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Original Article

Video and In-Person Palliative Care Delivery Challenges before and during the COVID-19 Pandemic

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Abstract

Context. Palliative care (PC) clinicians faced many challenges delivering outpatient care during the coronavirus-19 (COVID-19) pandemic.

Objectives. We described trends for in-person and video visit PC delivery challenges before and during the COVID-19 pandemic in the U.S.

Methods. We performed a secondary data analysis of patient characteristics and PC clinician surveys from a multisite randomized controlled trial at 20 academic cancer centers. Patients newly diagnosed with advanced lung cancer ($N = 653$) were randomly assigned to receive either early in-person or telehealth PC and had at least monthly PC clinician visits. PC clinicians completed surveys documenting PC delivery challenges after each encounter. We categorized patients into 3 subgroups according to their PC visit dates relative to the onset of the COVID-19 pandemic in the U.S.—pre-COVID-19 (all visits before March 1, 2020), pre/post-COVID-19 (≥1 visit before and after March 1, 2020), and post-COVID-19 (all visits after March 1, 2020). We performed Pearson's chi-squared, Fisher's exact, and Kruskal-Wallis tests to examine associations.

Results. We analyzed 2329 surveys for video visits and 2176 surveys for in-person visits. For video visits, the pre-COVID-19 subgroup (25.8% [46/178]) had the most technical difficulties followed by the pre/post-COVID-19 subgroup (17.2% [307/1784]) and then the post-COVID-19 subgroup (11.4% [42/367]) ($P = 0.0001$). For in-person visits, challenges related to absent patients' family members occurred most often in the post-COVID-19 subgroup (6.2% [16/259]) followed by the pre/post-COVID-19 subgroup (3.6% [50/1374]) and then the pre-COVID-19 subgroup (2.2% [12/543]) ($P = 0.02$).

Conclusion. Technical difficulties related to PC video visits improved, whereas in-person visit challenges related to absent patients' family members worsened during the pandemic. J Pain Symptom Manage 2022;64:577–587. © *2022 American Academy of Hospice and Palliative Medicine. Published by Elsevier Inc. All rights reserved.*

Key Words

COVID-19, coronavirus-19, telehealth, telemedicine, palliative care

Key message

Technical difficulties, especially difficulty with connectivity, were the most commonly reported challenges with PC video visits. However, video visit challenges due to technical difficulties improved, whereas challenges related to family members being unable to attend in-person visits worsened during the COVID-19 pandemic.

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Introduction

The coronavirus-19 (COVID-19) pandemic altered the provision of in-person ambulatory services by catalyzing the rapid adoption of telehealth to minimize risk of COVID-19 transmission to patients and clinicians.[1–3] Palliative care (PC) clinics were not excluded from this impact, and many clinics converted in-person visits to telehealth visits.[4–7] Studies conducted before and during the pandemic demonstrated the acceptability and feasibility of PC telehealth delivery.[8–17] However, increased telehealth adoption during the pandemic could not fully bridge the care gap for some PC patients who lost access to ambulatory care services.[18]

The COVID-19 pandemic's impact on the provision of PC services has been well described in inpatient and home care settings.[8,19–22] However, little is known about PC delivery challenges in the outpatient clinic during this period for in-person and telehealth visits. A few studies documented PC telehealth delivery challenges during the pandemic, but they had small sample sizes and were conducted within a single health system.[6,23] To our knowledge, no studies have explored challenges related to in-person visits in outpatient PC clinics during the pandemic.

Since 2018, we have been collecting data on PC clinician-reported challenges for in-person and video visits as part of an ongoing multisite randomized controlled trial of early integrated PC for patients with advanced lung cancer.[24] Here, we conducted a post hoc analysis of this data to describe trends in PC clinician-reported challenges for in-person and video visits before and during the COVID-19 pandemic across multiple U.S. cancer centers.

Methods

Study Design and Procedures

We have been prospectively collecting data on PC clinician-reported challenges related to video visits and in-person visits as part of a multicenter randomized comparative effectiveness trial of early integrated telehealth versus in-person PC for adults with newly diagnosed advanced non-small cell lung cancer (NSCLC) (ClinicalTrials.gov ID# NCT03375489). In this study, we analyzed PC clinician-reported challenges before and after the onset of the COVID-19 pandemic in the U.S. We defined the COVID-19 pandemic onset as March 1, 2020, since all 50 states had reported cases of COVID-19 by mid-March 2020.[25]

The trial's study protocol has been described in detail elsewhere.[24] In brief, we recruited patients and caregivers through 20 Palliative Care Research Cooperative (PCRC) designated institutions across the U.S., most of which represent academic cancer centers. The primary outcome of this trial is patient-reported quality of life (QOL) at 24 weeks. Secondary outcomes include patient-clinician communication about end-of-life preferences, patient length of stay in hospice, caregiver participation in PC visits, patient and caregiver satisfaction with care, and patient-reported QOL at 48 weeks. The target sample size is 1250 patients and up to 1250 caregivers. The Dana-Farber/Harvard Cancer Center Internal Review Board (IRB), along with the other 18 participating sites' IRBs, reviewed and approved the study protocol. Enrolled patients and caregivers at each site were randomized to receive either early integrated telehealth PC (via video visit) or in-person PC.

