

# ▲ A Roadmap for Change: Charting the Course of the Development of a New, Advanced Role for Radiation Therapists

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A new model of care has been piloted in Ontario that expands the role of radiation therapists to improve access and treatment quality for patients requiring radiation therapy. The advanced practice Clinical Specialist Radiation Therapist (CSRT) role was created to redistribute activities amongst healthcare team members, allowing each to work to the full scope of practice, thereby better streamlining services, addressing systematic pressures in the existing model of care, and increasing patients' access to treatment. This paper provides an overview of the approaches used to develop and implement an advanced practice (AP) role, and it offers guidance on the use of an evidence-based approach to the evaluation of such positions. This article also utilizes the experience and knowledge developed during the CSRT projects to provide a framework for organizations embarking on similar AP implementation initiatives. *J Allied Health* 2014; 43(2):110–116.

RADIATION THERAPY, a cancer treatment modality, is typically delivered by an interprofessional team consisting of medical physicists, radiation oncologist, and radiation therapists. The team works together to provide optimal radiation treatment.

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In 2002, radiation therapy programs across Ontario, Canada, were experiencing unique local service pressures causing delays in access to care for Ontario's patients. These pressures were related to demographic challenges, treatment delays, service expansion, human-resource issues in cancer-related disciplines, rapid adoption of innovation, and a desire for quality improvement. At the same time, a growing body of literature supporting a move toward more interprofessional and collaborative care<sup>1–3</sup> began to emerge and encouraged the radiation therapy community to examine ways to improve the provision of its services. In the face of these challenges, and given the limited success of prior strategies in addressing these issues, government agencies began exploring non-traditional solutions. Hence, the provincial health ministry funded a series of pilot projects to investigate a new healthcare provider role, the *Clinical Specialist Radiation Therapist (CSRT)*.<sup>4,5</sup> The CSRT is defined as a registered medical radiation technologist specializing in radiation therapy, who brings her or his advanced clinical, technical, and professional competencies to the existing interprofessional healthcare team.

Interest in establishing new healthcare practitioner roles in Ontario, and expanding those already in existence, continued to grow and was encouraged by government agencies. For instance, Cancer Care Ontario (CCO), an agency that oversees cancer services in Ontario, outlined commitments regarding innovative human resource projects and implementation of advanced practice (AP) roles for health professionals, including radiation therapists, in the 2005–2008 *Ontario Cancer Plan*.<sup>6</sup> Similarly, Canada's national public health department, Health Canada, and Ontario's provincial health department, the Ontario Ministry of Health and Long Term Care, launched initiatives in 2006 encouraging the use of advanced practitioners to improve access to services.<sup>7,8</sup> Building on this momentum and the success of the early CSRT projects, funding was allocated for the development and evaluation of this innovative role.

This article provides an overview of the development of the CSRT role across Ontario's cancer centres,

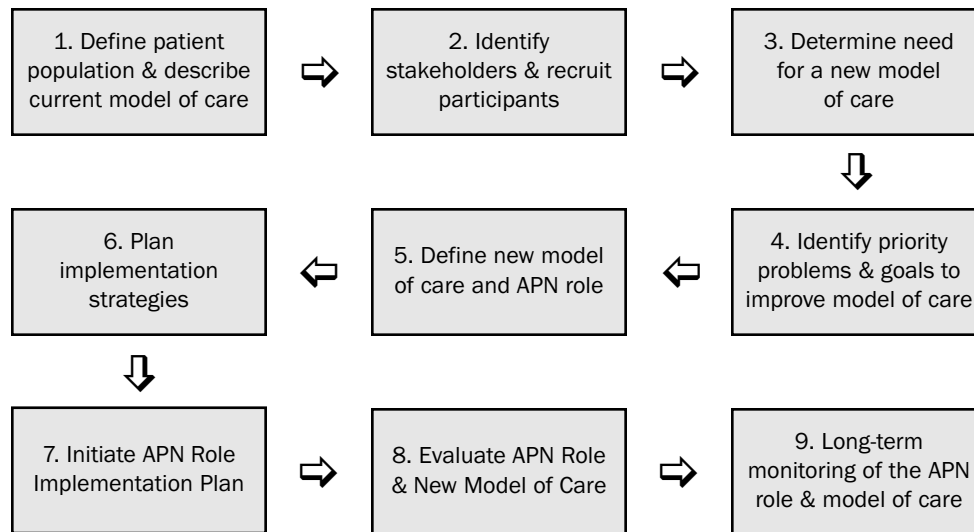


FIGURE 1. PEPPA Framework. Adapted from Bryant-Lukosius,<sup>12</sup> used with permission.

offering an evidence-based framework for organizations or professions embarking on similar AP implementation initiatives. (Note: This project was originally called the Advanced Practice for Radiation Therapy [APRT] Project—the project and role name were changed to CSRT in 2006).

