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TELEMEDICINE

Radiation Oncologist Perceptions of Telemedicine from Consultation to Treatment Planning: A Mixed-Methods Study



Helen Zhang, BS,* Elaine E. Cha, BS,* Kathleen Lynch, MS, MPH,†
Oren Cahlon, MD,* Daniel R. Gomez, MD, MBA,*
Narek Shaverdian, MD,* and Erin F. Gillespie, MD*‡

*Department of Radiation Oncology, Memorial Sloan Kettering Cancer Center, New York, New York;

†Department of Psychiatry and Behavioral Science, Memorial Sloan Kettering Cancer Center, New York, New York; and ‡Center for Health Policy and Outcomes, Memorial Sloan Kettering Cancer Center, New York, New York

Received Jul 1, 2020. Accepted for publication Jul 4, 2020.

Purpose: Telemedicine was rapidly implemented for initial consultations and radiation treatment planning in the wake of the coronavirus disease 2019 (COVID-19) pandemic. In this study, we explore utilization of and physician perspectives on this approach in an attempt to identify patient populations that may benefit most from virtual care.

Methods and Materials: This is a mixed-methods study with a convergent design. Approximately 6 to 8 weeks after implementation of telemedicine, all radiation oncologists in a single academic radiation oncology department were invited to participate in either semistructured interviews with embedded survey questions or a concurrently administered survey only. Rapid qualitative analysis was used to identify common themes, and quantitative data was assessed using descriptive statistics and univariable analyses.

Results: At the apex of the pandemic, 92% of radiation oncology visits were conducted via telemedicine. In total, 51 of 61 radiation oncologists participated in the study (response rate 84%). Most (71%) reported no difference in ability to treat cancer appropriately via telemedicine, which was more common among specialized physicians ($P = .01$) but not those with higher visit volume or years of experience. Over half (55%) perceived no difference or even improvement in overall visit quality with telemedicine. Virtual visits were deemed acceptable for a median of 70% to 96% of patients, which varied by disease site. Need for physical examination, and availability of an acceptable proxy, factored into telemedicine acceptability. Most (88%) found telemedicine better than expected, but opinions were split on how telemedicine would affect physician burnout. Almost all (96%) foresaw a role for telemedicine beyond the pandemic and would opt for a median of 50%

Corresponding author: Erin F. Gillespie, MD; E-mail: efgillespie@ucsd.edu

This project was supported in part by the Education Innovation Grant from Radiologic Society of North America (E.F.G.).

Helen Zhang, Elaine E. Cha, Narek Shaverdian, and Erin F. Gillespie contributed equally to this work.

Disclosures: E.F.G. is a cofounder of eContour, an education website for radiation oncology professionals.

Supplementary data to this article can be found at <https://doi.org/10.1016/j.ijrobp.2020.07.007>.

Acknowledgments—We acknowledge the support and participation of the faculty from the Department of Radiation Oncology at Memorial Sloan-Kettering Cancer Center and the leadership of Dr Simon Powell in this endeavor.

(interquartile range 20%-66%) of visits conducted via telemedicine.

Conclusions: Among radiation oncologists in an academic setting, telemedicine was perceived to be highly appropriate and acceptable for most patients. Future studies should focus on identifying the 5% to 30% of patients whose care may be optimized with in-person visits, and if there is alignment with patient preferences. © 2020 Elsevier Inc. All rights reserved.

Introduction

Coronavirus disease 2019 (COVID-19) has led to a rapid transformation of the health care system, particularly in the United States. Various private and public payers have lifted billing restrictions related to virtual visits during this public health emergency, facilitating the rapid and widespread adoption of telemedicine.¹ According to a national survey conducted by the American Society for Radiation Oncology, 89% of radiation oncologists reported their clinics have begun to offer telemedicine for patients, including for consultation visits as well as routine follow-up.² Nearly all respondents indicated that virtual consultation is a new option for their patients, highlighting an opportunity to evaluate a novel approach to health care delivery in the field.