The initial PC visit in both groups was required to be in person within four weeks of enrollment to help patients and PC clinicians establish rapport. However, during the COVID-19 pandemic, clinicians could conduct the initial PC visit either in person or via video due to social distancing restrictions. Subsequent follow-up visits occurred at least every four weeks either via video or in person, depending on patient randomization. For both study groups, sites prioritized longitudinal follow-up with the same PC clinician to the extent possible, though the protocol allowed for scheduling enrolled patients with a different clinician if needed. In-person PC visits were scheduled on the same day as oncology visits unless the patient was agreeable to scheduling the PC visit on a different day and could occur at various locations within the outpatient setting (e.g., PC or oncology clinic, infusion suite, or radiation oncology clinic).

Patients who survived >18 months were permitted to decrease PC visit frequency per their preference. If participants in either group missed their scheduled visit, and it could not be rescheduled within four weeks of their prior visit, the PC clinician was required to conduct a telephone visit within seven days of the missed visit. PC clinicians had up to four weeks to complete an electronic survey after each patient visit that documents the topics they addressed. Clinicians who conducted PC visits and completed post-visit surveys were licensed physicians or advanced practice providers. All participating PC clinicians received training on "Webside Manner" (i.e., how to communicate effectively and maintain rapport and human connection during virtual video visits)[26] via a train-the-trainer methodology. Lead site investigators attended a two-day training seminar on study procedures, early integrated PC implementation, and "Webside Manner" and were responsible for training PC clinicians at their respective sites.

Participants and COVID-19 Timeline

Eligible participants included patients being diagnosed within 12 weeks with advanced NSCLC, receiving treatment with non-curative intent, ≥18 years old, and not already receiving outpatient PC services. We reported study eligibility and screening procedures

elsewhere.[24] This analysis included data from patients who enrolled and had their data entered into the study database between June 14, 2018 and March 22, 2021 and had ≥ 1 PC clinician survey completed for visits between July 3, 2018, and March 12, 2021. We subsequently divided eligible patients into three subgroups based on their PC visit dates relative to the COVID-19 pandemic's onset in the U.S.: patients who had all PC visits before March 1, 2020 were categorized as pre-COVID-19; patients who had all PC visits after March 1, 2020 were categorized as post-COVID-19; and patients who had ≥1 visit before and after March 1, 2020 were categorized as pre/post-COVID-19. We excluded patients with PC telephone visits only and missing enrollment or randomization data. We also excluded individuals who had not yet had their initial PC visit; died or withdrew before participating in a PC visit; or attended a PC visit but the PC clinician did not complete the post-visit survey.

Measures and Data Collection

Clinician post-visit survey. The investigative team developed a post-visit survey specifically for this trial that PC clinicians completed via Research Electronic Data Capture (REDCap) to document visit modality (in-person vs. video vs. telephone), topics addressed, and challenges they experienced during the visit. We added the option "telephone visit due to inability to connect with video" 10 months into the study to distinguish between telephone visits due to video visit difficulties vs. planned telephone visits in both study groups. We included PC post-visit surveys completed for in-person visits, video visits, and telephone visits due to inability to connect with video that occurred between July 3, 2018 and March 12, 2021. We excluded surveys for planned telephone visits because these surveys did not include questions about video or in-person visit challenges.

The post-visit survey domains correspond to those in the early PC treatment guide to allow the PC clinician to document the content areas addressed during the visit, whether a caregiver was present, and any referrals or medications prescribed.[27] This component of the survey has been used in prior studies evaluating early integrated PC.[28–30] Questions addressing in-person and telehealth challenges were formulated specifically for this study. In-person implementation questions about challenges were based on the study team's extensive experience designing and implementing in-person early integrated PC clinical trials.[28,30,31] Video visit questions about challenges were generated after consulting with telehealth experts within Mass General Brigham, who have extensive experience with telehealth implementation.[32]

For video visit challenges, PC clinicians could select ≥1 from the following: delayed video visit; technical difficulties (i.e., connectivity, sound, and/or video); difficulty establishing rapport; difficulty addressing uncomfortable topics over video; distracted patient/family; inability to perform a physical exam; "other" challenge (which clinicians would specify via free text); or none. For in-person visit challenges, PC clinicians could select ≥1 from the following: delayed clinic visit; difficulty engaging a tired patient after oncology visit/treatment; lack of privacy in the infusion room; inability for family to be present; inability to see a patient/family in their home environment; "other" challenge (which clinicians would specify via free text); or none.