## Methods

The CSRT projects used a mixed methods approach in all phases of data collection, employing both quantitative and qualitative tools and metrics. Ethics board approvals were obtained from various hospital and university research advisory boards when patient data were collected and when dissemination of information was anticipated. Primary data were collected and compiled by CSRTs and third parties. Research assistants conducted stakeholder and key informant interviews. Secondary sources, including relevant literature, were also used (e.g., in developing the definition of AP and assessing the appropriate level of education). Anecdotal case studies from clinics or individual patient experience were used in order to ensure the practicality of the positions and their benefits and to identify best practices or gaps in practice.

One of the key strategies employed by the project to pilot test its positions and activities was the Model for Improvement, endorsed by the Institute for Healthcare Improvement, which is an independent not-for-profit organization in the United States. The Model for Improvement is gaining in popularity and, while not fully validated, is based in large part on the widely accepted “Plan-Do-Study-Act (PDSA) Cycle” used in many industries.<sup>9–11</sup> The Model combines the PDSA cycle with three key questions that drive system or

process innovation or improvement. Findings were studied and acted upon, with the cycle continuing until the change or innovation met (or failed to meet) set objectives. This process was used throughout the project and across departments to study changes in practice or process.

The project also leveraged its experience working with CCO to implement the PEPPA framework (Participatory, Evidence-informed, Patient-centred Process for Advanced practice nursing role).<sup>12</sup> The PEPPA framework (Fig. 1) is a conceptual framework that supports systematic planning and implementation of a service delivery improvement process, such as the role of AP clinicians. Although the framework was initially developed to implement advanced nursing positions, it has also been successfully used for other roles (e.g., AP physiotherapists).<sup>13</sup>

Where possible, data were aggregated to identify project-wide trends and findings. However, due to the uniqueness of each position, data were reported individually or under broad categories of findings. These categories were then classified as pertaining to quantity, quality, or innovation. The discrete categories of data collection included: wait times, access to care, delegation of activities, concordance, competence, service enhancement, stakeholder perceptions, patient satisfaction, team acceptance and satisfaction, patient safety, research and innovation, education and training (detailed results of these findings will be published elsewhere), and other forms of knowledge translation. Evaluation was concerned primarily with assessing the impact and effectiveness of the CSRT positions, with an eye to constant evolution and maximization of the overall role’s utility and that of each specific position.

TABLE 1. Phase Overview of the CSRT Project

**Project I: Developmental Phase**

**2003 Identifying the need for advanced practice**

- Assembled a steering committee
- Scanned other jurisdictions with advanced practice roles
- Surveyed radiation department managers
- Held a symposium and workshops
- Met with professionals involved in advanced practice initiatives in international jurisdictions

**2004 Project planning preparation**

- Established a Project Oversight Committee, Selection Advisory Committee, and Portfolio Review Committee
- Developed frameworks, templates, requests for proposals, selection criteria, toolkit and a Prior Learning, Assessment and Recognition (PLAR) process

**2004–2006 Implementation**

- Piloted seven advanced practice positions in four cancer centres
- Explored the value and feasibility of the CSRT
- Garnered support for the role from patients and other staff
- Demonstrated that CSRTs can safely and effectively provide advanced services
- Demonstrated flexibility of the CSRT role

**Project II: Demonstration Phases—Phases I, IE, IE2, II**

**2007–2010 Pilot testing**

- Piloted a total of 10 CSRT positions in five cancer centres
- Demonstrated decrease in wait times, by increasing patient throughput and facilitating team member efficiency
- Improved quality and effectiveness of existing systems/processes by streamlining activities, eliminating redundancies, developing innovative approaches to program activities and adding new services
- Demonstrated that integration was achieved when positions addressed specific local needs
- Developed specific and measurable outcomes

**Project III: Sustainability Phase**

**2010–2013 Integration and Formalization**

- Continuation of the remaining 7 (out of the 10 original) positions in three cancer centres
- Addition of 10 new CSRT positions in seven cancer centres

## Results

### PROJECT I—DEVELOPMENTAL PHASE

#### *Identifying the Need for Advanced Practice*

In 2003, in response to the challenges in the radiation therapy environment, the Ontario Radiation Therapy Advanced Practice (ORTAP) Steering Committee, a grass-roots group of radiation therapy professionals, was formalized under CCO. The Committee examined AP roles introduced in other radiation therapy jurisdictions, particularly in the United Kingdom,<sup>14</sup> surveyed Ontario-based radiation therapy department managers about the viability and value of such a role, and held a symposium to explore the concept further.<sup>15</sup> Consultations with professionals, employers, and other stakeholders confirmed the value and interest in piloting AP roles.