Telemedicine, defined here as visits that involve electronic communication between clinician and patient, has historically been used primarily in primary care, dermatology, and psychiatry, with the most robust data supporting remote counseling and patient monitoring for chronic conditions as well as psychotherapy.³ Telemedicine has been shown to improve health outcomes as well as medication adherence, readmission rates, wait times, and costs to patient and the health care system.⁴ The Massachusetts General Hospital Telehealth program has shown broad acceptance of telemedicine among both patients and physicians, though oncologists represented only 2% of physicians participating.⁵ Within oncology, use and therefore evidence is more limited to small pilot studies among rural cancer populations, which show high patient satisfaction and improved access to care while decreasing travel costs.⁶⁻⁸ One Australian study provides insight specifically into radiation oncology, finding that in a rural setting, high rates of patient satisfaction are related to reduced travel and time savings.⁹ A detailed analysis of physician perspectives on appropriateness and utility of telemedicine within radiation oncology is lacking.

Telemedicine has been an effective makeshift solution in this current crisis, but its wider role in the field remains unclear. With the changes implemented due to COVID-19, we have an unprecedented opportunity to trial the broader acceptability and applicability of telemedicine as a model of health care delivery in radiation oncology. This study explores the current use and physician perspective on telemedicine within radiation oncology in an academic setting. With a focus on initial consultation and treatment planning, this work aims to provide further insight into sustainability and opportunities for future utilization of

remote specialized care in radiation oncology in both an intra- and post-COVID context.

Methods and Materials

Data collection for clinic visits

Within the Department of Radiation Oncology at Memorial Sloan Kettering Cancer Center (MSKCC), a large comprehensive cancer center with a Regional Care Network spanning 1 main campus and 6 regional outpatient clinics, the total number and type of clinic visits was collected from deidentified patient scheduling data. To determine patient volume per physician, visits were collected from March 16 (first day of telemedicine implementation) to June 20, 2020, and averaged to determine total clinic visits per week. For determining visit type, clinic visit data were collected for 3 separate weeks across the study period in which visit type was reliably collected: pre-COVID (week of March 8, 2020), peak COVID (week of April 19, 2020), and restoration (week of June 14, 2020). Visits were categorized as in-person, telephone, or audio-visual/telehealth. Of note, the restoration phase was initiated on May 15, 2020.

Data collection for physician perspectives

We employed a mixed-methods research approach to evaluate physicians' perspective of acceptability and appropriateness of telemedicine in radiation oncology. We used a convergent design involving quantitative and qualitative data collection with synchronous analysis, which was followed by an integrated analysis.¹⁰

In May 2020, we invited faculty radiation oncologists within our department to participate in a 20-minute audio-recorded, semistructured interview regarding their experience using telemedicine, including each disease site leader. See [Appendix E1](#) for the qualitative interview guide, which includes a subset of quantitative survey questions (described later). One member of the study team trained in qualitative research conducted all interviews via telephone. Interviewees provided verbal informed consent. Qualitative interviews were completed from May 4 through May 15, 2020, approximately 6 to 8 weeks after initial telemedicine implementation, until thematic saturation was reached.

Concurrently, we developed a full survey instrument to gather quantitative data on physician experience and administered it to all remaining faculty members in the

MSKCC Department of Radiation Oncology. For all study participants, physician experience with telemedicine was assessed using a set of questions adapted from a survey developed by the Massachusetts General Hospital Center for Telehealth.⁵ Based on initial qualitative interviews, 2 additional questions were included for the survey-only participants related to physician burnout. Surveys were either completed electronically by the participant or were administered verbally on the telephone. See [Appendix E2](#) for the full survey instrument.

Qualitative analysis

Immediately after the interview, the moderator drafted a detailed report of participant responses using the audio recording to include verbatim quotes, based on best practices for rapid qualitative data analysis.¹¹ Rapid analysis (RA) is a novel qualitative approach that quickly produces information to inform ongoing implementation efforts and has been shown to generate results consistent with in-depth text analysis.¹² Similar methods have been used in recent qualitative studies to inform COVID-19 physician responses.¹³ As previously described, RA was conducted in 2 phases: a “vertical” phase and a “horizontal” phase.¹⁴⁻¹⁶ See [Appendix E3](#) for detailed methodology. Themes were identified based on frequency, in addition to attributes (ie, interpreting comments in the context of telemedicine platform, and patient population), and triangulated with descriptive statistics from the quantitative survey in a joint display.¹⁷

Statistical analysis

Descriptive statistics were generated for visit type and survey data. Spearman’s rank correlation and Mann–Whitney U tests were used to analyze continuous and categorical physician demographic variables against survey responses comparing telemedicine to in-office visits, respectively. Two-sided *P* values with an alpha level <0.05 were applied to all statistical tests. Computations were generated using Rv3.6 (R Core Team, 2019, Vienna, Austria).