Patient demographic and clinical characteristics. Participants reported demographic characteristics at baseline. The study team extracted additional clinical information (e.g., the patients' Eastern Cooperative Oncology Group [ECOG] performance status) from the electronic health record (EHR).

Qualitative Analysis

We derived this dataset by conducting a content analysis of the free text comments associated with "other" challenges for both in-person and telehealth challenges. Two investigators (I.S.C. and M.O.) reviewed all free text comments, and each independently developed a preliminary thematic and coding scheme (i.e., level 1 coding). Both investigators met weekly until they achieved consensus regarding the thematic and coding scheme and confirmed that thematic saturation had been reached (i.e., levels 2 and 3 coding). If any coding disagreements occurred, a third investigator (J.A.G.) adjudicated until consensus was achieved by all three investigators. The multidisciplinary investigative team reviewed and finalized the coding scheme. Coding was performed using Microsoft Excel.

Statistical Analysis

We performed statistical analyses using SAS version 9.4 (SAS Institute, Inc, Cary, NC). We analyzed frequencies, medians, and interquartile ranges of patient characteristics and PC clinician-reported video and in-person visit challenges using descriptive statistics. For categorical variables, we reported percentages (numbers) and used Pearson's chi-squared test, or Fisher's exact test (if cell ≤ 5), to examine associations between COVID-19 subgroups and patient and visit characteristics, video visit challenges, and in-person visit challenges. We reported continuous variables as medians (interquartile ranges [IQRs]) and used Kruskal-Wallis test to assess for associations between COVID-19 subgroups and patient age and time differences between scheduled and actual video visit start times. A 2-sided *P*-value < 0.05 was considered statistically significant. Among video visit challenges that were statistically significant across subgroups, we examined the

distribution of the number of PC clinician-reported video visit challenges per unique patient to determine what proportion of video visit challenges consisted of patients with recurrent challenges.

Results

Patient and PC Visit Characteristics Across COVID-19 Subgroups

Between June 14, 2018 and March 22, 2021, 741 unique patients (59.3% [741/1250] of the trial's target sample size) were enrolled and had their data entered into the database. We excluded 12 patients due to missing enrollment or randomization data and 11 patients who only had PC telephone visits. We also excluded 65 patients who had not yet had their initial PC visit; died or withdrew before participating in a PC visit; or attended a PC visit but the PC clinician did not complete the post-visit survey. Among 653 unique patients included in the analysis, the largest subgroup consisted of pre/post-COVID-19 (43.4% [287/653]) followed by pre-COVID-19 (30.3% [198/653]) and then post-COVID-19 subgroups (25.7% [168/653]). Differences in patient characteristics were limited to a smaller proportion of females and greater proportion of individuals with poorer functional status (i.e., ECOG ≥2) in the pre-COVID-19 subgroup versus the other two subgroups (Table 1). Otherwise, patient characteristics between the three subgroups did not significantly differ from one another, including frequency of digital technology use (i.e., most patients reported daily computer, tablet, or smartphone use; email use; or internet use).

PC clinicians completed 6245 post-visit surveys for visits that occurred between July 3, 2018 and March 12, 2021. We excluded 1740 post-visit surveys for planned telephone visits from both study groups. We analyzed 4505 post-visit surveys, of which 48.3% (2176/4505) were in-person; 46.3% (2085/4505) were video visits; and 5.4% (244/4505) were telephone visits due to inability to connect by video. PC clinicians completed post-visit surveys for 92.2% (2176/2361) of in-person visits and 88.6% (2085/2352) of video visits. The most common visit modality for the pre-COVID-19 subgroup was in-person visits (75.3% [543/721]), whereas video visits accounted for the most common visit modality in the pre/post-COVID-19 (50.5% [1596/3158]) and post-COVID-19 subgroups (52.9% [331/626]) ($P < 0.0001$) (Fig. 1).

Video Visit Challenges

We analyzed 2329 PC clinician post-visit surveys for video visits and telephone visits converted from video visits due to the inability to connect with video. Video visits in the pre-COVID-19 subgroup had the highest percentage of technical difficulties (25.8% [46/178]) followed by the pre/post-COVID-19 subgroup (17.2% [307/1784]) and then the post-COVID-19 subgroup (11.4% [42/367]) ($P = 0.0001$) (Table 2). Among surveys reporting technical difficulties, the most common challenge was difficulty with connectivity, which occurred most often in the pre-COVID-19 subgroup (20.2% [36/178]) followed by the pre/post-COVID-19 subgroup (12.8% [228/1784]) and then the post-COVID-19 subgroup (6.0% [22/367]) ($P < 0.0001$).

