter								
	Editor								
Awards/Honors									

Palliative CSRT, PM

Activity/Initiative		Number of activities/initiatives							
		2008	2009	2010	2011	2012	2013	2014	2015
Presentations	Peer reviewed podium	2	1	1		4			
	Peer reviewed poster						1	2	
	Invited/external podium		2					1	
	Intra-departmental					1			
	Interdepartmental					1	1		
	Workshops					1	1	1	
Peer-reviewed publications	Manuscripts						1		
	Abstracts	2	1	2		5			3
	Guidelines								
Book	Chapter								
	Editor								
Awards/Honors			1		1	1		1	2

Palliative CSRT, Odette

Activity/Initiative		Number of activities/initiatives							
		2008	2009	2010	2011	2012	2013	2014	2015
Presentations	Peer reviewed podium							1	
	Peer reviewed poster								
	Invited/external podium			4	2	1	5	4	
	Intra-departmental	1		5					
	Interdepartmental			3					
	Workshops						2		
Peer-reviewed publications	Manuscripts	1	1	3	24	23	16	8	2
	Abstracts	2		5		5	9		
	Guidelines								
Book	Chapter				2		11		
	Editor			1	2		1	1	
Awards/Honors		1		2			1		

IGART CSRT, PM

Activity/Initiative		Number of activities/initiatives							
		2008	2009	2010	2011	2012	2013	2014	2015
Presentations	Peer reviewed podium	1	1	1			3	1	1
	Peer reviewed poster	3	2	2				2	
	Invited/external podium	5	1		2				
	Intra-departmental	2	1		1		3		1
	Interdepartmental							1	
	Workshops							1	
Peer-reviewed publications	Manuscripts	1	2	1	1		1	1	1
	Abstracts						2		
	Guidelines								
Book	Chapter								
	Editor								
Awards/Honors			1						

Skin Cancer CSRT, LRCC

Activity/Initiative		Number of activities/initiatives							
		2008	2009	2010	2011	2012	2013	2014	2015
Presentations	Peer reviewed podium							1	
	Peer reviewed poster							2	
	Invited/external podium								
	Intra-departmental								
	Interdepartmental								
	Workshops								
Peer-reviewed publications	Manuscripts								
	Abstracts								
	Guidelines								
Book	Chapter								
	Editor								
Awards/Honors									

Skin Cancer CSRT, Odette

Activity/Initiative		Number of activities/initiatives							
		2008	2009	2010	2011	2012	2013	2014	2015
Presentations	Peer reviewed podium	1	4	1		6	9	10	
	Peer reviewed poster							3	
	Invited/external podium							1	
	Intra-departmental								
	Interdepartmental	2	1	1		1	1		
	Workshops								
Peer-reviewed publications	Manuscripts	12	22	7			1		
	Abstracts	1	1						
	Guidelines								
Book	Chapter			13				3	
	Editor								
Awards/Honors		1				2			

Palliative CSRT, CFPRCC

Activity/Initiative		Number of activities/initiatives							
		2008	2009	2010	2011	2012	2013	2014	2015
Presentations	Peer reviewed podium								1
	Peer reviewed poster						1	2	1
	Invited/external podium							1	
	Intra-departmental								
	Interdepartmental								
	Workshops				1				1
Peer-reviewed publications	Manuscripts				1				
	Abstracts								
	Guidelines								
Book	Chapter								
	Editor								
Awards/Honors					1				

H&N CSRT, JCC

Activity/Initiative		Number of activities/initiatives							
		2008	2009	2010	2011	2012	2013	2014	2015
Presentations	Peer reviewed podium								
	Peer reviewed poster			1	4				
	Invited/external podium						1		
	Intra-departmental								
	Interdepartmental								
	Workshops								
Peer-reviewed publications	Manuscripts						1		
	Abstracts								
	Guidelines							2	
Book	Chapter								
	Editor								
Awards/Honors								1	