This study was approved as exempt by the institutional review board.

Results

Prevalence of telemedicine visit types

Telemedicine was implemented on March 16, 2020. Near the apex of the pandemic in New York City,¹⁸ total in-office visit volume dropped to 58% of pre-COVID levels (805 compared to 1394 visits per week) and returned to 78% 1 month into restoration (1091 compared to 1394 visits per week). Pre-COVID, >99% of all visits were conducted in-office with <1% (1 of 1394) conducted by telephone; at

peak COVID, only 8% of visits were conducted in-office (61 of 805), 22% were conducted via telephone (176 of 805), and 71% were conducted via audiovisual visit (568 of 805); and in restoration, 27% of visits were conducted in-office (298 of 1091), 11% by telephone (119 of 1091), and 62% audiovisually (674 of 1091) ([Fig. 1](#)).

Physician characteristics

Of 61 eligible radiation oncologists, 51 participated in a qualitative interview or survey, yielding an overall response rate of 84%. Physicians were 64% male with a median of 7 years of clinical experience (interquartile range [IQR] 3-16). Physicians see patients at either the main campus (44%), regional sites (44%), or both (12%) for a median of 2 clinic days per week (IQR, 2-3). Median physician clinic visit volume during the period of telemedicine implementation was 16 visits per week (IQR 12-21). The majority (69%) of physicians are specialized, treating 3 or fewer disease sites. All physicians were asked to specify a primary disease site of specialization and, if applicable, a secondary disease site of specialization. Nine disease sites were represented, with metastases/spine, breast, and genitourinary being the most common. See [Table 1](#) for physician demographics.

Qualitative analysis of semistructured interviews yielded 8 distinct themes, described later with related survey responses. See [Appendix E3](#) for detailed thematic results.

Ability to treat patients appropriately

Most physicians (71%, *n* = 36) reported no difference in confidence in treating patients appropriately with telemedicine ([Fig. 2](#)), and 88% (*n* = 45) found the overall experience of telemedicine to be better than expected. The only physician characteristic correlating with a preference for in-office visits to treat patients appropriately was being a specialist (defined as treating 3 or fewer disease sites) (*P* = .01). There was, however, no difference based on a physician’s years of experience, patient visit volume, clinical setting (main campus versus regional clinic), or whether they treated metastatic disease.

Physicians rated percent of patients appropriate for telemedicine based on their disease site specialization, and levels varied from a median of 70% to 96% ([Fig. 3](#)), due primarily to the need for in-person physical examination before treatment planning. Metastatic/spine, gynecologic, and select gastrointestinal subsites were perceived to necessitate in-person physical examinations more often than other disease sites. In interviews, radiation oncologists described proxies for in-person physical examination including radiographic imaging (*n* = 17), visual inspection (*n* = 14), and documented in-person examinations performed by other physicians (*n* = 6). Although visual inspection was acceptable at times, it was noted that the “ability to accurately know [...] where they’re pointing [...]

