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Letter to the Editor

The Florida Radiation Oncology Resident Experience During Coronavirus Disease 2019: Perspectives and Recommendations

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To the Editor:

The novel coronavirus disease 2019 (COVID-19) is a rapidly spreading and potentially fatal viral disease that has been recognized as a pandemic-causing agent in 2020. Adapting patient care to the changing environment is critical to mitigating public health risks and often includes alterations to trainee-level curricula. The National Institutes of Health has released interim guidelines for health care institutions across the nation on strategies to cope with COVID-19 and minimize its risk to patients and clinicians.[1] Within the field of radiation oncology, responses have largely been dictated by individual institutions, although the American Society of Radiation Oncology has released general guidelines.[2] With a focus on resident training, we report our first-hand experience of how 4 major academic radiation oncology programs in Florida have instituted changes to address the COVID-19 pandemic and safely care for their vulnerable patients with cancer. We also discuss the dilemma associated with residency training and evaluate the role of residents in the radiation oncology clinic setting.

Departmental Changes

The radiation oncology departments of the H. Lee Moffitt Cancer Center and Research Institute, Mayo Clinic in Jacksonville, University of Florida, and University of Miami Miller School of Medicine have each implemented significant changes to adapt to the new patient environment. Although some details of each departmental change differ (Table 1), there have been several common measures taken.

All institutions have adopted a triaging system to categorize the risk associated with a patient's cancer and potentially delay either the start of radiation therapy (RT) or initial clinic consult. The risk associated with delaying RT is often mitigated using medical management with hormone therapy, chemotherapy, and so forth, when clinically appropriate. All institutions have encouraged hypofractionation, transitioned at least some aspect of patient care to a telehealth format, moved all clinical and administrative meetings to a virtual media, and screen anyone who enters the hospital to determine their COVID-19 infection risk. Remote work is also strongly encouraged but the specific changes to department staffing vary. Lastly, the number of patient visitors is limited at each institution, with some prohibiting any visitors.

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Table 1 Detailed radiation oncology departmental changes

	Patient prioritization	Clinical encounters	Patients receiving treatment	Radiation staffing changes	Exposure risk
H. Lee Moffitt Cancer Center and Research Institute	- Following modified guidelines based on the Ontario Pandemic Protocols - Triage by disease risk per guidelines - Delay treatments for up to 3 mo	- Telehealth as much as possible - PDX at CT sim - Limited NPL, only with PPE	- Delay RT for up to 3 mo when appropriate - Delay RT with medical management when appropriate - Hypofractionation encouraged	- SFU consisting of ~5 attendings covering several disease sites; 1 attending from each SFU is in clinic per day - One in-person dosimetrist; all others work remotely - Physics team split to on-site and off-site duties - Schedulers and all assistants work remotely - Therapists following consistent shift schedule without crossover - All meetings conducted virtually	- Consolidated hospital entrances and hours - Screening of everyone entering the hospital - No visitors allowed - Not treating COVID+ patients - Treat COVID-suspected patients at end of day - All patients and staff required to wear surgical masks
Mayo Clinic	- Triage by disease risk - Delay all low-risk visits for 1-2 mo	- Telehealth as much as possible - OTVs in person	- RT delivered 7 days a week - Delay RT for up to 1-2 mo when appropriate - Hypofractionation encouraged	- Skeleton crew of 2 teams for all staff; teams switch daily - Physics and dosimetry split to on-site and off-site duties - Consolidated LINACs and transitioned to 12-h therapist shifts - All meetings conducted virtually	- Screening of everyone entering the hospital - One visitor allowed - Treat COVID+ patients at end of day
University of Florida	- Triage by disease risk - Delay low-risk consults and follow-ups for 1-2 mo	- Telehealth as much as possible - PDX at CT sim - OTVs by attending only	- Delay RT with medical management when appropriate - If treating COVID+ patients, plan to use a dedicated LINAC at the end of day - Hypofractionation encouraged	- Attending clinic days condensed to 2-3 d per week - All imaging review and inpatient consults covered by 1 attending per day - All meetings conducted virtually	- Screening of everyone entering the hospital - No hospitalized COVID+ patients currently under treatment - One visitor allowed - No children allowed unless they are the patient
University of Miami	- Triage by disease risk - Delay low-risk consults and follow-ups	- Telehealth as much as possible - Most results reviewed over phone	- Delay RT with medical management when appropriate - Hypofractionation encouraged	- All staff encouraged to work remotely - All meetings conducted virtually	- Screening of all patients outside the hospital entrance - No visitors except with pediatric patients - All patients and staff required to wear surgical masks

Abbreviations: COVID = coronavirus disease 2019; CT = computed tomography; LINAC = linear accelerator; NPL = nasopharyngolaryngoscopic examination; OTV = on-treatment visit; PDX = physical examination; PPE = personal protective equipment; RT = radiation therapy; SFU = superfunctional unit.