#### *Project Planning*

CCO established a project oversight committee to provide leadership and develop organizational, financial,

and reporting frameworks. Key roles included a project leader, selection advisory committee, and portfolio review committee, allowing for broader stakeholder involvement. The Project Oversight Committee set the required protocol to meet project objectives. Table 1 offers an overview of the CSRT project.

#### *Preparation Phase*

A key project goal was to create a role that was relevant, timely and that added value to the existing system. In the fall of 2004, the project oversight committee issued a request for proposals to Ontario cancer centres. Templates, criteria, and processes were distributed and a toolkit was designed to assist interested departments in determining the appropriateness of a CSRT position for their program. The selection advisory committee completed a rigorous selection process, involving review of proposals against established selection criteria and included significant input from external experts in associated fields. Following receipt of recommendations from the selection advisory committee, the project oversight committee selected eligible

participants for the first phase of the CSRT project. Four centres were awarded funding for a total of seven investigative positions.

In the absence of a formal educational or certification process for the AP role in radiation therapy, a “prior learning assessment and recognition” (PLAR) process was developed. PLAR is a process that helps individuals demonstrate and obtain recognition for learnings that they acquire outside formal education settings.<sup>16–21</sup> The chosen process employed two key components: 1) a portfolio assessment, and 2) a practical skills and judgment assessment. The portfolio assessment was developed with the assistance of an expert consultant. The practical skills and judgment assessment was developed in collaboration with discipline-specific teams at host institutions and was conducted in conjunction with a human resources interview. The PLAR package consisted of portfolio templates, a portfolio development guide for candidates, and portfolio and practical skills assessment guidelines for use by the local assessment panel.

#### *Implementation Phase*

The developmental phase was launched in August 2004 with seven pilot positions in four centres. The goals were to identify gaps and bottlenecks in the system that may be addressed by a CSRT, evaluate the benefits of such positions, assess opportunities for and barriers to widespread implementation, articulate a competency profile and recommend content for the requisite educational curriculum. Communication and knowledge transfer were essential features of the developmental phase. An electronic communication network was developed through the creation of a website ([www.ontarioradiationtherapy.ca](http://www.ontarioradiationtherapy.ca)), enabling peer-support/learning and to permit the sharing of project related documents and information. The project leader conducted site visits, and participants met regularly at workshops and meetings. This networking provided opportunities to exchange ideas, clarify positions, and discuss emerging issues, challenges, and successes. An evaluation report<sup>22</sup> was prepared at the end of the developmental phase, which supported further investigation of the CSRT role.

The developmental phase showed that various activities could be transferred to appropriately educated and trained AP radiation therapists, which could lead to the realization of system efficiencies and improvements.<sup>22</sup> In addition, it was ascertained that interprofessional healthcare teams were supportive of the CSRT role and that a suitable scope of practice could be identified for further evaluation. Based on these promising results, in 2006, the CSRT was officially recognized as a new pilot role by the Ministry of Health and Long Term Care and additional funding was awarded to support a demonstration phase of the project (2007–2010).

## PROJECT II—DEMONSTRATION PHASES (PHASES I, IE, IE2, II)

### *Pilot-Testing*

The demonstration phases of the project built on commitments set out in Ontario’s 2008–2011 Cancer Plan,<sup>23</sup> including a specific commitment “to develop innovative ways to deliver care through new roles for health professionals and enhance collaboration between disciplines.” In an effort to achieve these goals, CCO continued to work with provincial cancer system partners to introduce new roles and collaborative multidisciplinary teams.

While the specific deliverables evolved over time, the overarching purpose of the demonstration phases was to ascertain if a radiation therapist, trained and educated to an advanced level, could have a positive impact on the capacity and quality of care in a specific radiation therapy program or service. Objectives addressed in this phase included (but were not limited to):

- measurement of changes in wait times, access and satisfaction
- validation of the Draft Competency Profile and assessment of the CSRT’s “time-to-competence” (the amount of time the professional would have to spend in the position to develop the necessary competence)
- assessment of the CSRT competency
- identification of potential impacts on patient safety and quality of care
- assessment of team acceptance of the CSRT role
- evaluation of actual and/or potential impact of the CSRT role on job satisfaction, recruitment and retention
- further understanding of education and training requirements for CSRTs

Initially, five new CSRT positions were implemented at two centres using the newly drafted competency profile. In the second stage, five additional pilot positions were funded at three additional sites. Each position focused on an area of specialization designed to meet local departmental needs or pressures. The PLAR process was utilized to select candidates for each position. Consistent with Ontario’s broader health human resources strategy,<sup>8</sup> the goal was to establish that CSRTs could be of value in large and small centres. This would be accomplished by improving access and quality of service, including services for traditionally “harder to reach” populations. The project continued to build upon the existing data set, address gaps, and determine whether the draft competency profile was transferable across, and customizable to, varying departmental cultures and patient populations.