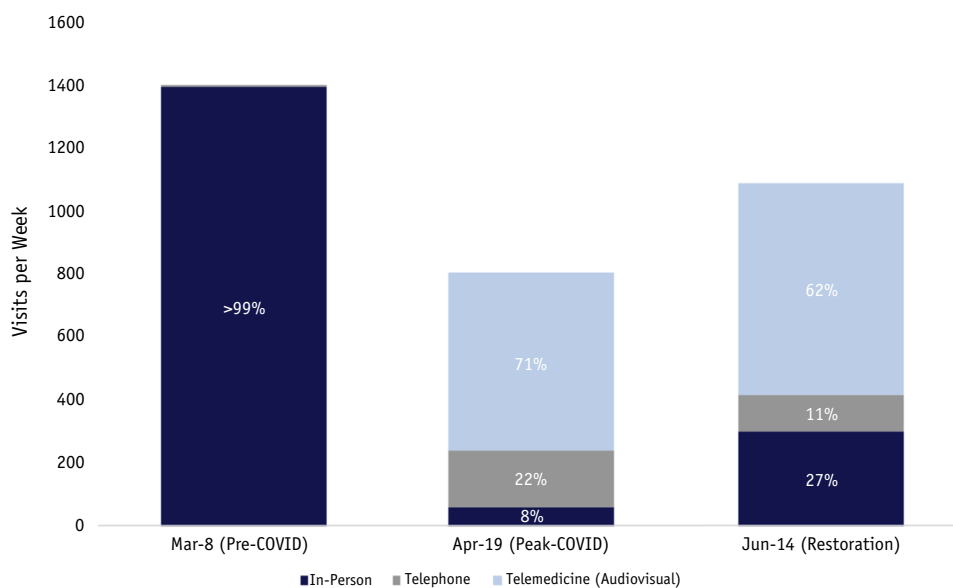


Fig. 1. Number of visits per week before and after transition to telemedicine.

is only so good.” Some also noted that “asking to visually inspect the breast may be a little awkward.” Meanwhile, for evaluating pediatric patients: “The [...] parent can show

[...] relevant findings on the child’s body [...] and it works really well.” Some physicians ($n = 4$) specified that a physical examination could be performed at the simulation to guide treatment planning, but they could still make their recommendation at the consultation. See [Table 2](#) for the distribution of physicians reporting what type of examination would be required, with disease-site specifics from qualitative interviews. An unanticipated benefit to telemedicine included gaining new insight into patients’ social and functional environments that then assisted in management decisions. As one physician stated, being able to see patients “at home [...] lying in bed, [...]you] get a fuller picture of [...] their quality of life.”

Table 1 Provider characteristics ($n = 51$)

| | n (%) |
|---------------------------------|----------|
| Sex | |
| Male | 33 (65) |
| Female | 18 (35) |
| Years of experience | |
| Median (IQR) | 7 (3-18) |
| Practice site | |
| Main campus | 23 (45) |
| Regional clinic | 22 (43) |
| Both | 6 (12) |
| Total visits per week | |
| Median (IQR) | 16 (2-3) |
| Number of disease sites treated | |
| 1-3 | 35 (69) |
| 4+ | 16 (31) |
| Disease sites treated* | |
| Metastases, Spine | 16 (18) |
| Breast | 16 (18) |
| Genitourinary | 15 (17) |
| Lung, Thoracic | 8 (9) |
| Head & Neck | 8 (9) |
| Gastrointestinal | 7 (8) |
| Gynecologic | 6 (7) |
| Central Nervous System | 5 (6) |
| Other [†] | 6 (7) |

Abbreviation: IQR = interquartile range.

* Percentages were calculated relative to total disease site counts among all respondents, including both primary ($n = 51$) and secondary ($n = 36$) disease sites treated.

[†] Includes skin, lymphoma, sarcoma, and pediatrics.

Perceived impact on overall visit quality

Approximately half of the physicians rated the overall visit quality to be no different between telemedicine and in-office (47%, $n = 24$). Of the remaining faculty, most (45%, $n = 23$) preferred office visits, with only 8% preferring telemedicine ($n = 4$). The biggest benefit of in-office visits was “personal connection with the patient,” with 67% ($n = 34$) reporting a preference for in-office visits in response to this survey item.

Perceived impact on workload, workflow, and physician burnout

Perceptions of changes in overall workload varied, with 37% ($n = 19$) reporting an increase, 28% ($n = 14$) reporting a decrease, and 33% ($n = 17$) reporting no difference. Some referenced increased responsibility for “tasks which clinical staff otherwise would be performing,” with 47% ($n = 24$) reporting spending more time