Residency Changes

Residents training in radiation oncology at these institutions have experienced changes to their educational experience, often for the purpose of protecting the trainees and patients (Table 2). There are several common measures taken by the programs. Residents are now limited in their ability to have in-person patient contact and in their time spent within radiation oncology departments. Which in-person patient encounter residents are involved with

Table 2 Detailed radiation oncology residency changes

	Patient care	Remote work and didactics	Call and inpatient consults	Events and redeployment	Wellness
H. Lee Moffitt Cancer Center and Research Institute	- Limit in-person patient contact - No change in attending coverage: covering 1-2 per rotation - Attending performs PDX - No resident NPL examinations	- Remoting strongly encouraged - All didactics performed virtually - In department only when necessary for patient care	- Call taken while in department and consists of triaging duties but may be asked to assist the SFU attending - Inpatient consults seen by disease site team	- Mock orals and annual Moffitt research symposium postponed - Graduation ceremonies cancelled - No redeployment to date	- Daily wellness emails - Frequent virtual meetings about managing COVID patients for residents in all specialties
Mayo Clinic	- Limit in-person patient contact - Temporarily crossover attendings to share the workload - Flexibility allotted to share workload among residents	- Remoting strongly encouraged - All didactics performed virtually - In department only when necessary for patient care	- Call taken from home - Only see inpatient consults if necessary	- All Mayo Clinic resident social events cancelled - Any examinations to be delivered virtually - Graduation ceremonies cancelled - Deployment priority would be given to those closer to intern year - No redeployment to date	- Refresher courses on placing orders, general internal medicine, and ICU procedures
University of Florida	- Limit in-person patient contact - Single attending coverage with consolidated clinic to 2-3 days - Attending only in-person routine follow-ups and OTVs - Residents participate in telehealth visits and in-person consults - No resident NPL examinations	- Remoting strongly encouraged - All didactics performed virtually - In department only when necessary for patient care	- Call taken while close to the hospital in case of emergencies - Only see emergent inpatient consults	- Mock orals to be performed virtually - Graduation ceremonies likely cancelled - 2 residents per week on call and ready to be redeployed if a surge occurs - If residents are pulled from clinic and redeployed, they will not have clinical duties the following week - No redeployment to date	- Weekly virtual meetings with the program director - Free access to Talkspace for online therapy - Frequent emails from the University's Director of Wellness Programs regarding wellness, virtual support, and other similar resources
University of Miami	- Limit in-person patient contact - Single attending coverage	- Remoting strongly encouraged - All didactics performed virtually - In department only when necessary for patient care	- Call taken from home - Unchanged call duties - Attendings evaluate inpatient consults alone unless the attending is at-risk	- Mock orals likely postponed - Graduation ceremony plans uncertain - 3 residents per 2-week block on call and ready to be redeployed if a surge occurs	- Free virtual yoga, meditation, and stress management resources by local programs - Counselors made available - Free local hotel lodging for

(*continued on next page*)

Table 2 (*continued*)

Patient care	Remote work and didactics	Call and inpatient consults	Events and redeployment	Wellness
		- Nonemergent consults rescheduled as virtual outpatient visits	- No redeployment to date	providers with concerns for family safety

Abbreviations: COVID = coronavirus disease 2019; ICU = intensive care unit; NPL = nasopharyngolaryngoscopic examination; OTV = on-treatment visit; PDX = physical examination; SFU = superfunctional unit.

varies by institution and sometimes the attending physician. Remote work is strongly encouraged for all residents unless patient care duties dictate their presence within the departments. The clinical radiation oncology, physics, and radiation biology didactics courses are continuing at all institutions but through a virtual format. Any attending-lead teaching is conducted virtually when applicable (radiation contour and plan reviews, for example). Where residents may take their call from differs by institution, but inpatient consults are generally seen by the attending physicians only. All institutions have altered the timeline, format, or entirely cancelled residency-related activities including residency graduation ceremonies. Several institutions have developed redeployment strategies if additional clinicians are needed to help manage patients with COVID-19, but no residents have experienced redeployment to date. Residents are also provided with a variety of wellness resources to help manage the stressors associated with these changing times.

Radiation oncology residents are experiencing a period of uncertainty with unclear roles as providers and trainees during the COVID-19 pandemic. Although radiation oncology is not a frontline specialty managing patients with COVID-19, the field cares for a vulnerable and at-risk population. As trainees, our in-person interaction with patients who may harbor COVID-19 unnecessarily places them and ourselves at risk. The use of personal protective equipment (PPE) offsets this risk but during a time of PPE shortage, and because all residents require attending physician oversight, the educational value of each patient interaction should be thoughtfully evaluated. Nevertheless, a prolonged decrease in resident-patient interaction could adversely affect resident training and affect our ability to practice independently in the future. This dynamic creates a dilemma regarding the ideal approach to residency training in the current climate.

