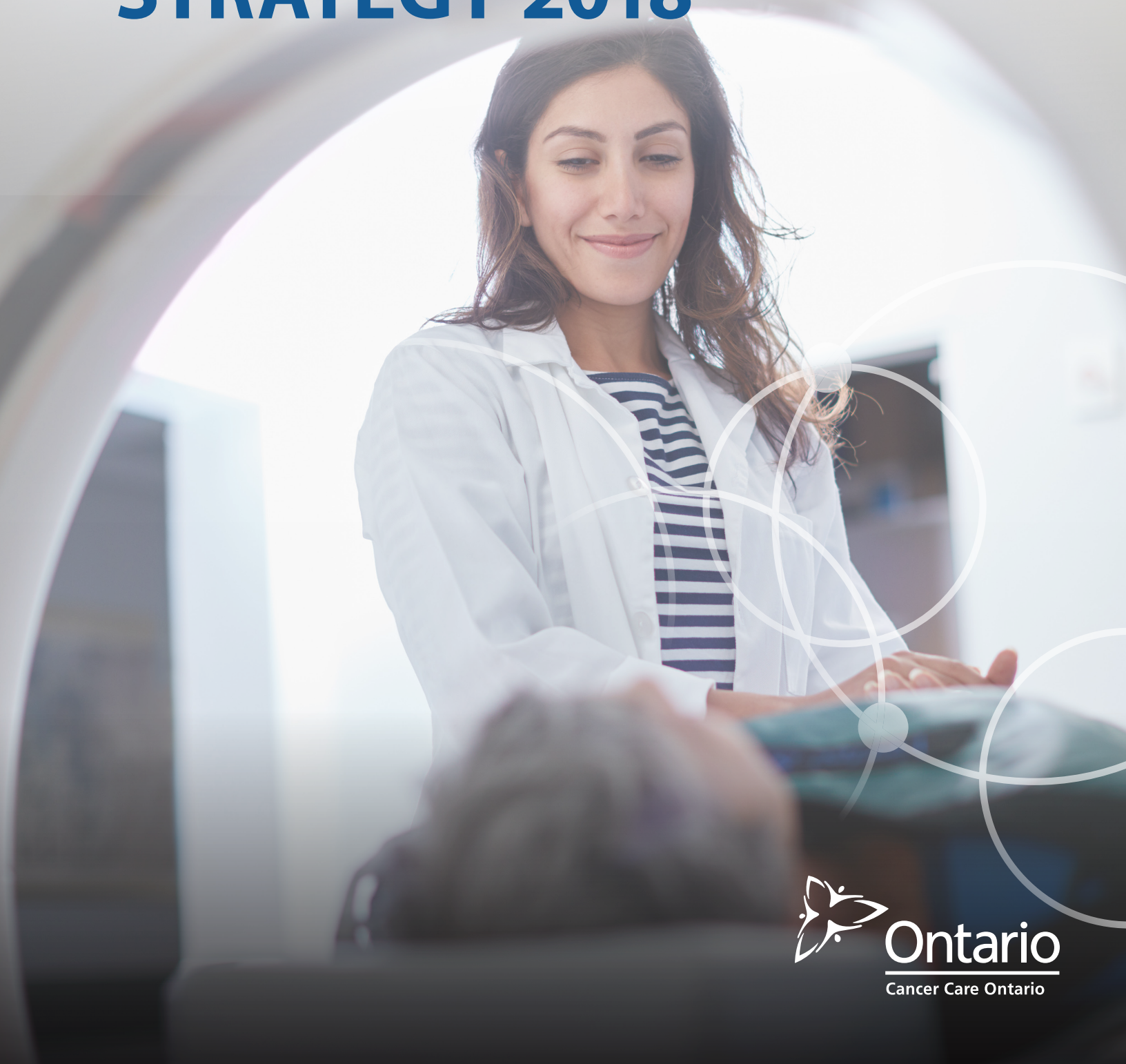




Cancer Care Ontario

RADIATION TREATMENT **CAPITAL INVESTMENT STRATEGY 2018**



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Foreword



Radiation Treatment Capital Investment Strategy 2018 is the fifth in a series of reports providing a picture of the radiation treatment investment needs to ensure high quality of care in Ontario over the next ten years. The work uses a data-driven approach, supported through local expert insight.

For the first time, Patient and Family Advisors helped guide the strategy's direction with a focus on defining the key planning principles.

This ensures a patient-centered investment strategy for radiation treatment. This year's report includes insights learned from the 2012 strategy, discusses capacity mitigation, and signals new radiation treatment technology on the horizon.

Radiation treatment investments in Ontario have come a long way since the late 1990s, with the number of high energy radiation treatment machines doubling in the past 20 years based on the guidance from these investment strategies.

Our goals with these strategies are to maximize the current infrastructure investments to ensure access to high quality services are equitable, and to ultimately improve care and outcomes for patients.