H&N CSRT, LRCC

Activity/Initiative		Number of activities/initiatives							
		2008	2009	2010	2011	2012	2013	2014	2015
Presentations	Peer reviewed podium								
	Peer reviewed poster								
	Invited/external podium								
	Intra-departmental								
	Interdepartmental								
	Workshops						2		
Peer-reviewed publications	Manuscripts								
	Abstracts								
	Guidelines								
Book	Chapter								
	Editor								
Awards/Honors									

Brachytherapy CSRT, OCC

Activity/Initiative		Number of activities/initiatives							
		2008	2009	2010	2011	2012	2013	2014	2015
Presentations	Peer reviewed podium								
	Peer reviewed poster	1	1	6	10	7	6	1	
	Invited/external podium		2	2		2	3	1	
	Intra-departmental								
	Interdepartmental								
	Workshops								
Peer-reviewed publications	Manuscripts			3	4	1	4	11	
	Abstracts								
	Guidelines								
Book	Chapter							1	
	Editor								
Awards/Honors			1	2	1	3	2	1	

Brachytherapy CSRT, PM

Activity/Initiative		Number of activities/initiatives							
		2008	2009	2010	2011	2012	2013	2014	2015
Presentations	Peer reviewed podium	1	1		1	2			
	Peer reviewed poster								
	Invited/external podium	1		2	2	2		1	
	Intra-departmental								
	Interdepartmental								
	Workshops		1						
Peer-reviewed publications	Manuscripts			2	1			1	
	Abstracts	6	2		1			1	
	Guidelines								
Book	Chapter								
	Editor								
Awards/Honors									

Supportive Care and Sexual Health CSRT, Odette

Activity/Initiative		Number of activities/initiatives	
		2014	2015
Presentations	Peer reviewed podium	1	
	Peer reviewed poster	1	
	Invited/external podium		
	Intra-departmental	1	
	Interdepartmental	2	
	Workshops	1	
Peer-reviewed publications	Manuscripts	1	1
	Abstracts		
	Guidelines		
Book	Chapter		
	Editor		
Awards/Honors		1	1

SBRT Lung CSRT, Southlake

Activity/Initiative		Number of activities/initiatives	
		2014	2015
Presentations	Peer reviewed podium	1	
	Peer reviewed poster	2	
	Invited/external podium		1
	Intra-departmental	1	2
	Interdepartmental		1
	Workshops		
Peer-reviewed publications	Manuscripts	1	
	Abstracts	1	
	Guidelines		
Book	Chapter		
	Editor		
Awards/Honors			

SBRT and SRS CSRT, CFPRCC

Activity/Initiative		Number of activities/initiatives	
		2014	2015
Presentations	Peer reviewed podium		
	Peer reviewed poster		1
	Invited/external podium		
	Intra-departmental	1	
	Interdepartmental		
	Workshops		
Peer-reviewed publications	Manuscripts		1
	Abstracts		
	Guidelines		
Book	Chapter		
	Editor		
Awards/Honors			

Palliative CSRT, TOHRCC

Activity/Initiative		Number of activities/initiatives	
		2014	2015
Presentations	Peer reviewed podium		
	Peer reviewed poster		5
	Invited/external podium		
	Intra-departmental		
	Interdepartmental		
	Workshops		
Peer-reviewed publications	Manuscripts		
	Abstracts		6
	Guidelines		
Book	Chapter		1
	Editor		
Awards/Honors			

Palliative CSRT, SMRCC

Activity/Initiative		Number of activities/initiatives	
		2014	2015
Presentations	Peer reviewed podium		
	Peer reviewed poster		5
	Invited/external podium		
	Intra-departmental		
	Interdepartmental		
	Workshops		
Peer-reviewed publications	Manuscripts		
	Abstracts		6
	Guidelines	2	
Book	Chapter		1
	Editor		
Awards/Honors			

Palliative CSRT, DRCC

Activity/Initiative		Number of activities/initiatives	
		2014	2015
Presentations	Peer reviewed podium	1	1
	Peer reviewed poster	1	
	Invited/external podium		
	Intra-departmental		
	Interdepartmental		
	Workshops		
Peer-reviewed publications	Manuscripts		1
	Abstracts	1	
	Guidelines		
Book	Chapter		1
	Editor		
Awards/Honors			

