

# Advances in Radiation Oncology

## The Florida Radiation Oncology Resident Experience during Coronavirus-19: Perspectives and Recommendations

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<b>Abstract:</b>	The COVID-19 pandemic has forced departments and residency programs in Florida to nimbly adapt to the challenges of providing care to a vulnerable patient population while keeping them and all department staff safe. Many worry we are just seeing the beginning of the outbreak within our state. This article is written from the perspective of residents representing the four major academic radiation oncology programs in Florida. Herein, we detail proactive strategies being implemented within our programs and departments. We also provide resources about the clinical management of COVID-19 patients for residents who may be called upon to provide care outside of their normal scope of training. We believe our article will serve as a resource for program directors and residents as they grapple with balancing clinical education during this public health crisis.

# **The Florida Radiation Oncology Resident Experience during Coronavirus-19: Perspectives and Recommendations**

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## **INTRODUCTION:**

The novel Coronavirus-19 (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 (NIH) have released interim guidelines for healthcare institutions across the nation on strategies to cope with COVID-19 and minimize its risk to patients and clinicians.<sup>1</sup> Within the field of radiation oncology, responses have largely been dictated by individual institutions although the American Society of Radiation Oncology (ASTRO) has released general guidelines.<sup>2</sup> With a focus on resident training, we report our first-hand experience of how four major academic radiation oncology programs in Florida have instituted changes to address the COVID-19 pandemic and safely care for their vulnerable cancer patients. We also discuss the dilemma associated with residency training and evaluate the role of residents in the radiation oncology clinic setting.

## **BODY:**

### *Departmental Changes*

The radiation oncology departments of 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. While some details of each departmental change differ (**Table 1**), there are 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, etc 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 for 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.

### *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 their time spent within the radiation oncology departments. Which in-person patient encounter residents are involved with 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 COVID-19 patients, 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.

### **DISCUSSION:**

Radiation oncology residents are experiencing a period of uncertainty with unclear roles as providers and trainees during the COVID-19 pandemic. While radiation oncology is not a frontline

specialty managing COVID-19 patients, 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 since 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 impact 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 take 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 (OTVs) 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 radiation therapy 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 impacts 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 CT 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 exams, and treatment plan reviews. With the announcement of board examination delays, we emphasize continuing all curricula related to preparing residents for these exams 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 (e.g. the possibility for redeployment to the frontlines, the risks towards 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 and/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 without having 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 COVID-19 patients (**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 amongst 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 exist in the structure of medicine and acknowledge that a top-down approach is more impactful. 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 towards 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.

#### **REFERENCES:**

1. Coronavirus (COVID-19). National Institutes of Health. <https://www.nih.gov/health-information/coronavirus>. Published March 23, 2020. Accessed April, 2020.
2. Summary - COVID-19 Resources - American Society for Radiation Oncology (ASTRO) - American Society for Radiation Oncology (ASTRO). ASTRO. <https://www.astro.org/Daily-Practice/COVID-19-Recommendations-and-Information/Summary>. Published March 2020. Accessed March, 2020.