The residency programs described herein have taken several common measures to address this dilemma, and we applaud their implementation. We advocate for continued resident involvement in all aspects of patient care when performed through a virtual format. If institutions or patient scenarios do not allow for this format, in-person resident involvement should be evaluated with respect to the educational value of the encounter. For example, in-person on-treatment visits and follow-ups that are "routine" and involve no toxicity management or re-evaluation should not necessitate in-person resident involvement. The highest educational priority should be placed on patients due to start RT, and we encourage discussions between residents and their attendings regarding the value of hypofractionation for each case. Even if such cases occur in person, the resident may be able to remotely prepare for the consult, formulate their treatment recommendation, and generate the treatment plan without unnecessarily placing themselves or the patient at risk. As such, the need for a resident to see an in-person consult should be limited to when the clinical encounter provides additional information that affects the treatment plan. Regardless of the inherent educational value of the case, all clinical encounters that occur through a telehealth format should involve residents, as the use of this new media itself provides valuable experience.

We do not support resident-performed invasive procedures such as nasopharyngolaryngoscopic examinations during the current pandemic state. All other physical examinations should be performed with proper PPE and only if they add value to clinical decision making. If possible, these should be performed at the time of computed tomography simulation to consolidate the frequency of patient and provider exposure. This recommendation follows our general ideology of eliminating duplicate exposure and minimizing wasteful PPE use.

The transition of structured didactics to a virtual format should be seamless using widely available videoconferencing software. The utilization of this virtual format allows for continued training of residents while protecting staff within the department. As such, we advocate for its use for all structured didactics, case reviews, mock examinations, and treatment plan reviews. With the announcement of board examination delays, we emphasize continuing all curricula related to preparing residents for these examinations without interruption. Additionally, to offset the anticipated reduction in patient volume and resident clinical encounters, we encourage more frequent virtual case sessions to hone our clinical acumen.

Given the uncertainties associated with this pandemic (eg, the possibility for redeployment to the frontlines, the

Table 3 Resources for clinical care during the COVID-19 pandemic

Resource	Utility	URL
COVID-19 USA Physician/Advances Practice Provider Facebook group	Anecdotal experiences and resource sharing with regards to caring for COVID-19 patients	https://tinyurl.com/FBcovid19
Hypofractionated radiation therapy regimens during COVID-19	Crowdsourced document reviewing appropriate hypofractionated radiation therapy regimens.	https://tinyurl.com/RTcovid19
COVID-19 Critical Care E-Book	Frequently updated Internet book for critical care. Depth of knowledge extends beyond COVID-19.	https://emcrit.org/ibcc/COVID19/
UW COVID-19	University of Washington's public COVID-19 resource website	https://covid-19.uwmedicine.org/
Radiopaedia's COVID-19 summary	Basic clinical and radiographic summary of COVID-19 presentations	https://radiopaedia.org/articles/covid-19
Residency changes during COVID-19	Crowdsourced document recounting radiation oncology residency program changes during COVID-19	https://tinyurl.com/REScovid19
Ontario Pandemic Protocols	Ontario general pandemic planning protocols and clinical guide for patients with cancer	https://tinyurl.com/OntarioCancer https://tinyurl.com/PandemicProtocols

Abbreviation: COVID = coronavirus disease 2019.

risks to ourselves and loved ones, and anxiety related to the changing job market), resident wellness should be a deliberate discussion within departments. These changing factors may precipitate underlying anxiety or depression within the residents and feigning ignorance over their presence is not a viable solution. Even changes such as prolonged remote work may introduce feelings of isolation in a distinctly lonely environment, particularly for residents who moved to new cities for their training. Coupled with the cancellation or postponement of residency-related wellness activities or examinations, the stresses for residents may accumulate when they don't have access to their typical healthy outlets. We strongly urge programs to perform routine check-ins on residents both on a one-to-one and group basis. We also encourage residents to reach out to their colleagues and loved ones for support. For residents experiencing redeployment, we have provided a list of resources to aid in the clinical care of patients with COVID-19 (Table 3). This table also provides resources regarding crowd-sourced hypofractionation regimens, residency program changes, and protocols used to guide departmental changes during this pandemic.

Residency training and medicine itself often displace the importance of self by prioritizing the patient and providing team. Radiation oncology resident schedules are typically dictated by the attendings with whom they work, and the COVID-19 pandemic introduces uncertainties that amplify this lack of control. We promote open communication among teams and advocate for residents to express their comfort level regarding in-person patient encounters. However, it is important to recognize the hierarchal difference that exists in the structure of medicine and acknowledge that a top-down approach is more effective. We therefore ask for program directors and department chairs to consider the matters discussed in this article when implementing residency changes. These times are far from normal, but we must continue to work toward achieving normalcy where we can. We humbly thank our institutions for monitoring the unfolding events and implementing strategies to ensure the safety of their staff and our patients.

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