# FAQ for RT Data Harmonization Webinar

**September 2025**

*This document captures key questions arising from the June 2025 webinar on the pan-Canadian Radiotherapy Data Harmonization Project, which is archived in the Resource Centre on the Canadian Association of Provincial Cancer Agencies website at www.capca.ca.*

1. **What is the Cancer Data Strategy?**

   The Canadian Partnership Against Cancer (CPAC) and the Canadian Cancer Society (CCS) collaborated to develop the pan-Canadian cancer data strategy (CCDS) based on extensive engagements with leaders in the cancer community across Canada. The CCDS provides a framework and set of critical priorities and facilitators that are required to improve cancer data in Canada over the next five to 10 years.

2. **Who is currently working on radiation treatment data harmonization initiatives as part of the CCDS implementation?**

   Several pan-Canadian organizations are working to coordinate efforts, while several provincial agencies and programs have begun implementing parts of the strategy.

   **Coordination**

   - The Canadian Partnership Against Cancer (CPAC) and Canadian Cancer Society (CCS) collaborated on the development of the CCDS.
   - Three professional associations have partnered in the creation of the Canadian Artificial intelligence and Data in Radiotherapy Alliance (CADRA), which champions the standardization, linking, and harnessing of radiation data therapy in Canada by promoting the uptake of data standards, convening early adopters, and advocating and liaising with pan-Canadian and international organizations. The three organizations involved in this effort are:
     - the Canadian Organization of Medical Physicists (COMP)
     - the Canadian Association of Medical Radiation Technologists (CAMRT), and
     - the Canadian Association of Radiation Oncology (CARO)
   - The Canadian Partnership for Quality Radiotherapy (CPQR) is leading the pan-Canadian expansion planning of radiation treatment data harmonization by supporting knowledge sharing and engagement efforts with and across provincial and territorial partners. CPQR is a steering committee within the Canadian Association of Provincial Cancer Agencies (CAPCA).

### Implementation

- Nova Scotia and Ontario are serving as early adopters of radiation therapy standards of TG263 and the more generalized oncology data standard of operational ontology for oncology (O3). Their activities include:
    - Ontario is adopting the AAPM TG-263 guidelines and exploring the feasibility of O3 standards
    - Nova Scotia is piloting scripts and audit tools to analyse the patient data. This is an example of how automation is being leveraged to support compliance.
    - Both provinces together with CADRA and CPQR are prioritising knowledge translation through regular meetings and webinars that help maintain momentum and foster collaboration.
    - Ontario and Nova Scotia are compiling lessons learned to inform and support other jurisdictions considering similar efforts.
- British Columbia is adopting a standard way of recording radiation therapy data and setting up rules for how treatment data connects with diagnostic information in the registry.
- Saskatchewan is bringing together clinical treatment data into one system (a data warehouse). This will make the information easier to find, use, and analyze. It will also help to connect different types of treatment data, add new data sources over time, and create consistent standards so the data can be shared and understood more easily.
- Manitoba is automating the workflow process related to radiation data collection.
- Newfoundland and Labrador is integrating radiation therapy treatment data with their screening and registry data.

## 3. What are the benefits of radiation treatment data standardization?

Using consistent data standards helps to improve both the quality of radiotherapy plans and the overall quality of cancer systems across Canada, especially when patients need to be treated more than once. By standardizing practices, we can better study real-world information about patients, their diagnoses, and their treatments – including patient-reported experiences – with the goal of improving outcomes for people with cancer.

Other benefits include:

- Improving the quality of radiotherapy plans
- Enhancing workflow efficiencies
- Increasing emergency preparedness i.e. cyber-security
- Evaluating of patient diagnosis and treatment factors, which play a role in patient outcomes

4. **Where can I find more information regarding operational ontology for oncology (O3)?**

   The O3 standard was published in the November 1, 2023 edition of the International Journal of Radiation Oncology, Biology and Physics (Volume 117, Issue 3).

5. **Where can we learn about the results of the nomenclature adoption survey that CADRA completed?**

   A manuscript has been submitted and will be available at www.cadra-acadr.ca once published.

6. **How will this initiative incorporate artificial intelligence (AI)?**

   Harmonising big data in an easily accessible manner will be the foundation upon which AI can be effectively leveraged. This approach will enable and inform predictive analytics for patient populations, address existing deficiencies, and support a wide range of AI-driven applications in healthcare.

7. **What have been the biggest challenges in adopting these standards so far, and how are they being addressed?**

   Challenges include:
   - Gaining support from all groups involved in radiation treatment, including radiation oncologists, medical physicists and radiation therapists
   - Encouraging a culture shift so that teams are ready to adopt the standards within their own centres
   - Ensuring the changes are sustainable in the long-term.
   - Managing the complexities of adopting O3, since systems and documentation practices vary widely
   - Expanding collaboration beyond radiation treatment to include surgical oncology, systemic therapy, and allied health teams

   Potential solutions include:
   - Early adopter centres to test workflow changes and use auditing tools to show that standardization is feasible and sustainable, while assessing the resources needed to make it work
   - Partner organizations working together to share lessons learned from early adopters so that all jurisdictions can benefit from their experience.

8. **What are the best publications to see evidence of the effectiveness of these standards?**

   - TG-263 initial report: TG-263: Standardizing Nomenclatures in Radiation Oncology

- O3: About - O3 (Please note, this website requires a sign-in but is free to register and has a comprehensive list of the data elements/descriptions)
- In addition to the paper referenced in response to question 4, which provides a table of data elements prioritized for clinical implementation, the following article is an editorial that provides clinician-friendly context as to why the O3 data standards are needed, along with proposed next steps to support clinical implementation: Operational Ontology for Oncology: A Framework for Improved Communication and Understanding in Cancer Care - ClinicalKey