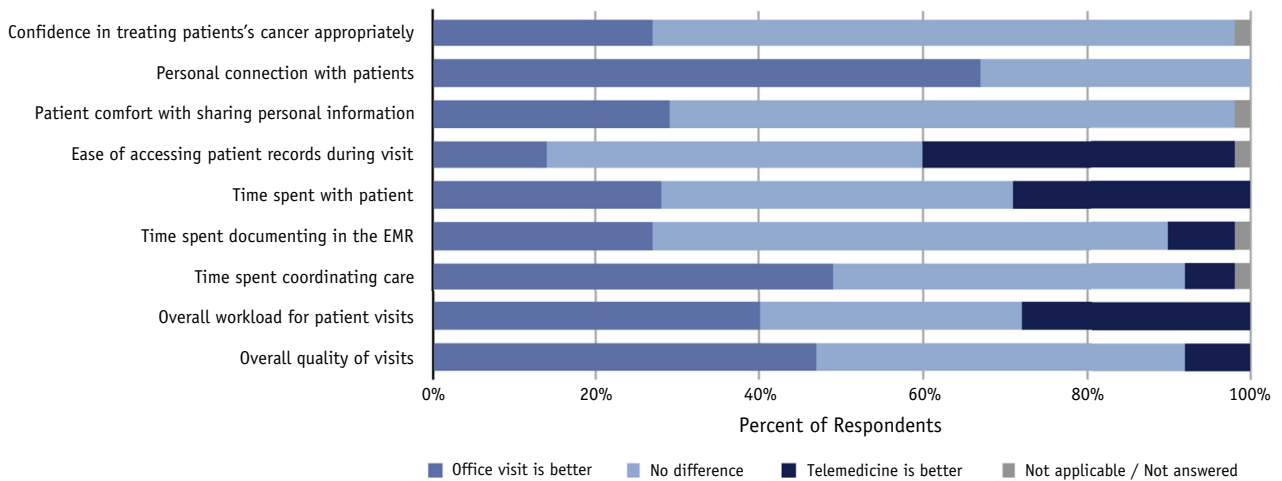


Fig. 2. Physician survey responses comparing telemedicine versus office visits (n = 51).

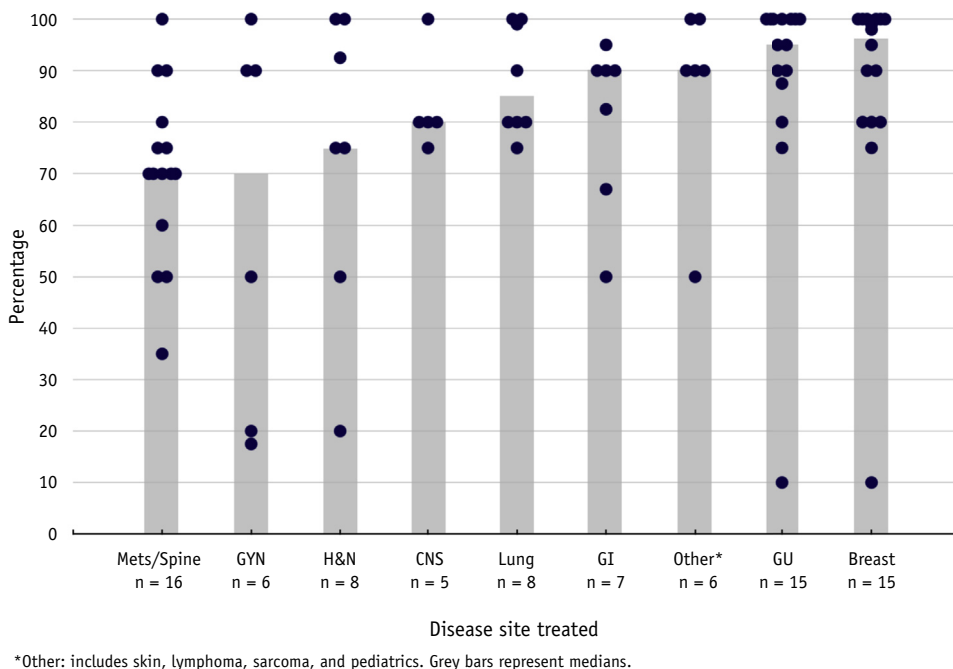
coordinating care. In contrast, documentation time was largely unchanged (65%, n = 33), with an additional 8% (n = 4) perceiving telemedicine to have more efficient documentation. One participant explained: “When I’m talking to a patient [...] with the camera, I can type my notes in real time [...] in a way that I don’t have my back to the patient.”

Among a subset of faculty who received the survey only (n = 25), 40% (n = 10) perceived burnout reduction and 36% (n = 9) anticipated burnout would increase. Respondents elaborated that a “balance” between telemedicine and in-office visits would be ideal, with telemedicine

providing “an advantage to having flexibility and to be able to work remotely, at least for some days.”