Table 1. Detailed Radiation Oncology Departmental Changes

	Patient prioritization	Clinical encounters	Patients receiving treatment	Radiation staffing changes	Exposure risk
<b>H. Lee Moffitt Cancer Center and Research Institute</b>	<ul style="list-style-type: none"> <li>-Following modified guidelines based on the Ontario Pandemic Protocols</li> <li>-Triage by disease risk per guidelines</li> <li>-Delay treatments for up to 3 months</li> </ul>	<ul style="list-style-type: none"> <li>-Telehealth as much as possible</li> <li>-PDX at CT sim</li> <li>-Limited NPL; only with PPE</li> </ul>	<ul style="list-style-type: none"> <li>-Delay RT for up to 3 months when appropriate</li> <li>-Delay RT with medical management when appropriate</li> <li>-Hypofractionation encouraged</li> </ul>	<ul style="list-style-type: none"> <li>-SFU consisting of ~5 attendings covering several disease sites; 1 attending from each SFU is in clinic per day</li> <li>-One in-person dosimetrist; all others work remotely</li> <li>-Physics team split to onsite and off-site duties</li> <li>-Schedulers and all assistants work remotely</li> <li>-Therapists following consistent shift schedule without crossover</li> <li>-All meetings conducted virtually</li> </ul>	<ul style="list-style-type: none"> <li>-Consolidated hospital entrances and hours</li> <li>-Screening of everyone entering the hospital</li> <li>-No visitors allowed</li> <li>-Not treating COVID+ patients</li> <li>-Treat COVID suspected patients at end of day</li> <li>-All patients and staff required to wear surgical masks</li> </ul>
<b>Mayo Clinic</b>	<ul style="list-style-type: none"> <li>-Triage by disease risk</li> <li>-Delay all low-risk visits for 1-2 months</li> </ul>	<ul style="list-style-type: none"> <li>-Telehealth as much as possible</li> <li>-OTVs in person</li> </ul>	<ul style="list-style-type: none"> <li>-RT delivered 7 days a week</li> <li>-Delay RT for up to 1-2 months when appropriate</li> <li>-Hypofractionation encouraged</li> </ul>	<ul style="list-style-type: none"> <li>-Skeleton crew of two teams for all staff; teams switch daily</li> <li>-Physics and dosimetry split to onsite and off-site duties</li> <li>-Consolidated LINACs and transitioned to 12 hour therapist shifts</li> <li>-All meetings conducted virtually</li> </ul>	<ul style="list-style-type: none"> <li>-Screening of everyone entering the hospital</li> <li>-One visitor allowed</li> <li>-Treat COVID+ patients at end of day</li> </ul>
<b>University of Florida</b>	<ul style="list-style-type: none"> <li>-Triage by disease risk</li> <li>-Delay low-risk consults and follow-ups for 1-2 months</li> </ul>	<ul style="list-style-type: none"> <li>-Telehealth as much as possible</li> <li>-PDX at CT sim</li> <li>-OTVs by attending only</li> </ul>	<ul style="list-style-type: none"> <li>-Delay RT with medical management when appropriate</li> <li>-If treating COVID+ patients, plan to use a dedicated LINAC at the end of day</li> <li>-Hypofractionation encouraged</li> </ul>	<ul style="list-style-type: none"> <li>-Attending clinic days condensed to 2-3 days per week</li> <li>-All imaging review and inpatients consults covered by one attending per day</li> <li>-All meetings conducted virtually</li> </ul>	<ul style="list-style-type: none"> <li>-Screening of everyone entering the hospital</li> <li>-No hospitalized COVID+ patients currently under treatment</li> <li>-One visitor allowed</li> <li>-No children allowed unless they are the patient</li> </ul>
<b>University of Miami</b>	<ul style="list-style-type: none"> <li>-Triage by disease risk</li> <li>-Delay low-risk consults and follow-ups</li> </ul>	<ul style="list-style-type: none"> <li>-Telehealth as much as possible</li> <li>-Most results reviewed over phone</li> </ul>	<ul style="list-style-type: none"> <li>-Delay RT with medical management when appropriate</li> <li>-Hypofractionation encouraged</li> </ul>	<ul style="list-style-type: none"> <li>-All staff encouraged to work remotely</li> <li>-All meetings conducted virtually</li> </ul>	<ul style="list-style-type: none"> <li>-Screening of all patients outside the hospital entrance</li> <li>-No visitors except with pediatric patients</li> <li>-All patients and staff required to wear surgical masks</li> </ul>

\*PDX = physical exam; \*\*NPL = nasopharyngolaryngoscopic examination; \*\*\*PPE = personal protective equipment; \*\*\*\*RT = radiation therapy; \*\*\*\*\*SFU = super-functional unit; \*\*\*\*\*OTV = on-treatment visit; \*\*\*\*\*LINAC = linear accelerator

