

## Scientific Article

# A National Survey of Radiation Oncology Experiences Completing Tele-Consultations During the Coronavirus Disease (COVID-19) Pandemic



Arpit M. Chhabra, MD,<sup>a,\*</sup> Mudit Chowdhary, MD,<sup>b</sup> J. Isabelle Choi, MD,<sup>a</sup> Shaakir Hasan, DO,<sup>a</sup> Robert H. Press, MD,<sup>a</sup> and Charles B. Simone II, MD<sup>a</sup>

<sup>a</sup>New York Proton Center, New York City, New York; and <sup>b</sup>Rush University Medical Center, Chicago, Illinois

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## Abstract

**Purpose:** The emergence of the coronavirus disease (COVID-19) global pandemic has led to a significant shift in the delivery of health care, including an explosive growth of telemedicine services. This reverberated in the field of radiation oncology, with a recent American Society for Radiation Oncology (ASTRO) nationwide survey reporting 89% of surveyed clinics began to offer telemedicine programs to patients because of the pandemic. However, this survey did not study the perceptions and experiences of those clinicians delivering telemedicine services.

**Methods and Materials:** We investigated through a national physician survey the merits and limitations of radiation oncology tele-consultations. An anonymous web-based survey was distributed using SurveyMonkey ([www.surveymonkey.com](http://www.surveymonkey.com)) via email.

**Results:** Seventy six respondents (16.1% overall response rate) completed the survey, with broad representation from both academic and community-based practices. Many respondents agreed that transitioning to tele-consultations was a needed step given the emergence of the pandemic, despite most having never previously offered this service. Despite many radiation oncologists having little prior experience with tele-consultations, a majority were satisfied in being able to explain the details of a medical diagnosis, provide results of imaging and bloodwork, and discuss recommendations around radiation treatments through this format. Nearly half of the respondents agreed that tele-consultations felt impersonal, with the inability to complete physical examinations noted as a contributor to the impersonality. Nevertheless, respondents still agreed that telemedicine will play an important role going forward, and almost 90% agreed that they would offer tele-consultations even after the pandemic has resolved.

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## Introduction

In late December 2019, a cluster of pneumonia cases emerged in Wuhan, China, which were subsequently identified as being caused by severe acute respiratory

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\* Corresponding author: Arpit Chhabra, MD; E-mail: [achhabra@nyproton.com](mailto:achhabra@nyproton.com)

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syndrome coronavirus 2 (SARS-CoV-2). Since these initial days, coronavirus disease 2019 (COVID-19) has reached almost every country and territory in the world, resulting in a global pandemic. The virus first reached the United States on January 20, 2020, and has since had an impact on all facets of society.<sup>1</sup> Some of the most dramatic shifts have been in the delivery of health care, including an explosive growth of telemedicine services.

On March 17, 2020, the Centers for Medicare & Medicaid Services (CMS) loosened prior restrictions on the delivery of telemedicine, allowing greater flexibility to health care institutions, to minimize the risk of the coronavirus transmission to patients and providers. This reverberated in the field of radiation oncology, with a recent American Society for Radiation Oncology (ASTRO) nationwide survey reporting that 89% of surveyed clinics began to offer telemedicine programs to patients as a result of the COVID-19 pandemic, with many noting this was a novel offering for their practices for consultations and follow-ups.<sup>2</sup> However, this survey did not study the perceptions and experiences of those clinicians delivering telemedicine services.

To date, there are no published reports assessing physicians' experiences using tele-radiation oncology consultations. Therefore, we investigated through a national physician survey the merits and limitations of radiation oncology tele-consultations.

## Material and Methods

The study was approved and granted a waiver of consent by the institutional review board.

An anonymous, web-based survey (see survey questions in Table 1) was developed to assess radiation oncologists' practice patterns, perceptions, and experiences in completing radiation oncology tele-consultations during the COVID-19 pandemic. Questions pertaining to practice patterns were answered in a binary fashion. Questions pertaining to radiation oncologist perception of the tele-consult experience and satisfaction toward completing necessary elements of the consultation were answered on a 5-point Likert scale ranging from strongly agree, agree, neutral, disagree, or strongly disagree to the statement at hand.