Platform preferences and barriers to telemedicine

The most widely used platforms for telemedicine include Doximity Dialer (n = 28), FaceTime (n = 28), and WhatsApp (n = 10). Physicians report preferring Doximity Dialer for its privacy protection, whereas FaceTime and WhatsApp were preferred for multiple-user features. When setting up calls, the most prevalent (n = 6) difficulty was adding a third caller (eg, family, interpreter, resident

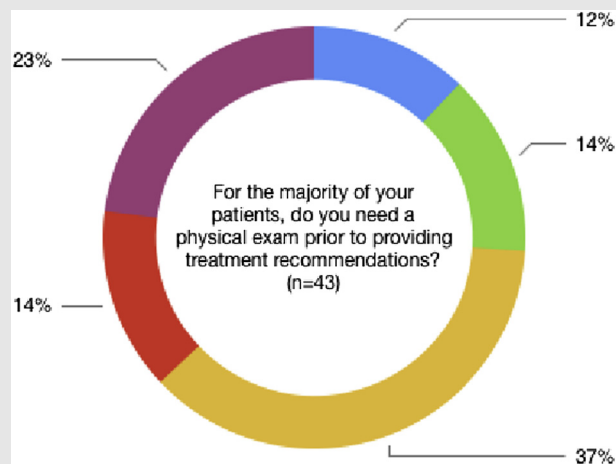


*Other: includes skin, lymphoma, sarcoma, and pediatrics. Grey bars represent medians.

Fig. 3. What percentage of consultation visits are you comfortable conducting entirely remotely?

Table 2 Role of in-person physical exam for radiation treatment planning during consultation

| Scenario and disease site represented | Provider count | Example comments |
|---|-------------------|--|
| <ul style="list-style-type: none"> ● Physical examination by radiation oncologist is preferred Metastatic/spine: <ul style="list-style-type: none"> Localization of symptoms (ie, pain) Central nervous system: <ul style="list-style-type: none"> Patients with neurological symptoms. Gastrointestinal (anal cancer): <ul style="list-style-type: none"> Definitively treated with radiation therapy Skin (primary skin cancer): | 11 3 6 1 | “For [...] neurological symptoms that cannot be localized to a single source, we cannot wait until simulation to do the physical exam.” “Consider prioritizing ... for in-person visit [if there is] no clear radiographic target...” “If they have some active neurologic symptoms, ie, ataxia, double vision, that’s just hard to evaluate by video. Then I would want to do a full exam ... getting a baseline.” “It’s important to assess response to treatment and keep an eye on their skin.” “We have an MRI scan and other people’s exams, but designing radiation for people sometimes requires your own exam.” “It can be difficult to see the extent of the tumor, which definitely informs stage of cancer and treatment approach.” |
| <ul style="list-style-type: none"> ● Physical examination from other providers can be used Head and neck: <ul style="list-style-type: none"> Nasolaryngoscopy exams performed by surgeons Metastatic/spine (inpatient consult service) Lymphoma (of the skin)/skin: <ul style="list-style-type: none"> Thorough physical exams performed by dermatologists | 3 1 2 | “For patients with T1 laryngeal cancer, it is routine to do a scope exam. Most patients have had a scope exam done by a referring surgeon with photos taken.” “The primary team can give real-time and reliable physical exam findings. [It may be] harder to evaluate in the outpatient setting.” “Patients have talked to the skin doctors, who have taken multiple photographs. They’ve already communicated with me. What I will do will not be dependent on my own physical examination. It’s helpful but not critical.” “Photos from dermatology are likely sufficient.” |
| <ul style="list-style-type: none"> ● Visually inspecting patients through video suffices Breast: <ul style="list-style-type: none"> Adjuvant therapy for postoperative patients Lung/thoracic: <ul style="list-style-type: none"> Treatment recommendation based on performance status Sarcoma: <ul style="list-style-type: none"> Superficial disease that can be evaluated through video | 8 5 1 | “[Radiation] treatment is almost always adjuvant, so it can be helpful to verify the healing process to decide on positioning for simulation (prone vs. supine).” “Visually inspect ROM ... [and] infections [to decide] whether or not to proceed with treatment” “Almost everything can be captured through imaging, vital signs, and functional tests. The physical exam very rarely dictates management.” “Everything is external, so [disease can be evaluated through video].” |