The highest percentage of PC clinician-reported "other" free text video visit challenges occurred in the pre-COVID-19 subgroup (12.4% [22/178]) followed by the pre/post-COVID-19 subgroup (6.6% [118/1784]) and then the post-COVID-19 subgroup (5.5% [20/367]) ($P = 0.008$). PC clinicians most often reported no challenges with video visits in the post-COVID-19 subgroup [77.9% (286/367)] followed by the pre/post-COVID-19 subgroup [69.1% (1232/1784)] and then the pre-COVID-19 subgroup [45.5% (81/178)] ($P < 0.0001$). The median number of PC clinician surveys reporting technical, "other," or overall video visit challenges (i.e., negative response to "no challenges") per unique patient were as follows: reporting technical challenges was two surveys per patient (IQR 1-3); reporting other challenges was one survey per patient (IQR 1-1); and reporting overall challenges was two surveys per patient (IQR 1-4) (Supplementary Fig. 1).

Across all COVID-19 subgroups, PC clinicians rarely reported difficulties establishing rapport with patients addressing topics that felt uncomfortable or performing a physical exam necessary to provide optimal care over video (Table 2). Additionally, PC clinician reporting of delayed video visits was not statistically significant across subgroups, but analysis of the time difference between scheduled and actual video visit start times showed that pre-COVID-19 visits started later [two minutes (IQR 0-10)] compared to pre/post-COVID-19 [0 minutes (IQR 0-5)] and post-COVID-19 [0 minutes (IQR 0-5)] subgroups ($P = 0.005$).

In-Person Visit Challenges

We analyzed 2176 PC clinician post-visit surveys for in-person visits. The subgroup with the highest percentage of PC clinician-reported difficulty engaging patients due to fatigue following an oncology visit or treatment was in the pre-COVID-19 subgroup (4.2% [23/543]) followed by the pre/post-COVID-19 subgroup (2.3% [31/1374]) and then the post-COVID-19 subgroup (1.9% [5/259]) ($P = 0.05$) (Table 3). The post-COVID-19 subgroup (6.2% [16/259]) had the highest percentage of PC clinician-reported challenges related to absent family members during in-person visits followed by the pre/post-COVID-19 subgroup (3.6% [50/1374]) and then the pre-COVID-19 subgroup (2.2% [12/543]) ($P = 0.02$). Additionally, PC clinicians reported that the pre-COVID-19 subgroup (74.8%

Table 1
Patient Baseline Characteristics by COVID-19 Subgroup[a]

Characteristics	Pre-COVID-19 (n = 198)	Pre/Post-COVID-19 (n = 287)	Post-COVID-19 (n = 168)	P-value[b]
Age at enrollment, median (IQR)	67.0 (59.8 − 74.2)	64.6 (57.4 − 72.5)	66.2 (60.0 − 72.8)	0.08
Gender				
Female	81 (40.9)	156 (54.4)	97 (57.7)	0.002
Race				
White	168 (84.9)	226 (78.8)	133 (79.2)	0.21
Black	22 (11.1)	39 (13.6)	14 (8.3)	0.23
Asian	7 (3.5)	13 (4.5)	10 (6.0)	0.54
Native American or American Indian	0 (0)	3 (1.1)	0 (0)	0.26
Native Hawaiian or Pacific Islander	0 (0)	1 (0.4)	0 (0)	1.0
Other	3 (1.5)	7 (2.4)	9 (5.4)	0.10
Ethnicity[c]				
Hispanic	5 (2.5)	12 (4.3)	9 (5.5)	0.37
Primary language				
English	196 (99.0)	284 (99.0)	168 (100)	0.53
Relationship status[d]				
Single	10 (5.1)	15 (5.2)	12 (7.2)	0.62
Married or partnership	135 (68.5)	210 (73.2)	111 (66.5)	
Divorced, separated, or other	31 (15.7)	37 (12.9)	22 (13.2)	
Widowed	21 (10.7)	25 (8.7)	22 (13.2)	
Education[e]				
High school or less	66 (33.7)	77 (26.8)	62 (37.4)	0.18
Some or completed college	99 (50.5)	154 (53.7)	77 (46.4)	
Graduate school	31 (15.8)	56 (19.5)	27 (16.3)	
Income[f]				
Less than $25k	36 (19.7)	61 (22.9)	40 (25.5)	0.25
$25k − $49,999	39 (21.3)	43 (16.1)	35 (22.3)	
$50k − $99,999	58 (31.7)	69 (25.9)	41 (26.1)	
$100k − $149,999	28 (15.3)	43 (16.1)	20 (12.7)	
>$150k	22 (12.0)	51 (19.1)	21 (13.4)	
ECOG performance status[g]				
0	34 (17.2)	87 (30.3)	43 (25.6)	<0.0001
1	108 (54.6)	159 (55.4)	102 (60.7)	
≥ 2	56 (28.3)	41 (14.3)	23 (13.7)	
Living environment				
Lives alone	48 (24.3)	52 (18.1)	30 (17.9)	0.19
Lives with a partner	128 (64.7)	201 (70.0)	109 (64.9)	0.36
Lives with a roommate	6 (3.0)	7 (2.4)	4 (2.4)	0.90
Lives with kids <18 yrs old	16 (8.1)	29 (10.1)	16 (9.5)	0.75
Lives with kids >18 yrs old	25 (12.6)	49 (17.1)	24 (20.2)	0.14
Lives in a nursing home	2 (1.0)	1 (0.4)	0 (0)	0.47
Lives with a parent	5 (2.5)	7 (2.4)	1 (0.6)	0.34
Other living	9 (4.6)	12 (4.2)	10 (6.0)	0.68
Frequency of computer, tablet, or smartphone use[h]				
Daily	133 (68.6)	210 (73.7)	124 (73.8)	0.69
Several times a week	29 (15.0)	31 (10.9)	17 (10.1)	
Once a week	11 (5.7)	20 (7.0)	12 (7.1)	
Never	21 (10.8)	24 (8.4)	15 (8.9)	
Frequency of email use[h]				
Daily	106 (54.1)	169 (59.7)	94 (56.0)	0.85
Several times a week	30 (15.3)	38 (13.4)	26 (15.5)	
Once a week	27 (13.8)	37 (13.1)	26 (15.5)	
Never	33 (16.8)	39 (13.8)	22 (13.1)	
Frequency of internet use[h]				
Daily	115 (58.7)	189 (66.3)	108 (64.3)	0.60
Several times a week	34 (17.4)	40 (14.0)	29 (17.3)	
Once a week	22 (11.2)	22 (7.7)	12 (7.1)	
Never	25 (12.8)	34 (11.9)	19 (11.3)	
Randomization				
In-person	96 (48.0)	147 (51.2)	79 (47.0)	0.64
Telemedicine	103 (52.0)	140 (48.8)	89 (53.0)	

