

Brief Opinion

A Canadian Response to the Coronavirus Disease 2019 (COVID-19) Pandemic: Is There a Silver Lining for Radiation Oncology Patients?



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Introduction

The coronavirus disease 2019 (COVID-19) pandemic has had an unprecedented effect on the global health care community. With 6 million cases and growing, we and our colleagues in other disciplines have fought to source crucial protective equipment, provide care despite service disruptions, and adopt substantial changes in practice to continue treating our patients safely.

We in the radiation medicine community face particularly challenging circumstances: our patients require radiation treatment to assure their survival but are also at elevated risk for serious COVID-19 morbidities owing to their immunocompromised status from both disease and treatment.¹ Despite this, our community has risen to the occasion, banding together to share insights on best practices and rapidly adjusting our workflows to maximize staff and patient safety in ways we have never mobilized before and using techniques and technology not previously fully taken advantage of.² In some regards,

COVID-19 may in fact be a stimulus for innovation in radiation oncology. In our own experience at the Canadian epicenter, COVID-19 has been a catalyst for change, accelerating the pace at which we can identify and adopt new tools to improve patient care far beyond what was possible prepandemic.

Expansion of Hypofractionation

Although proof of noninferiority to standard fractionation for multiple tumor sites has existed for some time already,^{3,4} widespread adoption of hypofractionated treatments did not exist before the pandemic. Even centers with robust hypofractionation experience have adopted more extreme hypofractionation over the last few months. We now treat a significant portion of patients with breast or prostate cancer with 26 Gy in 5 fractions and 36.25 Gy in 5 fractions, respectively, as opposed to our previous hypofractionation standards (Table 1). Similar modifications have also been made for glioblastoma cases. We have also begun to offer 35 Gy in 5 fractions to selected patients with soft tissue sarcomas rather than the standard of 50 Gy in 25 fractions. These changes in approach have the primary aim of reducing patient visits to our center, decreasing patient risk of COVID-19 exposure, while still maintaining similar disease control. The reduced number of appointments per patient serves to both reduce risk of staff exposure to the virus and also increase treatment

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Table 1 Most common prescriptions per site before and during the SARS-CoV-2 pandemic at our institution

Site	Prepandemic standard prescription	Midpandemic standard prescription
Breast	40 Gy in 15 fractions	26 Gy in 5 fractions
Prostate	60 Gy in 20 fractions	36.25 Gy in 5 fractions
Soft tissue sarcoma (preoperative)	50 Gy in 25 fractions	35 Gy in 5 fractions
Glioblastoma	60 Gy in 30 fractions	40 Gy in 15 fractions OR 25 Gy in 5 fractions

Abbreviation: SARS-CoV-2 = severe acute respiratory syndrome coronavirus-2.

capacity. It is of note that although the number of treatment fractions we can deliver per day had to be reduced by 25% due to pandemic-induced staffing changes, we have observed only a 5% reduction in new patient starts per week.

Beyond the immediate workload-related benefits, sustained usage of hypofractionation has the potential to improve access to radiation therapy while reducing costs to the health care system. Simply by reducing the average fraction-load per patient, centers can facilitate increased patient capacity, decrease wait times to start treatment, and reduce travel burdens on patients. This could serve to increase treatment compliance and adoption and could provide a significant outcomes benefit to patients.^{5,6}

Patient Empowerment Through Technology

Patient involvement in health care delivery and decision making can increase satisfaction, reduce anxiety, reduce treatment errors, and improve quality of life and outcomes.⁷ However, adoption of technology or mechanisms that facilitate this are often slowed by the pace at which hospital administrations adapt to change. This was our previous experience with our patient portal, Opal,⁸ up until the pandemic, at which point we experienced a significant increase in support and adoption rates.