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Table 2 (continued)

| Scenario and disease site represented | Provider count | Example comments |
|---|----------------|---|
| <ul style="list-style-type: none"> ● Physical examination can be deferred until day of treatment Gynecologic: Patients receiving brachytherapy | 4 | <p><i>"I could conduct the consultation because they [treatment recommendations] are primarily based on pathology and other aspects of the patient's disease."</i></p> <p><i>"A lot of the GYN treatments may be intravaginally only; you'd have to measure the vaginal width and length for an appropriate vaginal cylinder."</i></p> |
| <ul style="list-style-type: none"> ● Mostly relying on updated and good quality imaging Genitourinary Head and neck (excluding early laryngeal cancer) Lymphoma | 12 3 2 | <p><i>"Even for in-person visits, treatment planning relies mostly on imaging and relevant labs (PSA level, etc). PE is almost irrelevant, even though it's technically used for clinical staging."</i></p> <p><i>"Head and neck cancer patients typically get more imaging done (CT, PET, and MRI) than other types of cancers."</i></p> |

physician). Many physicians referenced the lack of "a seamless workflow for that. Right now, we're doing a 3-way call [...and we] don't get the video aspect." Patient access to and comfort with technology were barriers physicians observed more often among lower socioeconomic status (n = 3) and elderly populations (n = 4). Respondents (n = 4) also reported difficulties with reaching patients through the telemedicine approach (eg, "playing phone tag"). Perceived difficulties with calls after the patients had been reached included poor audiovisual quality (n = 8). Patients with hearing impairments had difficulties communicating over audio, and some patients struggled to articulate their symptoms with no in-person physical examination to supplement.

Telemedicine beyond COVID-19

Almost all physicians (96%, n = 24) foresee a role for telemedicine beyond the pandemic. Physicians would prefer to see a median of 50% (IQR 20%-68%) of their patients in-office. One participant described "a hybrid of telemedicine and face-to-face consultations." This would likely also include on-treatment status checks (n = 4) and follow-ups (n = 9), with some physicians mentioning appropriateness in these settings. Physicians specifically described potential patient benefits among end-of-life or palliative patients as well as pediatric patients. One physician noted that telemedicine may be a "silver lining" for fearful pediatric patients, as less time at the medical center may be "better for their psychological health."

Discussion

Our findings demonstrate that radiation oncologists across a large, multicenter academic institution perceive telemedicine to be highly appropriate and acceptable for consultation and radiation treatment planning for most patients with cancer. Most notably, almost three-quarters of faculty felt at least as comfortable delivering a treatment recommendation with telemedicine as they did through an office visit. In addition, the vast majority (88%) of radiation oncologists reported the experience to be better than expected. The primary barriers to the telemedicine approach related to appropriate patient selection, limitations of current technology, and personal connection with patients. Ultimately, most providers supported a hybrid model for telemedicine and in-office appointments; this would preserve the opportunity for face-to-face contact when needed for optimal decision-making and foster patient connection and flexibility, both of which influence physician burnout.¹⁹

More than half of radiation oncologists (55%) reported overall visit quality to be no different or better with telemedicine, which is somewhat lower than the 64% that primarily non-oncologists have previously reported when the same question was asked in the follow-up setting.⁵ Of note, the current report is in a period of rapid transition in which >90% of patients were seen via telemedicine, allowing for a more accurate and unbiased assessment than an experience among a pre-selected subset of patients. Additionally, the need for in-office visits to develop personal connection was deemed more important in this study (63% vs. 51% from previous report⁵), which may relate to establishing rapport in the setting of initial consultation.

Importantly, our study assessed the perceived clinical effectiveness and appropriateness of telemedicine for initial evaluation, and we found that only fairly small patient subsets (5%-30%) within certain disease sites likely warrant in-office evaluation to guide recommendations and treatment planning (eg, symptomatic metastatic disease, gynecologic cancer, early-stage laryngeal cancer, and anal cancer). For those patients not coming for in-person evaluation, many radiation oncologists can rely on proxies for examination including imaging, another physician's examination, and/or visual inspection. Further studies investigating patient outcomes are needed to confirm physician perceptions. Additionally, alternative examination techniques, technologies, and even patient-reported outcome measures that could support a radiation oncologist's evaluation and decision-making may be helpful, as is being pursued in other fields.²⁰