Abbreviations: ECOG = Eastern Cooperative Oncology Group.
[a]Data are expressed as No. (%) unless otherwise indicated.
[b]Univariable comparison using Pearson's chi-squared test or Fisher's exact test for categorical variables and Kruskal-Wallis test for continuous variables.
[c]Missing 10 observations.
[d]Missing 2 observations.
[e]Missing 4 observations.
[f]Missing 46 observations.
[g]Missing 12 observations.
[h]Missing 6 observations.

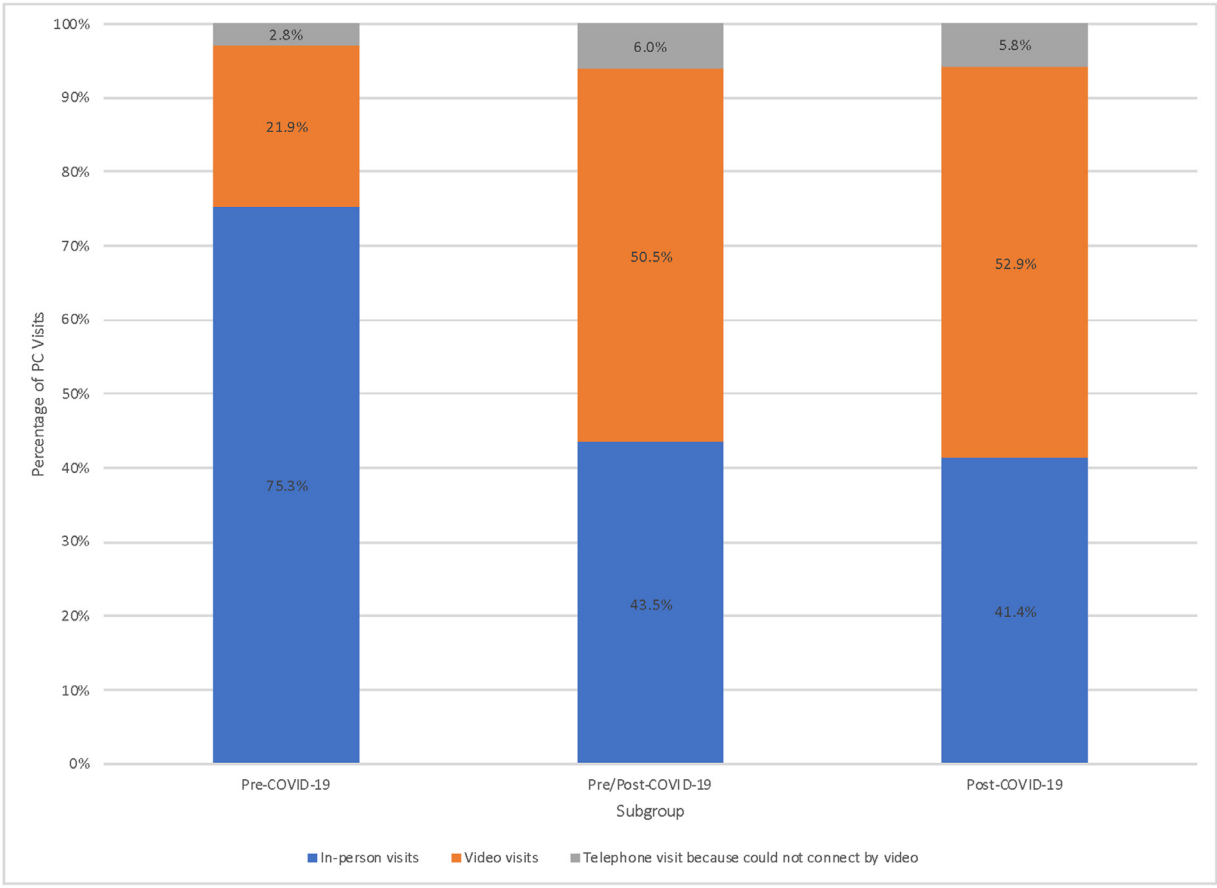

Fig. 1. Distribution of palliative care (PC) visit modalities across COVID-19 patient subgroups. For interpretation of the references to color in this figure legend, the reader is referred to the web version of this article.

Table 2
Palliative Care Clinician-Reported Challenges and Relevant Visit Characteristics during Video Visits[a]

Challenges or Relevant Visit Characteristics	Pre-COVID-19 (n=178)	Pre/Post-COVID-19 (n=1784)	Post-COVID-19 (n=367)	p-value[b]
Video visit was delayed	14 (7.9)	103 (5.8)	17 (4.6)	0.32
Time difference in minutes between scheduled and actual video visit start times, median (IQR)	2 (0-10)[c]	0 (0-5)[d]	0 (0-5)[e]	0.005
Notable technical difficulties with visit	46 (25.8)	307 (17.2)	42 (11.4)	0.0001
Difficulty with connectivity	36 (20.2)	228 (12.8)	22 (6.0)	<0.0001
Difficulty with sound	12 (6.7)	87 (4.9)	15 (4.1)	0.40
Difficulty with video	15 (8.4)	97 (5.4)	17 (4.6)	0.18
Difficulty establishing rapport with patient over video	4 (2.3)	25 (1.4)	4 (1.1)	0.51
Difficulty addressing topics that felt uncomfortable discussing over video	3 (1.7)	18 (1.0)	3 (0.8)	0.57
Patient/family seemed distracted	5 (2.8)	32 (1.8)	2 (0.5)	0.08
Unable to perform physical exam necessary to provide optimal care	8 (4.5)	44 (2.5)	6 (1.6)	0.13
Other video visit challenges	22 (12.4)	118 (6.6)	20 (5.5)	0.008
None	81 (45.5)	1232 (69.1)	286 (77.9)	<0.0001

