

# Patient and Clinician Experiences With Telehealth for Patient Follow-up Care

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**T**elemedicine visits have been used in the United States to enhance access to healthcare, most notably for people who live in remote and underserved areas.<sup>1,2</sup> The increasing availability of personal technology (89% have internet access, 77% are online daily<sup>3</sup>) offers patients and clinicians the opportunity to utilize real-time virtual communication to enhance access for patients when transportation challenges, schedules, or physical disability make office visits difficult in any geography.<sup>4</sup> Although face-to-face interactions may be preferred in some circumstances by patients or clinicians, the convenience of accessing healthcare consultations from the home or office may save lost time at home or work, travel time, and missed and rescheduled appointments.<sup>5-9</sup> Understanding the perceived relative value of different modes of healthcare services may help to shape the use of virtual or remote healthcare technologies.<sup>10,11</sup>

Effective population health management is a balancing act that requires consideration of patient needs and preferences for more flexible and timely access to consultation, accountability to payers by managing high costs, and understanding how to leverage new technologies.<sup>12,13</sup> System learning that demonstrates the value of different types of "visits" for the system and the patient is essential.<sup>14</sup>

We initiated the Massachusetts General Hospital (MGH) TeleHealth program in 2012, offering a range of telemedicine services in 15 clinical departments. This paper describes experiences with virtual video visits (VVs): 2-way audiovisual synchronous videoconferencing between the MGH clinician and patient. The research reported here focuses on the patient and clinician experience of a VV in a full year of operation to understand its value and comparative experience with VVs and office visits.

## METHODS

### Study Setting and Telemedicine

Clinicians in 5 specialties (psychiatry, neurology, cardiology, oncology, and primary care) were trained in how to provide a VV throughout the first year and on a rolling basis. Oncology and primary care VVs were not implemented until late in the data collection period. Clinicians offered VVs as an option to

## ABSTRACT

**OBJECTIVES:** The increasing and widespread availability of personal technology offers patients and clinicians the opportunity to utilize real-time virtual communication to enhance access to health services. Understanding the perceived value of different modes of care may help to shape the future use of technology.

**STUDY DESIGN:** Cross-sectional surveys of patients and clinicians participating in telehealth virtual video visits (VVs) in an academic health system.

**METHODS:** We administered surveys to 426 unique established patients and 74 attending physicians in our hospital to measure perceptions of the comparative experience of VVs and office visits; 254 patients and 61 physicians completed the surveys.

**RESULTS:** When comparing VVs and office visits, 62.6% of patients and 59.0% of clinicians reported no difference in "the overall quality of the visit." VVs were vastly preferred to office visits by patients for convenience and travel time. A majority (52.5%) of clinicians reported higher efficiency of a VV appointment.

**CONCLUSIONS:** For established patients, VVs may provide effective follow-up and enhanced convenience when compared with traditional office visits.

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established patients based on their professional assessment of the suitability of the mode of visit for the individual patient's situation (eg, patient could communicate effectively in this mode, physical examination was not critical at the visit). Clinicians were compensated by MGH for conducting these VVVs because they were not covered by payers in Massachusetts. In advance of the VVV, participating patients received education, instruction, and phone-based technology support and testing for installation of the visit software. Patients were not charged insurance co-payments for the visit.

## TAKEAWAY POINTS

Telemedicine visits have been used to provide healthcare access to more remote populations. In a busy health system, telehealth visits were incorporated for established patients to allow patient-clinician interaction in a new, more convenient mode. In the first full year of patient visits in this new mode, we found that:

- ▶ Patients rated these visits highly and the majority would recommend them to family and friends.
- ▶ Using standard measures of patient experience, most patients and clinicians perceived no loss of communication in virtual video visits compared with office visits, although clinicians were somewhat more likely to see loss of personal connection as a problem.
- ▶ Patients perceived considerable added convenience, saved travel time, and expressed willingness to pay co-payments for this visit option.
- ▶ Virtual visits are an important and useful option in clinical care.

## Survey Methods

The data reported here come from surveys of patients and clinicians in the MGH TeleHealth program. This study was reviewed and approved by the Partners Health Care Office of Human Research. The surveys we employed were developed by the MGH Center for TeleHealth leadership and Mongan Institute Health Policy Center research team, including experts in survey and health services research, telemedicine, clinical medicine, and health management. We included selected patient experience measures developed by the Consumer Assessment of Healthcare Providers and Systems (CAHPS)<sup>15</sup> and augmented with items developed for this mode of visit. Surveys were pretested with patients and refined. Key domains included technology and communication quality, visit quality and experience, patient time and costs, and willingness to pay for a VVV.