Notably, on univariable analysis, specialized physicians reported greater ability to treat patients appropriately via telemedicine than their more generalist counterparts, of whom most (80%) are on the clinical track. Meanwhile, no significant difference was seen based on the physician's total patient visit volume, years of clinical experience, or clinical location (main campus vs regional site). Of note, all clinical track physicians at our institution specialize in 1 to 2 disease sites but maintain flexibility to treat multiple other disease sites. Interestingly, despite only 70% of metastatic patients deemed acceptable for telemedicine, physicians self-identifying metastases as an area of specialization did *not* report any difference in ability to treat patients via telemedicine. We hypothesize that specialists may develop more comfort with less information, though potential confounding of nonspecialists seeing a higher percentage of patients for palliative intent (not always evaluated by physicians with primary or secondary specialization in metastasis) is also possible.

Additional patient-specific factors were noted to influence the effectiveness of telemedicine including language and access to video capability and high-speed Internet. One prior study even demonstrated a decreased number of visits by non-English speaking patients after telemedicine implementation.²¹ Meanwhile, patients who may be physically, emotionally, or financially burdened by an in-office visit could benefit most (metastatic, pediatric, and lower socioeconomic status patients, respectively), which is consistent with available literature.³ Therefore, accurate identification of patient subsets served best by in-office visits is of high priority to responsibly socially distance in the restoration phase of COVID-19, and considerations from formal qualitative analysis are provided (Table 2).

This work also provides a framework for the potential expansion of telemedicine within radiation oncology. Importantly, the apparent ability to treat patients entirely remotely could facilitate specialized care in clinical locations without direct access to specialists, particularly among more rare diseases. Prior quality assurance data from clinical trials suggest that certain subpopulations in

radiation oncology may benefit from more specialized care from high-volume providers, including pediatrics, and head and neck cancer.²²⁻²⁴ For comparison, one prospective study outside cancer has shown that specialized care at a distance can improve disease outcomes.²⁵ However, the complexity of extending access to specialized care to more underserved populations through technologies that can themselves contribute to disparities should not be underestimated.

In addition to addressing concerns with patient access to technology, further organization-level technological solutions are needed to streamline usability to recreate a multidimensional collaborative work environment, consistent with ongoing efforts.²⁶ For radiation oncologists, an optimal virtual examination room would allow multiple providers to enter and exit, therefore better involving interpreter services and trainees. In such a setup, telemedicine might even facilitate improvements to medical education by enhancing capacity for supervision.²⁷

Limitations of this study include its single-institution nature and the academic setting; although the Regional Care Network does include clinical sites based in the community and a number of primarily clinical physicians, the ability to rely on in-person physical examinations performed by colleagues may not be perceived as adequate in other practice settings. Another limitation is the lack of patient outcomes data for determining appropriateness of telemedicine; this study instead uses physician self-reported ability, which has been shown to correlate poorly with competence.²⁸ Lastly, comments about patient preferences are based on the physician's perspective, which we know to vary from direct patient report.²⁹ Therefore, evaluation of patient satisfaction and preferences is warranted, which we are collecting for comparison using complementary validated questionnaires, as described previously.⁵ Nonetheless, given that this study aimed to capture initial physician experiences in real-time to guide further refinements in a rapidly evolving clinical environment, with considerations for patient triage provided from a large number of specialized radiation oncologists practicing in different clinical settings, these limitations are deemed acceptable.

Conclusions

Although the COVID-19 pandemic created many disruptions and rapid changes to cancer care, this study demonstrates the ability of radiation oncologists to adapt, and provides a window into the potential broad applicability of telemedicine in the field of radiation oncology. In a field highly reliant on imaging, telemedicine visits appear appropriate for the majority of patients. Meanwhile, more dynamic audiovisual platforms are needed to facilitate multidimensional collaborative clinical environments in cancer care. Nonetheless, physicians have indicated that their experience of using telemedicine has been largely

positive, and most envision telemedicine as part of their radiation oncology practice in the future. Importantly, to maximize use of telemedicine and realize its potential to improve access to high quality cancer care, payors must continue to support reimbursement.³⁰ Further studies measuring patient satisfaction, patient outcomes, cost-effectiveness and impact on physician burnout are needed to inform future policy. Finally, telemedicine should be aimed to increase access to care for patients hindered by location and financial constraints and help increase equity in radiation quality for all patients with cancer.

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