[a]Data are expressed as No. (%) unless otherwise indicated.
[b]Univariable comparison using Pearson's chi-squared test or Fisher's exact test for categorical variables and Kruskal Wallis test for continuous variables.
[c]Missing 21 observations.
[d]Missing 189 observations.
[e]Missing 37 observations.

[406/543]) most often had another person present during the visit followed by the pre/post-COVID-19 subgroup (60.6% [833/1374]) and then the post-COVID-19 subgroup (46.7% [121/259]) ($P < 0.0001$). Finally, the percentage of PC clinicians reporting no overall challenges with in-person visits was highest in the pre/post-COVID-19 subgroup (70.0% [962/1374]) followed by the post-COVID-19 subgroup (67.6%

Table 3
Palliative Care Clinician-Reported Challenges and Relevant Visit Characteristics during In-Person Visits[a]

Challenges or Relevant Visit Characteristics	Pre-COVID-19 (n=543)	Pre/Post-COVID-19 (n=1374)	Post-COVID-19 (n=259)	p-value[b]
Clinic visit was delayed	82 (15.1)	204 (14.9)	39 (15.1)	0.99
Patient was difficult to engage during clinical visit because they were tired after oncology visit or treatment	23 (4.2)	31 (2.3)	5 (1.9)	0.05
Lack of privacy in the infusion room	27 (5.0)	74 (5.4)	17 (6.6)	0.65
Family unable to be present for clinic visit	12 (2.2)	50 (3.6)	16 (6.2)	0.02
Patient had another person present during the visit	406 (74.8)	833 (60.6)	121 (46.7)[c]	<0.0001
Would have been helpful to see patient/family in their home environment	12 (2.2)	13 (1.0)	4 (1.5)	0.07
Other in-person challenges	40 (7.4)	74 (5.4)	14 (5.4)	0.24
None	307 (56.5)	962 (70.0)	175 (67.6)	<0.0001

[a]Data are expressed as No. (%) unless otherwise indicated.
[b]Univariable comparison using Pearson's chi-squared test or Fisher's exact test for categorical variables.
[c]Missing 1 observation.

[175/259]) and then the pre-COVID-19 subgroup (56.5% [307/543]) ($P < 0.0001$).