Data analysis from the Demonstration Phases<sup>24</sup> provided eight key findings:

- CSRTs can be educated and trained to competently and safely undertake AP, involving specific activities traditionally performed by radiation oncologists, through delegation or the creation of medical directives.

- CSRTs can increase system efficiency and capacity by improving wait times, increasing patient throughput and facilitating time efficiencies for team members.
- CSRTs can improve the quality and effectiveness of existing systems and processes by streamlining activities, eliminating redundancies, developing innovative approaches to implementing program activities, and adding new services.
- Patients were highly satisfied with the care they received from CSRTs. Satisfaction with care was rated as either equal to or higher than care received from other team members.
- CSRTs have become valued members of the teams in which they work and have facilitated improved workflows and enhanced team functioning and cohesiveness.
- The CSRT competency profile allows for the development of diverse positions that align with local needs, including improved effectiveness, efficiency, innovation, and accelerated knowledge translation.
- Maximum success for CSRT integration is achieved when positions are developed to address specific local needs and include specific and measurable outcomes.
- System-wide implementation of AP radiation therapy will be most successful through the establishment of graduate-level educational requirements and formalized certification/registration processes.

At the completion of the demonstration phase, it was clear that an AP role in radiation therapy was a timely and valuable addition to the existing model of care. These findings formed the basis for a recommendation to proceed to the final stage of the project, the sustainability phase.

### PROJECT III—SUSTAINABILITY PHASE

#### *Integration and Formalization*

The CSRT sustainability phase identified the remaining activities necessary to ensure the permanent integration of the existing CSRT positions and consistent development and deployment of the role across Ontario. Key elements included:

- developing the “Integration Support Team”
- further substantiating the role through on-going data collection and dissemination
- working with relevant organizations to create an assessment process for certification
- understanding the level of acceptance of the new position within the interprofessional healthcare team and working to garner additional support where necessary
- looking at radiation medicine modelling that would capture and quantify the contributions of the CSRT, within an existing team, to maximize system efficiencies
- conducting knowledge creation and dissemination activities.

Increased efforts were necessary to formalize the role within the cancer system, through alignment with a variety of strategic initiatives. This involved enhanced efforts to showcase the positive impact of the new role

and encourage cancer centres to assess the value of advanced radiotherapy practitioners as a viable method of improving the effectiveness and efficiency of cancer care. Efforts have been made to identify CSRT positions’ key indicators of success and to ensure alignment with established standards, as additional positions are developed, funded, and studied.

In summary, the CSRT project series employed an evidence-based, graduated implementation process that tested the feasibility of a new practice model, defined a possible scope of practice, and measured the impact of the role in a systematic manner to assess its value and transferability from one setting to another. Between 2006 and 2012, a total of 20 CSRT positions were implemented across eight cancer centres in Ontario, 17 of which remain in place (Table 2). The increased competence and confidence of the CSRTs has resulted in evolution of the existing positions in order to maximize new knowledge and skills. Team acceptance of the CSRT role is high, as is the recognition of the overall value of the CSRT to the clinical and healthcare system goals. CSRTs continue to contribute to the educational and research activities of the team and are developing their academic competence.

## Discussion

Healthcare systems currently face many challenges, including increasing costs,<sup>25</sup> aging populations,<sup>26</sup> the introduction of expensive new treatments, and growing complexity of care.<sup>27</sup> Hence, the demand for innovative practitioners and flexible healthcare teams has never been stronger. As called for by the Institute of Medicine at the turn of the century, the healthcare system needs to re-evaluate its way of doing business, to maximize scopes of practice and ensure the delivery of high quality care.<sup>1</sup> The CSRT project provided an opportunity to address these issues by thinking creatively about traditional and new ways of working within an interprofessional environment. After 8 years of assessing the viability and impact of the CSRT role in Ontario’s radiation therapy program, the collected data support full endorsement along with a formal recognition and system-wide implementation of this important AP role.