The 14-question survey was designed to take  $\leq 5$  minutes to complete and was distributed using SurveyMonkey ([www.surveymonkey.com](http://www.surveymonkey.com)) via email. Given the lack of prior oncology physician survey studies about tele-consultations, our survey questions were newly generated based on consensus agreement of the first and senior author (A.M.C., C.B.S.) taking into consideration telemedicine surveys in other disciplines and nuances specific to oncology. Participation was voluntary, and responses remained anonymized and confidential. The

survey was sent to attending radiation oncologists practicing at our institution and was distributed to attending physicians who had graduated between 2013 and 2017 from Accreditation Council for Graduate Medical Education–accredited radiation oncology programs and had previously participated in a national radiation oncology survey.<sup>3</sup> The latter cohort was chosen because it represented a large population for whom email contacts were available.

Descriptive statistics were used to analyze survey responses. Missing responses to the 13 questions with multiple choice answers were exceedingly low, and all data analysis excluded these missing items.

## Results

The survey was distributed to 471 attending radiation oncologists, with 76 completing the survey for an overall response rate of 16.1%.

All respondents confirmed they were attending radiation oncologists practicing in the United States. More than two-thirds (67.1%) reported their practicing institution, and of these 74.5% were from academic centers, defined as institutions with radiation oncology residency programs.

Nearly all (93.2%) noted that before the COVID-19 pandemic, they did not offer tele-consultations. We provided an opportunity for respondents to comment on the reasons for not previously offering this service, and the 2 most common answers were lack of reimbursement and lack of technical capabilities. Since the emergence of the pandemic, however, 79.5% of respondents strongly agreed or agreed that a transition from in-person to tele-consults was necessary, with 11.0% being neutral to this position and 9.5% disagreeing with the transition.

The large majority (93.2%) of institutions were set up to deliver tele-consults through audio and video capabilities. Despite these capabilities, 80.8% noted that they used audio and video to complete radiation oncology tele-consults, whereas the remainder used audio only. Fill-in responses to this discrepancy were attributed to technical challenges patients faced with video software.

When asked whether completing tele-consults felt impersonal, 48.0% of respondents strongly agreed or agreed with this statement, whereas 16.4% were neutral, and 35.6% disagreed or strongly disagreed.

In surveying radiation oncologists' satisfaction with their ability to explain a patient's medical diagnosis/condition through telemedicine, 76.3% strongly agreed or agreed that they felt no limitations in being able to do so, whereas 15.3% were neutral, and 8.4% disagreed or strongly disagreed. Similarly, when surveying radiation oncologists' ability to explain a patient's imaging, bloodwork, or additional tests, 69.0% strongly agreed or

**Table 1** Survey questions (percent of respondents' answers in parentheses)

1. Please Indicate if you are an attending radiation oncologist?
  - a. Yes (100%)
  - b. No (0%)
2. Could you please indicate which institution you work at (optional)
  - a. Free text response
3. During the COVID-19 pandemic, please indicate which mode of communication your institution is set up to complete tele-consults?
  - a. Audio only (6.8%)
  - b. Audio and video (93.2%)
4. What is the primary mode of communication you use to complete tele-consults?
  - a. Audio only (19.2%)
  - b. Audio and video (80.8%)
  - c. **Comment Box:** Please comment if your used mode of communication differs from what your institution is set up for.
5. Before the COVID-19 pandemic, did you routinely perform patient consultations via tele-visit?
  - a. Yes (6.8%)
  - b. No (93.2%)
  - c. **Comment Box:** If you answered No, please comment on reason for not previously offering tele-health.
6. Given the COVID-19 pandemic, I feel it was necessary to transition consults from an in-person visit to a tele-visit.
  - a. Strongly agree (56.2%)
  - b. Agree (23.3%)
  - c. Neutral (11.0%)
  - d. Disagree (6.8%)
  - e. Strongly disagree (2.7%)
7. I believe completing a consultation via tele-medicine feels impersonal.
  - a. Strongly agree (9.6%)
  - b. Agree (38.4%)
  - c. Neutral (16.4%)
  - d. Disagree (28.8%)
  - e. Strongly disagree (6.8%)
8. I am satisfied that through using tele-medicine, I can explain to the patient his or her medical diagnosis/condition.
  - a. Strongly agree (31.9%)
  - b. Agree (44.4%)
  - c. Neutral (15.3%)
  - d. Disagree (5.6%)
  - e. Strongly disagree (2.8%)
9. I am satisfied that through using tele-medicine, I can explain the results of a patient's imaging, bloodwork, or additional tests.
  - a. Strongly agree (32.4%)
  - b. Agree (36.6%)
  - c. Neutral (16.9%)
  - d. Disagree (11.3%)
  - e. Strongly disagree (2.8%)