IGART Chest/Upper Abdomen CSRT, PMH

Activity/Initiative		Number of activities/initiatives	
		2014	2015
Presentations	Peer reviewed podium		
	Peer reviewed poster	1	
	Invited/external podium		
	Intra-departmental		
	Interdepartmental		
	Workshops		
Peer-reviewed publications	Manuscripts	1	
	Abstracts	1	
	Guidelines		
Book	Chapter		
	Editor		
Awards/Honors			

Appendix K: CSRT CoP Terms of Reference

COMMUNITY OF PRACTICE – Clinical Specialist Radiation Therapist

Terms of Reference

1.0 Background

In Ontario, Advanced Practice Radiation Therapists were introduced in 2006, and the Clinical Specialist Radiation Therapists (CSRT) project continuation started pilot investigation of role feasibility in 2007. It started with 5 CSRT roles in 2 cancer institutions, and now has grown to 24 CSRTs in 9 cancer centres around the province. CSRTs are part of a novel model of care for the cancer patient population—it is important to foster inter-regional knowledge sharing and a culture of continuous quality improvement in the CSRTs involved in the treatment of cancer. As the roles evolve and grow, the CSRTs as a group, is experiencing a lot of common needs across the portfolios. Facilitating knowledge exchange and driving quality initiatives helps ensure that patients who interact with CSRTs in Ontario receive the highest quality of care. The development of a community of practice (CoP) of CSRTs involved in the cancer patients' pathway is a feasible and effective approach to ensure that Ontario's cancer centres deliver high-quality radiotherapy care to patients.

2.0 Purpose

To advocate a collective advanced practice radiation therapy (APRT) identity that will ensure role sustainability through contributing and improving the effectiveness and efficiency of patient care in radiation medicine.

3.0 Outcomes and Deliverables

3.1 APRT Role Definition – Promote and affirm identity and utilization in cancer care system

OBJECTIVES:

- Developing and protecting standards of an APRT role
- Evidence-based: Knowledge collection of evidence/data that supports the role; data management and dissemination (publishing) to relevant stakeholders

3.2 Encourage collaboration, knowledge generation/information sharing

OBJECTIVES:

- Provide opportunities/forum for sharing best practices re APRT roles in different institutions
- Provide opportunities for sharing and exchange of institutional experiences / processes / guidelines to enhance existing (APRT) practices

3.3 Promote mentorship and peer-to-peer support network for new and existing APRT roles

OBJECTIVES:

- Create/Provide tools relating to impact metrics, education, etc.
- Sharing of lessons learned (i.e. developing relationships, change management, overcoming barriers, etc.)

4.0 Membership

The CSRT Community of Practice consists of practicing CSRTs and those who are piloting CSRT roles on an investigative capacity in the Province of Ontario.

5.0 Meeting Schedule

5.1 Provincial:

- Participate in monthly teleconference or web-conference meetings with the provincial CSRT CoP, as scheduled.
- Review and provide feedback on relevant documents circulated electronically between meetings.
- Participate in provincial CSRT CoP in-person meetings (which will be at the same time as CSRT Update Meetings) held for a full-day twice a year.

5.2 Initiative/Working Group-specific:

- Participate in teleconference or web-conference meetings with initiative-specific working groups, as scheduled by the Group Leads.
- Review and provide feedback on relevant documents circulated electronically between meetings.
- The level of participation in meetings and activities required to drive initiative-specific quality agendas may vary depending on the unique needs of the working group.

Appendix L: CAMRT Certification Process

Certification Process: Draft Pilot Process

Date guides	Prior to beginning process	M-1	M 0	M 1	M2	M 3	M 4	M 5	M 6	M 7	M8
Est. dates		Apr 2015	May 2015	Jun 2015	Jul 2015	Aug 2015	Sep 2015	Oct 2015	Nov 2015	Dec 2015	Jan 2016
PHASE	INTEREST	PORTFOLIO				SUBMITTED CASES			COMPETENCY-BASED ORAL EXAM		
Candidate	Expression of interest	Pay initial fees	Submit portfolio			Pay fees Register for case submission	Submit cases		Pay fees Register for oral exam	Sit exam	
CAMRT	Make mentors available	Register candidate		Send portfolio feedback				Send case feedback			Send exam feedback
Assessors		Find assessors	Review portfolio Formulate feedback			Find assessors	Review cases Formulate feedback			Interview candidate Formulate feedback	