Of 426 eligible patients, 254 (60%) completed surveys using a secure web tool. Eligible patients had at least 1 VVV during the accrual period and at least 1 office visit in the 6-month period prior. Initial recruitment was by email request within 1 week of the VVV. Patients whose email addresses were not functional were contacted by postal mail or telephone. Persistent nonresponders to the survey were offered a \$10 incentive after 4 weeks of attempts without reaching the patient. Patients younger than 18 years were not directly contacted; rather, surveys were sent to their parents.

Of 74 eligible clinicians (physicians, nurse practitioners, psychologists) who provided at least 1 VVV to program patients during the study period, 61 (82%) completed surveys online, with recruitment by email. An Amazon.com gift certificate valued at \$50 was offered to each physician as an honorarium for participation.

The results reported here are descriptive; subgroup comparisons within patient and clinician populations use  $\chi^2$  or *t* test comparisons as indicated, and analyses comparing patient and clinician responses utilize 2-sample *t* tests of the difference in proportions. All analyses were conducted using SPSS version 23 (IBM Corp; Armonk, New York).

## RESULTS

Patient characteristics are shown in the [eAppendix Table](#) (eAppendix available at [ajmc.com](#)). VVV patients were diverse in age and gender

and were predominantly white and non-Hispanic, consistent with patient demographics in our system. Patients receiving behavioral health care are overrepresented due to the rapid uptake of VVV by those clinicians and patients. No significant differences were measured in characteristics of respondents and nonrespondents. Clinician respondents were psychologists and psychiatrists (34%), neurologists (38%), cardiologists (10%), oncologists (2%), and primary care clinicians (16%).

### Patient Experience of VVVs

Patient experience with a VVV was measured in multiple items. Responses are shown in the [Table](#) by specialty, comparing neurology and cardiology patient responses with those of the psychiatry patients (referent). We used 4 measures from the CAHPS Clinician Group visit to assess patient experience with efficiency and communication during VVVs. Overall, 80% or more respondents answered “yes, definitely” to these items; 82.3% responded “yes, definitely” to whether they would recommend VVV to their family and friends. On a scale of 0 to 10, where 0 is the worst possible visit and 10 is the best visit, 68.5% rated the visit a 9 or 10.

We asked patients to consider whether the care provided during their recent VVV could have been provided in another way and still met their needs, asking “Do you think the health issues you discussed with clinicians today could just as easily have been addressed by [insert visit mode]?” Nearly 90% of patients agreed that their issues could also have been addressed in an office visit (definitely, 70.8%; somewhat, 17.8%) and nearly 60% by telephone calls (definitely, 23.2%; somewhat, 36.7%). The results for secure email (definitely, 7.2%; somewhat, 23.5%) and text messaging (definitely, 3.6%; somewhat, 12.7%) suggest that they are less often appropriate substitutes (data not shown).

### Patient and Clinician Comparisons of Office Visits and VVVs

The [Figure](#) shows patient and clinician responses to a series of comparative questions about office visits and VVVs that were asked of both groups. Expanded data are shown in [eAppendix Figures 1 and 2](#)—one with patient data, one with clinician data—and include