(continued on next column)

**Table 1** (continued)

10. I feel the inability to directly perform a physical examination has limited my ability to properly assess the patient and/or generate the most appropriate treatment plan.
  - a. Strongly agree (7.0%)
  - b. Agree (32.4%)
  - c. Neutral (28.2%)
  - d. Disagree (25.4%)
  - e. Strongly disagree (7.0%)
11. I am satisfied that through using tele-medicine, I am able to explain to the patient my recommended treatment for his or her medical condition.
  - a. Strongly agree (35.8%)
  - b. Agree (51.4%)
  - c. Neutral (5.7%)
  - d. Disagree (5.7%)
  - e. Strongly disagree (1.4%)
12. I am satisfied that through using tele-medicine, I can appropriately answer the patient's questions.
  - a. Strongly agree (42.9%)
  - b. Agree (44.3%)
  - c. Neutral (10.0%)
  - d. Disagree (1.4%)
  - e. Strongly disagree (1.4%)
13. I believe patients are missing out by not having in-person visits.
  - a. Strongly agree (8.6%)
  - b. Agree (34.3%)
  - c. Neutral (25.7%)
  - d. Disagree (27.1%)
  - e. Strongly disagree (4.3%)
  - f. **Comment Box:** If you answered Strongly agree or Agree, could you provide details on how patients are missing out?
14. Would you be willing to complete future patient consultations via tele-medicine even after the pandemic is resolved?
  - a. Yes (88.6%)
  - b. No (11.4%)

agreed they were satisfied being able to do so in the form of a tele-consult, whereas 16.9% were neutral, and 14.1% were unsatisfied (disagreed or strongly disagreed). Additionally, 87.2% agreed or strongly agreed that they were able to answer patient questions throughout the visit, 10.0% were neutral, and only 2.8% disagreed or strongly disagreed that they could not respond to questions through a tele-format.

The inability to complete a physical examination through tele-consultation, however, resulted in 39.4% either agreeing or strongly agreeing that this limitation prevented them from generating the most appropriate treatment plan, with 28.2% neutral to this statement, and 32.4% either disagreeing or strongly disagreeing. Additionally, when asked if radiation oncologists believed patients were missing out by not having an in-person visit,

42.9% agreed or strongly agreed, 25.7% were neutral, and 31.4% disagreed or strongly disagreed.

Despite the previously stated sentiment and limitation regarding clinical examination, 87.2% of radiation oncologists still agreed or strongly agreed that they could adequately explain to patients in tele-consult the recommended treatments for their medical conditions, with 5.7% being neutral to this statement, and 7.1% disagreeing or strongly disagreeing. Overall, this translated into 88.6% of radiation oncologists agreeing that they would be willing to offer tele-consultations in the future even after resolution of the pandemic.