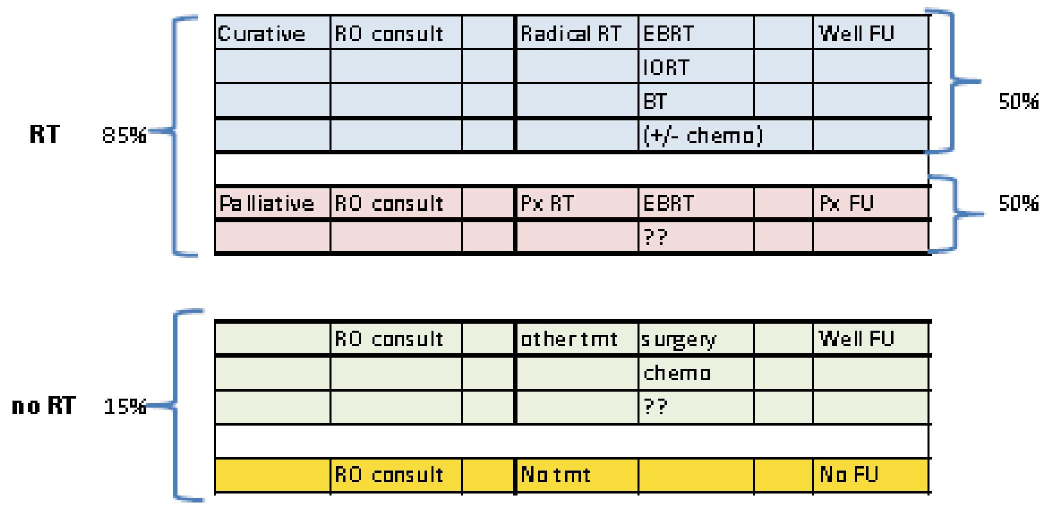
GUIDELINES

1. Candidate has a maximum of 2 years to complete the certification process
   - Tracking begins upon submission of the candidate portfolio

2. The maximum number of unsuccessful attempts is two, without restriction by stage
   - If a candidate is unsuccessful in passing a stage for a third time through the process, he/she must restart the process from the beginning after a cooling period of 3 years
   - It would probably be impossible to meet the maximum time limit with more than two unsuccessful attempts at any stage

Appendix M: Models of Care Development

CSRT	measurement	referral		consult		decision to treat		staging imaging		sim		contour		plan		QA		1st set up		daily tmt		review		discharge		FU	Comments
	RO time																										
	other HCP																										
	CSRT time																										
	RO time																										
	other HCP																										
	CSRT time																										
	RO time																										
	other HCP																										
	CSRT time																										
	RO time																										
	other HCP																										
	CSRT time																										



Appendix N: Labour Market Survey

Staffing Survey
Medical Radiation Technologists (Therapy) MRT(T)
Health Human Resources and Cancer Care Ontario

Survey – 20XX

Please complete this survey based on your cancer centre's expected situation on <<Insert Date>>.

Cancer Centre: _____

Site: _____

Completed by:

Name: _____

Position: _____

Phone: _____

Email: _____

A. Staffing

1. How many radiation therapist positions will you have in your program on <<Insert Date>>? *(Please enter the number of therapists and the number of FTE positions.)*

NOTE: For the purpose of this survey, please include all positions that are filled by a radiation therapist including educators, clinical analysts and researchers, supervisors, practice leaders and managers. Please include positions filled by MRT(T)s outside of your radiation treatment or related functional budget (e.g., information systems and information technology, research, educators) at the bottom of the table.