## TRENDS FROM THE FIELD

**TABLE.** Patient Experience With Virtual Video Visits

	Specialties			
	Total (N = 254)	Psychiatry (n = 113)	Neurology (n = 92)	Cardiology (n = 30)
Thinking about your most recent virtual video visit, please tell us how much you agree with the following items:				
I saw my clinician within 15 minutes of my appointment time.		Reference	P = .609	P = .284
Yes, definitely agree	88.2%	90.3%	88.0%	83.3%
Yes, somewhat agree	6.3%	6.2%	4.3%	10.0%
No	3.5%	1.8%	4.3%	6.7%
Not answered	2.0%	1.8%	3.3%	0.0%
My clinician explained things in a way that was easy to understand.		Reference	P = .046	P = .791
Yes, definitely agree	92.9%	95.6%	88.0%	96.7%
Yes, somewhat agree	3.9%	1.8%	7.6%	3.3%
No	0.8%	0.0%	1.1%	0.0%
Not answered	2.0%	2.7%	3.3%	0.0%
My clinician listened carefully to me.		Reference	P = .026	P = .791
Yes, definitely agree	92.5%	95.6%	87.0%	96.7%
Yes, somewhat agree	4.7%	1.8%	9.8%	3.3%
No	0.8%	0.0%	1.1%	0.0%
Not answered	2.0%	2.7%	2.2%	0.0%
My clinician spent enough time with me.		Reference	P = .002	P = .656
Yes, definitely agree	98.8%	94.7%	80.4%	96.7%
Yes, somewhat agree	7.1%	2.7%	15.2%	3.3%
No	1.2%	0.9%	1.1%	0.0%
Not answered	2.0%	1.8%	3.3%	0.0%
On a scale from 0 to 10, where 10 is your BEST visit and 0 is your WORST possible visit, how would you rate your virtual video visit?		Reference	P = .771	P = .168
9-10	68.5%	66.3%	67.4%	80.0%
7-8	25.2%	27.5%	23.9%	20.0%
≤6	5.1%	5.3%	6.5%	0.0%
Would you recommend this clinician to your family and friends?		Reference	P = .034	P = .544
Yes, definitely agree	89.0%	93.8%	84.8%	96.7%
Yes, somewhat agree	7.5%	5.3%	8.7%	3.3%
No	1.6%	0.0%	2.2%	0.0%
Not answered	2.0%	0.9%	4.3%	0.0%
Would you recommend a virtual visit to your family and friends?		Reference	P = .416	P = .076
Yes, definitely agree	82.3%	86.7%	82.6%	66.7%
Yes, somewhat agree	13.4%	11.5%	10.9%	33.3%
No	0.8%	0.0%	2.2%	0.0%
Not answered	3.5%	1.8%	4.3%	0.0%

Source: Data from the TeleHealth Patient Survey, February 2014-March 2015.

several items that were directed only to one group or the other.

Most patients (62.6%) and clinicians (59.0%) reported “no difference” between virtual and office visits on “the overall quality of the visit.” When rating “the personal connection felt during the visit,” 32.7% of patients and 45.9% of clinicians reported that the “office visit is better,” but more than half of the respondents (patients, 59.1%; clinicians, 50.8%) said that there was “no difference.”

### Patient Willingness to Pay for VVV

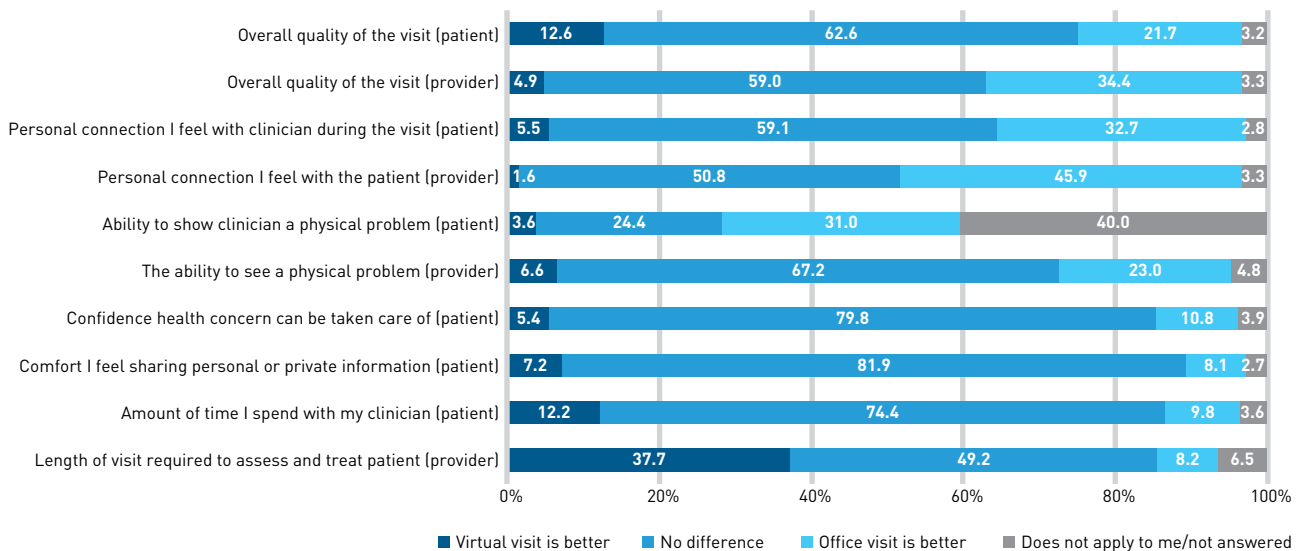
**eAppendix Figure 3** shows data on patient willingness to pay for VVV out of pocket. Patients were not initially charged co-payments. However, the majority of patients expressed a willingness to pay a co-payment of up to \$50. Among those willing to bear the full cost of the VVV, more than one-third had no current co-payment and all had private (vs public) insurance. We conducted bivariate analyses of the willingness to make co-payments for VVV by both self-reported travel time and cost of attending office visits. Among those who traveled more than 90 minutes to an office visit, 51.5% indicated they would pay a co-payment of more than \$50 for a VVV compared with 30.4% of those who traveled less than 30 minutes. Among patients who spent \$25 or more on travel to attend an office visit, 73.2% would pay a co-payment of \$26 to \$50 for a VVV and 97.6% would pay a co-payment of \$10 to \$25 (travel data not shown).