Garth Matheson

Vice-President, Planning & Regional Programs, CCO



Five and a half years ago, I didn't know what a linear accelerator was. Then I was diagnosed with a very aggressive, widely metastatic abdominal cancer. There was lymph node involvement and numerous tumors on a major artery in my abdomen.

Five days after diagnosis, I had emergency surgery, followed by chemotherapy and ultimately concurrent radio-chemotherapy.

For five weeks, five days a week, 30 minutes each day, I lay inside a linear accelerator. A custom made "pillow" and lasers used to align tiny blue tattoos on my torso allowed the radiation therapists to position me precisely every day. A radiation oncologist and his team targeted chemotherapy activated cells throughout my thoracic abdominal area. Every day, they recalculated and modified my treatment. If these terms seem foreign to you, think of how they sounded to me.

My therapy was harsh, I lost 30 pounds in 25 days, all while being treated in a machine I'd never heard of a year before. I am now a PFA to CCO, advising the Radiation Treatment Program on Capital Investments.

I'm alive today, in part due to the very machines I'm now advising on.

When I first received this report, I immediately looked at the region I live in and received treatment in. The region is currently running beyond its maximum capacity, resulting in patients having extended wait times and difficulties with access to care. More linear accelerators are required immediately, but facilities are not currently available for them and won't be for, at best, three to five years. I have advised that patients should be offered the choice of care in alternative locations, especially when local wait times are longer than the provincial target. Four and a half years ago, I received my radiation therapy in a timely manner, in my regional cancer centre, close to my home. That is no longer true for a patient requiring the same care, at the same centre, today and over the next ten years. Fundamentally, I feel that all patients throughout this province deserve the same excellent quality care that I received, but access to that care must not be limited by where they live.

Derek Finnerty

Patient, Patient Advisor on CCO's Patient & Family Committee (PFAC),
Patient Advisor to the Radiation Treatment Program



We, the patients, along with our families, are the face of cancer – we have experienced the drugs running through our bodies, the surgeries, the side effects and radiation.

In 2008, I was diagnosed with metastatic breast cancer – this was a recurrence from my original diagnosis in 1994. I had to have both breasts removed which alone was traumatic but to be told the cancer has spread to my lymph nodes – that was even scarier. With my first experience with this disease, I was given chemotherapy and I had a very difficult time with it. So when the cancer returned, my health care team decided that radiation was a better option for me. This began my pathway within the foreign world of radiation. The machines were very big and very scary. My radiation oncologist was very helpful and explained things to me very well, but I still wanted to learn more about this course of treatment and the incredible machines used for my treatment.

This past Fall I had the opportunity to join the Radiation Treatment Program, which for me has been a learning opportunity and for the Program, it's a patient voice at the table to bring lived experience insights to planning.

Participating in the development of the new Capital Investment Strategy, I have learned how CCO plans for the ever changing and increasing needs for radiation treatment in the province of Ontario.

As a patient who has experienced radiation treatment, I felt that clinicians need to communicate and partner more with patients and their caregivers by explaining more about what we can expect through our course of treatment and potential side effects we may experience. More discussion should also happen with a patient on the option to have their treatment at another cancer centre, especially if capacity is reached and the patient could potentially be looking at a lengthy wait time for their treatment to begin. More information helps reduce our anxiety and enables us to make decisions and manage our care.

So, if you think of this partnership for just one moment – those of us who are experiencing the cancer system along with those who have the knowledge, research and education to support the care - it can only get better and better. This is our hope, and this is our passion.

Joanne MacPhail

Patient, Patient Advisor on CCO's Patient and Family Advisory Committee,
Patient Advisor to the Radiation Therapy Group

Executive summary

Radiation treatment is an essential element of curative treatment for many types of localized cancers and is also effective in alleviating the symptoms of many patients with locally advanced or metastatic disease. To ensure future capital investments for radiation treatment are appropriately timed and strategically placed, Cancer Care Ontario (CCO) has – with its provincial partners – updated its *Radiation Treatment Capital Investment Strategy*.

This strategy recommends the placement of additional radiation treatment equipment and the development of new or expanded facilities and emerging technologies to keep pace with the growing need for radiation treatment by 2028. This ensures all who would benefit from radiation treatment have access to up-to-date, reliable and safe equipment available to them in their region. These recommendations guide funding requests in CCO's *Annual Business Plan* and other provincial capital funding requests by hospitals for radiation treatment services.