Opal is a mobile phone app patient portal that provides our patients with access to their medical records (appointment schedule, laboratory results, clinical notes) and education materials. It facilitates delivery of patient-reported outcomes questionnaires to patients' phones and allows mobile check-in for appointments on arrival at the hospital. Opal's mobile check-in feature has proven particularly important during the pandemic by letting patients notify staff of their arrival and allowing them to wait for their appointments outside of the waiting room,

even from their cars outside the hospital, reducing the risk of severe acute respiratory syndrome coronavirus-2 exposure. More generally, it also serves to empower patients to wait where they want, which, when combined with decreased crowding, could improve the health care experience for all patients.

Long-term empowerment also extends to including patients as active members of their care teams by reducing the patient-clinician information imbalance and promoting shared-decision making. In particular, providing patients with access to their medical data and enabling remote symptom reporting can inform both patient and clinician before scheduled appointments and lead to more productive consultations that address symptoms before they exacerbate.⁹ Centers interested in starting such programs now have an opportunity to test patient reporting systems using COVID-19 screening questionnaires before expanding into other questionnaires.

Mobilization of Remote Care

Radiation oncology is not exempt from the massive pandemic-provoked shift toward remote working. This extends to patient care as well. Adoption of telehealth services has been widespread across health care disciplines. Our center, like many others, has moved to a remote care model for selected consultations and follow-up appointments for the safety of our staff and patients. In doing so, we, like many of our peers, have begun to recognize the benefits it can provide in the future even after the pandemic.

It is no surprise that remote care is more convenient for patients, and may also be more efficient for staff. Since switching to a remote care model in March 2020 we have not only observed a significantly lower cancellation rate of appointments with clinicians (11.8% compared with 21.2%, $P < .01$), but also significantly increased our proportion of patients seen within 10 days of referral for consultation from 70.3% to 84.2% ($P < .01$). The reduced time and travel burdens for both physician and patient in remote care make scheduling and follow-through easier, which has the potential to decrease the significant (~50%) proportion of patients lost to follow-up¹⁰ and provide better care with continued use.⁹

Remote work has also forced us to re-evaluate our previous workflows and make adaptations for the better. For example, telemedicine can allow for a more efficient peer review process. By having several physicians review cases simultaneously through remote telemedicine connections as opposed to asynchronously, inefficiencies can be eliminated and the time to review cases greatly reduced. This has allowed a busy center like ours, with over 3500 new patient starts per year, to significantly increase the number of comprehensive peer reviews we

complete without unreasonable time demands. Since the beginning of the pandemic and the new telemedicine approach, the proportion of peer-reviewed new starts has increased from 36.1% to 92.3%, with the proportion of curative cases reviewed before delivery increasing from 31.7% to 70.9%.

Preserving the Human Element

Although there are numerous advantages to the technological and methodological shifts that have occurred as a result of COVID-19, we cannot ignore that many of them come at the cost of reduced person-to-person interactions. Decreased in-person contact with patients may increase the risk that signs of recurrence or other medical conditions go unnoticed. Increased remote work has reduced opportunities for multidisciplinary discussions, which are key to ensuring optimal quality cancer care, and may allow gaps in service to form. This is not only potentially damaging to current practicing radiation medicine professionals, but also to our trainees. Radiation oncologists have historically fought to be seen as active partners in cancer care and not as mere technicians by their physician peers, and our patients benefit greatly from multimodality treatments. Lack of exposure to this collaborative environment in addition to the already depleted learning opportunities from reduced patient presence in our centers could affect the quality of the next generation's practice. Finally, we must not discount how increased adoption of remote work may affect our own mental health, and we must safeguard ourselves against burnout as we lose our peer support systems and blur the work/home boundary.

Although these potential adverse consequences may appear insurmountable, we must not discount who we are as radiation medicine practitioners. Pandemic-provoked technological advances and workflow changes, like radiation itself, have the potential to both help and harm. We should not fear a storm from the technological shifts induced by COVID-19, but actively use our experiences

to enhance practice and carve out a larger space for the human element we ourselves bring. It is in our nature to provide care through intelligent and reflective usage of technologies, and we will continue to do so in the new normal of our field.

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