## DISCUSSION

Increased interest in new strategies for managing population health and episodic specialty care, coupled with the widespread availability of communications technologies, have encouraged the exploration of the appropriate roles of different modes of clinical encounters or visits.<sup>16,17</sup> Our data—gathered from patients and clinicians during and following an initial full year of experience with the MGH Center for TeleHealth’s VVV implementation—show a high degree of patient and clinician satisfaction, as measured by both ratings of overall visit quality and willingness to recommend the visits.

VVVs are perceived by the majority of patients as the same as or better than office visits in convenience and cost, at the same level of

**FIGURE.** Patient and Clinician Comparisons of Virtual and Office Visits



quality and personal connection. Patients appear to value the face-to-face interactive nature of VVVs; they perceive office or telephone encounters as the main alternatives to this new type of visit, rather than email or structured questionnaires, likely because they maintain a real-time personal connection. Even though VVVs represent a great convenience, our data reinforce that they are unlikely to be a useful substitute for an in-office visit in some clinical situations—for example, those with more complexity and need for physical examination or observation. More research is needed to study the association of the care delivery modality (in-person vs telehealth) with total cost and clinical outcomes and to understand settings in which telehealth affects healthcare value.<sup>14,18</sup> The regulatory, administrative, and legal environment related to the conduct of telehealth visits is in constant flux; delivery of care to established patients across state lines adds further complexity. The Chronic Care Act of 2017, enacted in 2018, takes some small steps toward relaxing reimbursement and regulatory restrictions in selected diseases and insurance markets; hopefully, this trend will continue.

**Limitations**

Patient participants were selected for these visits by their clinicians based on their suitability, as determined during prior office visits as established patients. This was not a controlled study. These data were gathered in the first full year of VVV implementation in our system and are primarily from VVVs for a specialty, so they very likely do not fully reflect the challenges or opportunities of using VVVs in primary care settings. Surveys are subject to sources of error and bias; we attempted to minimize these with high-quality methods and response rate enhancement methods. Lastly, Massachusetts

is not among the 31 states that now routinely require third-party reimbursement for telehealth visits; our health system chose to support reimbursement to clinicians. It is unknown if the level of reimbursement created positive or negative incentives. Further study is needed, including improved models to compensate clinicians, to measure and define the appropriate mix of virtual and office visits, and to understand the role of other modes of care.

**CONCLUSIONS**

With the inexorable adoption of digital offerings to meet many of the needs of today’s consumers, it is likely that telehealth will increasingly be adopted over the next several years. Our data suggest that initial experiences for patients and clinicians were positive and that, for most encounters, these VVVs are just as clinically effective and less expensive for both patient and provider compared with in-person visits. The fears of distracted, overwhelmed providers and a loss of human connection between patient and provider have been raised repeatedly with the rising use of computers in the doctor’s office. Interestingly, this issue was not a central concern to participants in our VVV program, perhaps due to the use of VVVs with established patients. These visits are not just replacements for in-office visits; they hold the possibility of new avenues for care delivery, more frequent but shorter encounters, and opportunity for earlier intervention. Further studies are needed to test different provider compensation models to measure and define the appropriate mix of virtual, office, and other modes of care and to establish appropriateness criteria for the use of telehealth encounters. These issues are all important in the further use of this technology as part of effective and efficient patient-centered care and population management.<sup>19</sup> Telehealth

## TRENDS FROM THE FIELD

should further the aims of improving the quality of healthcare and addressing the Institute of Medicine domains of quality, with special attention to overcoming existing barriers in access to care, including the burden of time and financial costs that patients and families bear in attending traditional office visits. ■