PLANNING PRINCIPLES

CCO engaged Patient and Family Advisors (PFAs) and regional stakeholders in developing key planning principles to guide the strategy:

1. **Improve timely access to care for cancer patients, ensuring treatment machine capacity matches the need by:**

- Quantitatively measuring unmet treatment need that incorporates increasing cancer incidence rates, new criteria for treatment, and population growth in a region
- Recommending sufficient capital capacity for timely treatment
- Continually measuring various wait times metrics

2. **Ensure value for investment of existing infrastructure by:**

- Extending facilities operating days for radiation treatment to 12 hours per day on all equipment in large facilities and 11 hours per day in facilities with fewer than six treatment machines
- Ensuring existing machines and treatment machine bunker spaces have been optimally utilized before new construction is recommended

3. **Keep pace with advancing technology to improve the delivery of safe, quality care by:**

- Ensuring the radiation replacement grant allocation adequately funds the replacement of current equipment to state of the art
- Ensuring the investment process accommodates innovation in emerging technologies (i.e., proton beam therapy, use of MRI in treatment planning, new adaptive treatment planning software)

4. **Minimize costs through centralized planning and procurement processes by:**

- Maximizing the use of treatment capacity in current radiation treatment facilities (including cross-LHIN movement of patients), recognizing that high quality care close to home is a fundamental objective
- Leveraging the centrally negotiated provincial vendor of record in conjunction with the request for pricing and pricing agreements to ensure value for money

In order to better facilitate a person-centered care approach to system planning, PFAs also emphasized the importance of patient choice about treatment location options to minimize potential barriers to accessing timely services.

Wait times since 2012

Between 2012/13 and 2016/17, radiation wait times have remained stable above the 85% CCO target despite a 14% increase in the number of new treated cases.

Radiation treatment utilization

Radiation treatment utilization is the proportion of cancer patients who receive at least one course of radiation treatment during their lifetime. In previous capital investment strategies, CCO's provincial target was 48%. Based on new available evidence, CCO has recommended changing the provincial lifetime target to 43%, a more conservative approach to achieving international guidelines. The latest estimate of lifetime utilization rate for Ontario in 2015/16 is 39%. The goal of this capital investment strategy is to ensure that by 2028, sufficient radiation treatment capacity is available in Ontario to achieve the CCO utilization target, thus ensuring that patients who would benefit from radiation treatment have access to treatment.

Radiation equipment replacement grant

CCO's radiation equipment replacement grant committee is a multi-disciplinary team responsible for review and prioritization of all requests for replacement grant funding based on criteria which consider:

- Ability to improve access to care
- Quality of technology/equipment
- Impact on provincial operating costs
- Impact of request in light of provincial priorities

Since 2012, the opening of new treatment facilities has increased the number of treatment machines providing care to Ontario patients from 100 machines to 107 machines in 2018. During this period, annual grant funding to replace aging radiation equipment has increased from \$29.5M to \$34.5M. Additionally, alternative approaches to radiation replacement grant funding has resulted in up to \$40.5M in cost savings between 2012/13 to 2016/17 and was reinvested to upgrade or replace aging equipment.

Organized replacement of aging and obsolete equipment is imperative in order for machines to remain reliable, modern and able to provide critical treatment capacity and high quality care. As the number of treatment machines increases and the cost of new machines rises, funding for the replacement program must keep pace with the replacement cycles to ensure safe, high-precision radiation treatment to all Ontario patients who require it. The current grant funds would be sufficient until 2020/21 under the following assumptions: no increase in new equipment needing replacement, no price increases, and no change in equipment lifecycle. CCO will continue to monitor replacement grant requests and will evaluate grant fund requirements in light of the upcoming provincial vendor of record refresh in 2020/21.

RECOMMENDATIONS

By 2028, CCO recommends that 26 new high energy treatment machines are required to meet the provincial need for radiation treatment.

If utilization does not increase to the benchmark of 43% by 2028 and remains at current levels, then 15 additional machines would be required instead of 26 additional machines.

Below are the recommendations to reach this goal:

- 1. Mitigate the immediate capacity challenges by:**
 - a. Supporting the development of regional partnerships between facilities to mitigate immediate capacity challenges (e.g., partnerships for Thunder Bay Regional Health Sciences Centre, Trillium Health Partners and Windsor Regional Hospital)
 - b. Planning for the construction of a new facility in Local Health Integration Network (LHIN) 5/6
- 2. As outlined in the 2012 strategy, continue actions towards 12-hour treatment days in large facilities and 11-hour treatment days for facilities operating fewer than six treatment machines by:**
 - a. Reviewing Trillium Health Partners' evaluation of their experience with extended treatment days to better understand the impact and considerations required to support extended treatment days in other cancer centres
- 3. Leverage CCO's Annual Business Plan to highlight the following funding priorities:**
 - a. Equip empty pre-constructed bunkers in regions requiring new machines (e.g., London Health Sciences Centre, Grand River Hospital, Southlake Regional Health Centre, Kingston General Hospital, The Ottawa Hospital, Lakeridge Health Corporation and Thunder Bay Regional Health Sciences Centre)
 - b. Plan for the construction of new bunkers or facilities in regions with no empty pre-constructed bunkers to add radiation treatment capacity
- 4. Continue to monitor the need for changes in radiation replacement grant allocation as technology evolves (e.g., proton therapy, adaptive treatment planning, MR simulators, and brachytherapy) and secure additional funding in the radiation treatment replacement grant, as required:**
 - a. Continue to leverage centralized planning and procurement processes to maximize use of the available replacement grant funds

The recommended investment timeline is available in the full strategy. Please contact Planning@cancercare.on.ca for details.