Models of care reforms increasingly emphasize the value of collaboration among members of the healthcare team and the elimination or reduction of demarcations and hierarchical relations in order to meet the complex needs of patients and the system. The nursing profession has led the development of AP roles,<sup>28,29</sup> but other allied health professions are now following suit. Robarts et al.<sup>30</sup> recently published a framework detailing the development and implementation of a physiotherapy AP role in Canada, and Ruston<sup>31</sup> discussed the potential impact of related roles in rural Australia.

TABLE 2. CSRT Positions Implemented Across Ontario

Centre	Specialty/Position	Implementation Date
Cancer Centre of Southeastern Ontario	Palliative	2008–2009
Juravinski Cancer Centre	Palliative	2012
	Head and neck cancer	2008
	Palliative bone metastases	2008
	Breast cancer	2012
London Regional Cancer Program	Thoracic high-dose radiation (HDR), brachytherapy	2012
	Radiation therapy planning image, definition and contouring, head and neck cancer	2012
Odette Cancer Centre	Palliative	2007
	Skin cancer	2007
	Brachytherapy	2012
	Stereotactic body radiation therapy	2012
The Ottawa Hospital	Palliative	2008–2010
	Tomotherapy/adaptive, head and neck	2008–2009
Peel Regional Cancer Centre	Palliative	2012
Princess Margaret Cancer Centre	Palliative	2007
	Patient assessment and symptom management, breast cancer	2007
	Target visualization and delineation, head and neck cancer	2007
	Brachytherapy	2012
	Image-guided adaptive radiation therapy	2012
Southlake Regional Cancer Centre	Palliative	2012

Other allied health professions have also embarked upon similar role expansion initiatives, including radiographers,<sup>32</sup> dental hygienists,<sup>33</sup> and dietitians.<sup>34</sup>

While this paper is the first to report on an implementation overview of an AP role in radiation therapy, the desire for this type of role expansion and team collaboration has become increasingly evident in the literature. Pötter et al.<sup>35</sup> emphasized the interprofessional approach to cancer care, research, and education, stating that radiation therapists are becoming increasingly recognized as experts in their continuously growing domains. They further added that radiation therapists “have become essential partners in the comprehensive multidisciplinary process of radiation oncology, in particular in treatment preparation and planning, treatment delivery, and patient care.” Shi et al.<sup>36</sup> examined radiation therapist-led treatment reviews, concluding that radiation therapists were capable of both carrying out many of the roles in standard treatment review and of offering patients information on side effects, general cancer care, as well as advice on treatment technique and nutrition. They concluded that this expanded role may result in increased job satisfaction, improved rapport with patients, career advancement, reduced workload for radiation oncologists, and improved patient care. These findings are consistent with those of the CSRT project.

Common challenges in the implementation of AP roles, identified both in the CSRT project and the literature,<sup>28–30</sup> include role definition, role confusion, professional scope of practice, and territorialism. Lessons from the CSRT project suggest that:

- There is a constant need for on-going communication (during the pilot phases and beyond) as positions evolve. Even when it seems that communication is sufficient, it typically should continue. This communication takes many forms including electronic, manuscripts, conference presentations/workshops, etc.
- It is difficult to standardize data collection when implementing pilot positions in various settings. A compilation of standardized metrics was developed, which was very helpful, but each implementation project must ascertain satisfactory ways of capturing unique contributions (i.e., toolkits, standardized metrics) relevant to specific cultures and contexts.
- How decisions will be made during role development needs to be clearly articulated and will depend on project scope, team responsibilities, host departments, supervisors/mentors, and those piloting the positions.

The keys to success must include enhanced continuous communication, a comprehensive feasibility study (completed before the implementation of pilot positions), an evidence-based approach (not traditionally used prior to the CSRT project), and a formal administrative structure that includes the creation of selection and portfolio review committees using clearly articulated criteria. The implementation of a new role must include a clear strategic and targeted vision, a clear process to follow when challenges are encountered, clear indications of how success will be measured, and regular status reports. Finally, our experience has shown that to fully establish and sustain AP roles, they must be integrated into the operational fabric of the healthcare system and be considered a natural member of healthcare teams.

## Conclusion

The CSRT is a valued and high-performing member of the interprofessional team, contributing to the provision of high-quality, cost-effective radiation therapy while serving as a leader in the advancement of the overall science of the field. The 8-year CSRT project demonstrated that the individuals in these AP positions could provide much-needed relief to existing pressures in the system and create flexibility within the interprofessional team. These findings encourage the integration of CSRT positions across the healthcare system and encourage more research into the transferability of the AP concept to other healthcare environments and patient populations.

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