***Funded**=Approved and in the program budget.*

***Unfunded =** Funded from another source (e.g., research budget or money from another program).*

***Permanent**=Status with employer is permanent with an indeterminate duration (no specified end date) of employment and guaranteed or fixed hours of work per week. If a permanent position is currently filled by a temporary contract, please show both incumbents (e.g., "Permanent Funded – filled but on leave" AND "Contract –Funded – filled").*

***Temporary (or contract)**=Status with employer is temporary with fixed duration of employment, based on a defined start and end date, and guaranteed or fixed hours of work per week.*

***Casual**=Status with employer is on an as-needed basis, with employment that is not characterized by a guaranteed or fixed number of hours per week.*

		# of MRT(T)s as of <<Insert Date>>	
		# of staff	**FTE**
Permanent full-time (>= 35 hours/week) including MRT(T)s on leave and excluding CSRTs	Funded – filled		n/a
	Funded – filled but on leave		n/a
	Funded – vacant (currently recruiting but not filled, or vacant for other reasons - e.g., hiring freeze)		n/a
	Unfunded – filled		n/a
Permanent part-time (< 35 hours/week) including MRT(T)s on leave	Funded – filled		
	Funded – vacant		
	Funded – filled but on leave		
	Unfunded – filled		
Contract *	Funded – filled		
	Funded – vacant		
	Unfunded – filled		
Casual **	Funded – filled		n/a
	Funded – vacant		n/a
	Unfunded – filled		n/a
Positions outside of the radiation treatment budget	Funded – filled		
CSRTs	Funded – filled		

* For example, to cover temporary leaves such maternity leaves.

** Please enter the number of therapists in your pool of casual employees, not the number of FTEs.

Comments:

2. What is the average length of a contract? For this calculation, please consider a contract extension as a new contract.

_____ months

3. a) Does your centre have designated bilingual MRT(T) positions (English/French)?

Yes		
No		Skip to Question 4

3 b) Please provide the following information for <<Insert Date>>:

I. How many MRT(T) positions are designated bilingual (English/French)? _____

II. How many of these positions are vacant? _____

III. How many of these positions are filled by a non-bilingual MRT(T)? _____

Comments:

4. How many of your total positions are filled by bilingual (English/French) MRT(T)s?

_____ positions

5. How many radiation therapists do you plan to employ in your program in each of the next three years? *(Please enter the number of staff and the number of FTEs. Please include funded positions only.)*

	<<date1>>*		<<date2>>		<<date3>>		<<date4>>	
MRT(T)s (excluding CSRTs)	# of Staff	# of FTEs	# of Staff	# of FTEs	# of Staff	# of FTEs	# of Staff	# of FTEs
Full-time								
Part-time								
Casual		n/a		n/a		n/a		n/a
CSRTs								

** Should match the number of funded positions provided for question 1.*

Note: If you are uncomfortable projecting future employment plans, please feel free to simply show no change in the number of positions to the end of the forecast period.
Comments:

5 b) Please identify and rank what you believe are the primary factors that are influencing your planned staffing levels as described in your response to Question 5 a). *Please place "1" beside the factor that is the most influential, "2" beside the number that is the second most influential, etc. Mark as many as apply up to 10.)*

Factor	Rank (1 = most influential)
a) Change in number of treatment units	
b) Change in number of hours machines are utilized	
c) Change in number of FTEs per machine	
d) Change in staffing model	
e) Change in fractionation patterns	
f) Change in patient volume/referrals	
g) Change in budget	
h) Hiring freeze	
i) Availability of radiation oncology capacity	
j) Introduction of the CSRT role	
k) Other (Please specify):	
l) Other (Please specify):	

Comments:

6. Please complete the following table regarding the estimated number of years of experience that radiation therapists in your program have achieved. *(Please enter the number of staff that fall into each category. Please include years of experience in Canada plus in any country that has reciprocity with Canada for therapists.)*

Estimated years of experience as a MRT(T)	# of MRT(T)s on <<Insert Date>>:
< 1 year	
1 to < 5 years	
5 to < 10 years	
10 to < 15 years	
15 to <25 years	
25 years +	

B. Vacancies

7. For vacancies you filled in 20XX/XX, please indicate the average number of weeks from the time you first posted the ad until the new therapist's first day of work. *Please enter N/A (not applicable) if you have not recruited to fill any vacancies for a particular type of position (e.g., part-time permanent).*