## Discussion

Despite historical efforts to expand the use of telemedicine, its overall use rate in the United States has to date been low and primarily limited to a small number of nononcological specialties.<sup>4</sup> With the emergence of the COVID-19 pandemic, however, telemedicine has evolved into an essential mode of health care delivery. In the oncology subspecialties, there has been a broad adoption and implementation of virtual cancer care, including dramatic shifts in workflow across many radiation oncology practices.<sup>5-8</sup> Given that these drastic changes occurred in response to a public health emergency, it is unclear what long-lasting effects will remain after the COVID-19 pandemic and the degree to which health care institutions will continue to rely on (or insurance companies will reimburse) telemedicine in the future. An important component to answering this relies on understanding the experience of those delivering these telemedicine visits, and the advantages and difficulties they face that might influence their future decisions to continue offering telemedicine services.

Although prior publications have highlighted the implementation and workflows around telemedicine programs in radiation oncology departments,<sup>9,10</sup> there has been a lack of reports surveying the success of these established programs. The publication by Hamilton et al represents one of the only series to date surveying satisfaction around a tele-radiation oncology program at the Townsville Cancer Center in North Queensland, Australia, and the primary focus of the study was to evaluate patient experiences.<sup>11</sup> To our knowledge, our study, therefore, represents the only report detailing physicians' experiences regarding the completion of tele-radiation oncology consultations.

Responding physicians were all attending radiation oncologists with good representation from both academic and community-based practices. Many of them agreed that transitioning to tele-consultations was a needed step given the emergence of the pandemic, despite most having never previously offered this service. Their reluctance to offer tele-consults pre-COVID-19 stemmed

from a lack of reimbursement and lack of technical capabilities to perform tele-visits. This information emphasizes that measures such as accommodating governmental regulations, increased reimbursement, and digital advancements are necessary to support telemedicine into the future.

Despite many radiation oncologists having little prior experience with tele-consultations, the majority were satisfied in being able to explain the details of a medical diagnosis, provide results of imaging and bloodwork, and discuss recommendations about radiation treatments through this format. Nevertheless, nearly half of the respondents still agreed that tele-consultations felt impersonal, with the majority noting an inability to develop trust and rapport without an in-person encounter, and they agreed this was to the patient's detriment. The inability to complete physical examinations was commonly reported in the free comments section as a contributor to the impersonality between physicians and patients, and more than one-third of respondents thought this inability restricted their ability to generate the most appropriate treatment plan. However, it is noteworthy that nearly one-third of respondents also noted that an inability to complete a physical examination did not affect their ability to properly assess the patient and/or generate the most appropriate treatment plan. This presumably highlights that physical examination at the time of consultation plays a differential importance depending on the patient's disease site, given that for various disease sites, such as certain thoracic and upper gastrointestinal tumors, imaging and endoscopic findings may be of greater importance than physical examination in formulating an appropriate radiation plan with the exception of performance status, which can be adequately assessed via tele-consult.

Although this is the first such assessment of radiation oncologist satisfaction of tele-consultations to date, this study has limitations. First, despite having approximately double the response rate as other very recently published surveys of radiation oncologists,<sup>12</sup> the overall number of respondents is limited. Among these respondents, it is appreciable that there is a moderate skew toward greater responses from academic physicians. Additionally, participation bias may exist, given that physicians particularly satisfied or dissatisfied with telemedicine may have been more likely to respond to the survey. As such, generalizability might be limited. Furthermore, this survey did not allow for an analysis of satisfaction with telemedicine according to predominant disease sites treated or years in practice, as our survey was distributed predominantly to more recent graduates of radiation oncology training programs. Lastly, our study focused on perceptions regarding completion of tele-consultations, and therefore the results are not necessarily generalizable to other tele-services such as tele-follow-ups.

Overall, respondents agreed that telemedicine will play an important role going forward, and almost 90% agreed that they would offer tele-consultations even after the pandemic has resolved. The results of this survey highlight that despite some limitations to the completion of tele-consultations, many radiation oncologists were satisfied with their tele-consult experiences to date and agreed it will likely be a part of their practice long term. Although it is unlikely to replace face-to-face consultations, it appears that the extraordinary shift in practice patterns as a response to the pandemic may result in a culture change and broader acceptance of telemedicine as an important tool in the modern delivery of care in radiation oncology.

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