Table 2. Detailed Radiation Oncology Residency Changes

	<b>Patient care</b>	<b>Remote work and didactics</b>	<b>Call and inpatient consults</b>	<b>Events and redeployment</b>	<b>Wellness</b>
<b>H. Lee Moffitt Cancer Center and Research Institute</b>	<ul style="list-style-type: none"> <li>-Limit in-person patient contact</li> <li>-No change in attending coverage: covering 1-2 per rotation</li> <li>-Attending performed PDX</li> <li>-No resident NPL exams</li> </ul>	<ul style="list-style-type: none"> <li>-Remoting strongly encouraged</li> <li>-All didactics performed virtually</li> <li>-In department only when necessary for patient care</li> </ul>	<ul style="list-style-type: none"> <li>-Call taken while in department and consists of triaging duties but may be asked to assist the SFU attending</li> <li>-Inpatient consults seen by disease site team</li> </ul>	<ul style="list-style-type: none"> <li>-Mock orals and annual Moffitt research symposium postponed</li> <li>-Graduation ceremonies cancelled</li> <li>-No redeployment to date</li> </ul>	<ul style="list-style-type: none"> <li>-Daily wellness emails</li> <li>-Frequent virtual meetings about managing COVID patients for residents in all specialties</li> </ul>
<b>Mayo Clinic</b>	<ul style="list-style-type: none"> <li>-Limit in-person patient contact</li> <li>-Temporarily crossover attendings to share the workload</li> <li>-Flexibility allotted to share workload amongst residents</li> </ul>	<ul style="list-style-type: none"> <li>-Remoting strongly encouraged</li> <li>-All didactics performed virtually</li> <li>-In department only when necessary for patient care</li> </ul>	<ul style="list-style-type: none"> <li>-Call taken from home</li> <li>-Only see inpatient consults if necessary</li> </ul>	<ul style="list-style-type: none"> <li>-All Mayo Clinic resident social events cancelled</li> <li>-Any exams to be delivered virtually</li> <li>-Graduation ceremonies cancelled</li> <li>-Deployment priority would be given to those closer to intern year</li> <li>-No redeployment to date</li> </ul>	<ul style="list-style-type: none"> <li>-Refresher courses on placing orders, general internal medicine, and ICU procedures</li> </ul>
<b>University of Florida</b>	<ul style="list-style-type: none"> <li>-Limit in-person patient contact</li> <li>-Single attending coverage with consolidated clinic to 2-3 days</li> <li>-Attending only in-person routine follow-ups and OTVs</li> <li>-Residents participate in telehealth visits and in-person consults</li> <li>-No resident NPL exams</li> </ul>	<ul style="list-style-type: none"> <li>-Remoting strongly encouraged</li> <li>-All didactics performed virtually</li> <li>-In department only when necessary for patient care</li> </ul>	<ul style="list-style-type: none"> <li>-Call taken while close to the hospital in case of emergencies</li> <li>-Only see emergent inpatient consults</li> </ul>	<ul style="list-style-type: none"> <li>-Mock orals to be performed virtually</li> <li>-Graduation ceremonies likely cancelled</li> <li>-2 residents per week on call and ready to be redeployed if a surge occurs</li> <li>-If residents are pulled from clinic and redeployed, they will not have clinical duties the following week</li> <li>-No redeployment to date</li> </ul>	<ul style="list-style-type: none"> <li>-Weekly virtual meetings with the program director</li> <li>-Free access to Talkspace for online therapy</li> <li>-Frequent emails from the University's Director of Wellness Programs regarding wellness, virtual support, and other similar resources</li> </ul>
<b>University of Miami</b>	<ul style="list-style-type: none"> <li>-Limit in-person patient contact</li> <li>-Single attending coverage</li> </ul>	<ul style="list-style-type: none"> <li>-Remoting strongly encouraged</li> <li>-All didactics performed virtually</li> <li>-In department only when necessary for patient care</li> </ul>	<ul style="list-style-type: none"> <li>-Call taken from home</li> <li>-Unchanged call duties</li> <li>-Attendings evaluate inpatient consults alone unless the attending is at-risk</li> <li>-Non-emergent consults rescheduled as virtual outpatient visits</li> </ul>	<ul style="list-style-type: none"> <li>-Mock orals likely postponed</li> <li>-Graduation ceremony plans uncertain</li> <li>-3 residents per two-week block on call and ready to be redeployed if a surge occurs</li> <li>-No redeployment to date</li> </ul>	<ul style="list-style-type: none"> <li>-Free virtual yoga, meditation, and stress management resources by local programs</li> <li>-Counselors made available</li> <li>-Free local hotel lodging for providers with concerns for family safety</li> </ul>

\*PDX = physical exam; \*\*NPL = nasopharyngolaryngoscopic examination; \*\*\*SFU = super-functional unit; \*\*\*\*OTV = on-treatment visit

Table 3. Resources for Clinical Care during the COVID-19 Pandemic

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