	# of weeks from posting the ad until new therapist's first day of work			
	Perm FT	Perm PT	Contract	Casual
A new graduate				
A relatively inexperienced radiation therapist (i.e., less than 5 years' experience)				
An experienced radiation therapist (i.e., 5 years' experience or more)				

8. For the last vacancy you filled in 20XX/XX, please indicate the approximate number of applications you received for each position:

	Perm FT	Perm PT	Contract	Casual
Number of applications received				

9. Do you have difficulty recruiting for vacant radiation therapist positions? *Please check one answer.*

No recruitment in 20XX/XX	
No difficulty at all	
Some difficulty recruiting	
Much difficulty recruiting	

If you answered "No recruitment in 201XX/XX" or "No difficulty at all", please skip to Question 11.

10. Please identify and rank what you believe are the contributing factors to your difficulties in recruiting for vacant radiation therapist positions. *(Please place "1" beside the factor that is the most influential, "2" beside the number that is the second most influential, etc. Mark as many as apply up to 10.)*

Factor	Rank (1 = most influential)
a) Shortage of new graduates (i.e., < 1 year of experience)	
b) Shortage of junior candidates (i.e., 1 to 5 years' experience)	
c) Shortage of experienced candidates (i.e., >5 years' experience) d) Shortage of specific skill set (e.g., planning experience)	
e) MRT(T)s are reluctant to give up permanent work for temporary work	
f) MRT(T)s are reluctant to leave a centre because they will lose benefits (e.g., lower salary, less vacation)	
g) MRT(T)s are not attracted to this city	
h) MRT(T)s are more attracted to cities where new centres are located	
i) MRT(T)s are not attracted to this centre	
j) Our centre does not have new technology to attract MRT(T)s	
k) MRT(T)s are not available when vacancies arise (e.g., the vacancy arises after most new graduates have already found positions)	
l) Other (Please specify):	
m) Other (Please specify):	

Comments:

11. Does your centre currently have a hiring freeze?

Yes		
No		Skip to question 12.

11 b) When did your hiring freeze come into effect? _____

11 c) How many funded MRT(T) positions have you been unable to fill due to this hiring freeze?

_____

12. a) In 20XX/XX, how many MRT(T)s left your program*?*

	Permanent Full-time	Permanent Part-time
Maternity or parental leave		
Other temporary leave of up to 6 to 12 months		
Leave of absence of 1 year or longer		
Retirement		
Other permanent departure		

12 b) Do you have difficulty retaining MRT(T)s? *Please check one answer.*

No difficulty at all	
Some difficulty retaining	
Much difficulty retaining	

If you answered "No difficulty at all", please skip to Question 13.

12 c) Please identify and rank what you believe are the contributing factors to your difficulties retaining MRT(T)s. *(Please place "1" beside the factor that is the most influential, "2" beside the number that is the second most influential, etc. Mark as many as apply, up to 8.)*

Factor	Rank (1 = most influential)
a) MRT(T)s left a temporary contract for a permanent position	
b) MRT(T)s preferred to work in another city	
c) MRT(T)s preferred to work in another centre	
d) MRT(T)s preferred to work in a centre with newer technology e) Competition from other centres with better salary and benefits	
f) MRT(T)s retired	
g) Other (Please specify):	
h) Other (Please specify):	

Comments:

C. Clinical Placements

13. Please indicate the number of radiation therapy students you accepted in 20XX and 20XX and the number you plan to accept for clinical placements until 2016:

	# of MRT(T) students				
	20XX Actual	20XX Actual	20XX Projected	20XX Projected	20XX Projected
University of Toronto					
Laurentian					
McMaster					

If your number of clinical placements is increasing or decreasing, please explain why:

Thank you for taking the time to complete this survey.

Please fax or email the survey to:

Michelle Ang
Policy Analyst, Radiation Treatment Program
Cancer Care Ontario

Tel: (416) 971-9800 x 2218
Fax: 416-217-1823
Email: Michelle.Ang@cancercare.on.ca