Thematic Elements of "Other" Free Text Challenges for Video and In-Person Visits

We analyzed 146 unique "other" video visit and 132 unique in-person "other" free text comments. We identified five major themes for video visits and three major themes for in-person visits describing "other" free text challenges (Table 4). Themes for free text video visit challenges included: 1) end-user difficulties, 2) home or clinical environment, 3) technical challenges, 4) scheduling, and 5) miscellaneous challenges. Most free text video visit challenges involved end-user difficulties ($n = 73$) and technical challenges ($n = 74$). Themes for free text in-person challenges included: 1) logistical challenges, 2) patient-related issues, and the 3) clinical environment. Most free text in-person visit challenges involved patient-related issues ($n = 73$). Supporting quotes for each subtheme are listed in Supplementary Table 1.

Discussion

In our study, we observed several longitudinal trends regarding PC delivery challenges in both video and in-person visits. The proportion of video visit challenges related to technical difficulties and "other" free text challenges were significantly less in the post-COVID-19 subgroup compared to the pre-COVID-19 and pre/post-COVID-19 subgroups. Moreover, patients with recurrent video visit challenges did not constitute the majority of PC clinician reported video visit challenges. For in-person visits, a greater proportion of PC clinicians reported challenges related to patients' family members being absent during clinical encounters in the post-COVID-19 subgroup compared to the other two subgroups. Conversely, a lower proportion of PC clinicians reported difficulty engaging patients due to fatigue in the post-COVID-19 subgroup compared to the other two subgroups.

Decreased technical difficulties during video visits over time may be attributed to increased clinician and institutional experience conducting and supporting video visit implementation. Many sites sought to minimize patient exposure to COVID-19 during the pandemic, which is largely why video visits accounted for the most common visit modality in the pre/post-COVID-19 and post-COVID-19 subgroups (Fig. 1). This increased utilization of video visits during the pandemic,[4–7] as well as technical difficulties (especially related to connectivity) as the most commonly cited challenge,[14,23,33] is consistent with prior studies. Greater familiarity with the video visit platform over time likely enabled clinicians and patients to prevent and troubleshoot technical difficulties more effectively. Moreover, this finding may reflect individual institutional efforts to support video visit delivery during the pandemic (e.g., increasing information technology support, increasing patient education, and improving EHR integration or utilizing alternative audio-visual platforms).[34] Notably, more telephone visits due to poor video visit connectivity occurred in pre/post-COVID-19 and post-COVID-19 subgroups, but this finding likely reflects the delayed implementation of this survey item in our study, leading to higher reporting compared to the pre-COVID-19 subgroup.

The themes that emerged from our qualitative analysis of "other" free text video visit challenges may partially explain why the percentage of "other" challenges was lowest in the post-COVID-19 subgroup compared to the other two. Many of these challenges were technical difficulties identical to those cited above, and similarly, increased institutional support and user experience with video visits likely mitigated these challenges over time. This increased collective experience with video visits over time may have also reduced some of the end-user difficulties (e.g., forgetting log-in information or setting up video visit equipment incorrectly).

Table 4
Thematic Description of Other Free Text Video Visit and In-Person Challenges

Major Themes (Number of Free Text Comments)[a]	Subthemes	Supporting Quotation(s)
Video visits		
End-user difficulties (n=73)	Patient • Forgetting appointment, log-in information, or tablet • Vulnerable populations • Difficulty setting up video visit • Limited access to technology • Preference for non-video visit • Too sick to participate Clinician • Forgetting log-in information • Perceived limitations regarding care delivery	"Patient does not have good internet connection and is not technologically sophisticated and wants to do visit by phone." "Need for interpreter; this was done via 3-way telephone call and interpreter was disconnected halfway thru visit." "Patient became teary eyed during the visit. My gut instinct was to lean in, reach out, and to provide a Kleenex. . .I could not do that. I felt a bit hindered in my ability to care for him. I was also surprised at how different it felt for me to not be able to touch him in order to console him."
Home or clinical environment (n=18)	• Lack of privacy • Background distractions / interruptions • Sub-optimal clinic setup for video visits	"Privacy issues. Patient did not want family to overhear conversation so he had to leave house and conduct phone call." "Difficult to get to a room in a timely manner to use telehealth equipment as I don't have ability to do this in my office."
Technical challenges (n=74)	• Log-in difficulties • Poor connectivity • Poor audio quality • Poor video quality • App-specific issues • Efforts to work around tech issues • Difficulty including family members	"Patient's password expired so had to substitute telephone call to video." "Her wifi is slow? The video was glitchy and the voice skipped. It made it difficult for us to really hear each other."
Scheduling (n=7)	• Visit timing • Difficulty including family members	"Visit unexpectedly short as patient was leaving for her mother's funeral."
Miscellaneous challenges (n=5)	—	"Unable to conduct telehealth visit as patient was out of state."
In-person visits		
Logistical challenges (n=44)	• Interdisciplinary care coordination and patient scheduling • Transportation issues • Converting video to in-person visits	"He had not yet seen oncology so had not yet received his scan results—we therefore did not discuss this." "Patient was finishing her infusion when I arrived even though I came early. Her treatment plan had changed, and she did not receive all infusions so treatment time was significantly shortened. This resulted in us being rushed for the consult."
Patient-related issues (n=73)	• Delayed clinic visits • Lack of PC clinician continuity • Challenges specific to the individual • Feeling emotionally overwhelmed • Confusion about study participation or PC • Uninterested in PC • Feeling unwell or clinical urgency • Family / caregiver dynamics • Vulnerable populations	"Patient arrived late." "Patient frustrated to take time out of the day for PC appointment. Was told study visits would be in infusion." "Patient was hypotensive 70/50 and in severe 10/10 pain so not interested in talking."
Clinical environment (n=31)	• Inadequate clinical space for in-person visits • Lack of privacy • COVID-19 related limitations	"Visit took place in infusion which was not as private as optimal for a conversation that requires vulnerability/demonstration of emotion." "Due to COVID restrictions, wife was not with him, and I could not get her on the phone. She is usually more realistic about how he is doing."

Abbreviations: PC, palliative care
[a]The subtotal for each major theme may contain duplicate free text comments since some comments contained ≥2 codes that could have been classified under separate subthemes.

Throughout the study, PC clinicians rarely reported difficulties establishing rapport with patients, addressing topics that felt uncomfortable, or performing a physical exam necessary to provide optimal care over video. Although rapport building was not an issue in our study, others have highlighted the difficulties of establishing rapport during PC video visits.[35] Requiring in-person encounters for the initial visit and "Webside

Manner" training may have helped PC clinicians establish and maintain rapport with patients more effectively. Our findings are also consistent with prior studies that demonstrate the acceptability of PC video visits to discuss sensitive topics.[13,14,35] To our knowledge, no other studies have examined challenges related to performing a physical exam in the context of PC video visits. The low reporting of challenges related to the physical exam suggests that most symptoms can be adequately assessed and managed by history, visual inspection, and/or with the help of the patient and caregiver, at least as perceived by the PC clinician.

Post-visit surveys indicated that other persons (including family members) accompanied patients less often for in-person visits during the pandemic, which likely reflects the restrictive visitation policies implemented during this time. Most hospitals implemented "no visitor" restrictions, which prevented friends and family members from accompanying patients during visits.[36] Consequently, PC clinicians may have experienced more challenges conducting in-person visits during the pandemic due to absent family members or caregivers, especially since caregivers of patients with cancer are often active participants during clinical encounters.[37,38] Interestingly, post-visit surveys following in-person visits indicated that fatigue-related challenges were highest in the pre-COVID-19 subgroup compared to the others. This finding may be attributed to the larger distribution of patients with moderate-to-poor performance status in the pre-COVID-19 subgroup since patients with poorer performance status have less physiologic reserve to engage effectively during interpersonal encounters.

Our study has several limitations. First, we amended our study protocol due to social distancing restrictions to allow either in-person or video visits when conducting initial PC consultations. Despite this alteration, most initial visits were conducted in person across COVID-19 subgroups (Supplementary Table 2). Second, we are unable to report study procedure adherence by randomized study group since we will be reporting these findings in the primary outcome paper. Third, our analysis of post-visit surveys did not account for intra-clinician variation because our study lacked data on PC clinician characteristics, and we have over 90 palliative care clinicians serving as study interventionists, with varying numbers of observations per clinician. By analyzing our post-visit survey data at the patient level and dividing the data into time-based subcategories, we were able to yield the most interpretable results.

Fourth, the post-visit survey questions addressing in-person and video visit challenges were formulated ad hoc, which limits their validity. Fifth, our results may be biased towards fewer reported challenges encountered with video visits due to PC clinician training on communication skills involving video visits. Sixth, most of the study's patient sample was familiar with technology, reporting daily use of a computer, tablet, smartphone, internet, or email, which could also bias findings towards the null. Seventh, clinical research coordinators (CRCs) were available to assist patients with setting up video visits and to help troubleshoot technical issues. Finally, the study mitigated inequities in digital health access by providing a tablet to patients randomized to the video visit group who did not possess a smartphone, tablet, or computer. Healthcare institutions rarely provide navigators and digital devices for patients with low technology literacy and/or limited access to technology in a non-research context, respectively. That said, the availability of tablets and CRC support allowed us to have greater sample diversity.

In summary, PC clinician-reporting on technical difficulties related to video visits improved, whereas in-person challenges related to absent patients' family members worsened during the pandemic. Decreased PC video visit challenges over time possibly reflects increased clinician and institutional experience implementing this modality, and increased challenges related to absent family members during in-person visits likely reflects restrictive institutional visitation policies during the pandemic. More research is needed to understand how to optimize delivery of both in-person and video PC visits to ensure that all patients with advanced cancer have equitable access to early integrated PC.

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Supplementary materials

Supplementary material associated with this article can be found in the online version at doi:10.1016/j.jpainsymman.2022.08.005.

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