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**Authorship Information:** Concept and design (KD, SS, CM, JJE, ABC, JW, LHS); acquisition of data (KD, EAB, SS, CM, JJE, ABC, JW, LHS); analysis and interpretation of data (KD, EAB, SS, CM, JJE, ABC, JW, LHS); drafting of the manuscript (KD, EAB, CM, LHS); critical revision of the manuscript for important intellectual content (KD, SS, CM, JJE, ABC, JW, LHS); statistical analysis (KD, EAB, CM, JJE, ABC, JW, LHS); provision of patients or study materials (KD, SS, CM, JJE, ABC, JW, LHS); obtaining funding (KD, SS, CM, JJE, ABC, JW, LHS); administrative, technical, or logistic support (KD, SS, CM, JJE, ABC, JW, LHS); and supervision (KD, SS, CM, JJE, ABC, JW, LHS).

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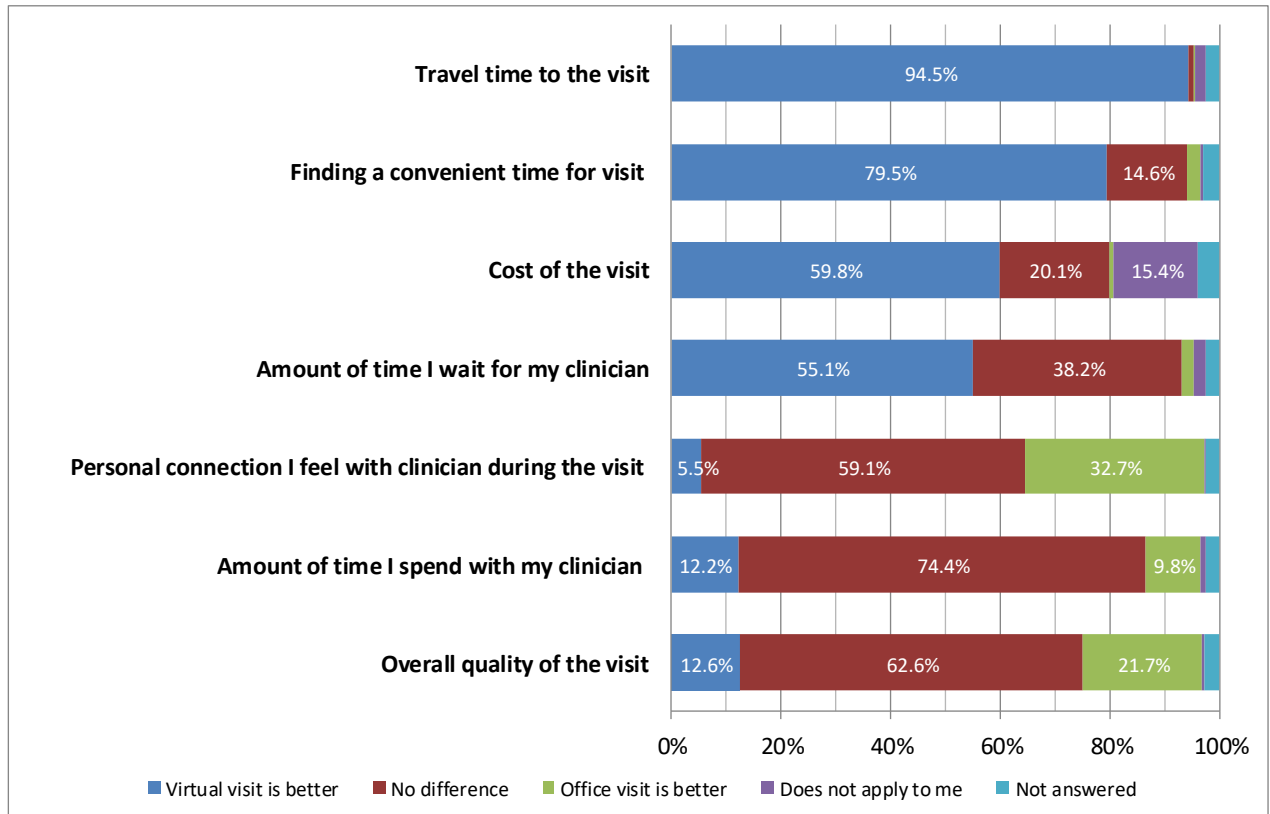
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**eAppendix Table.** Respondent Characteristics

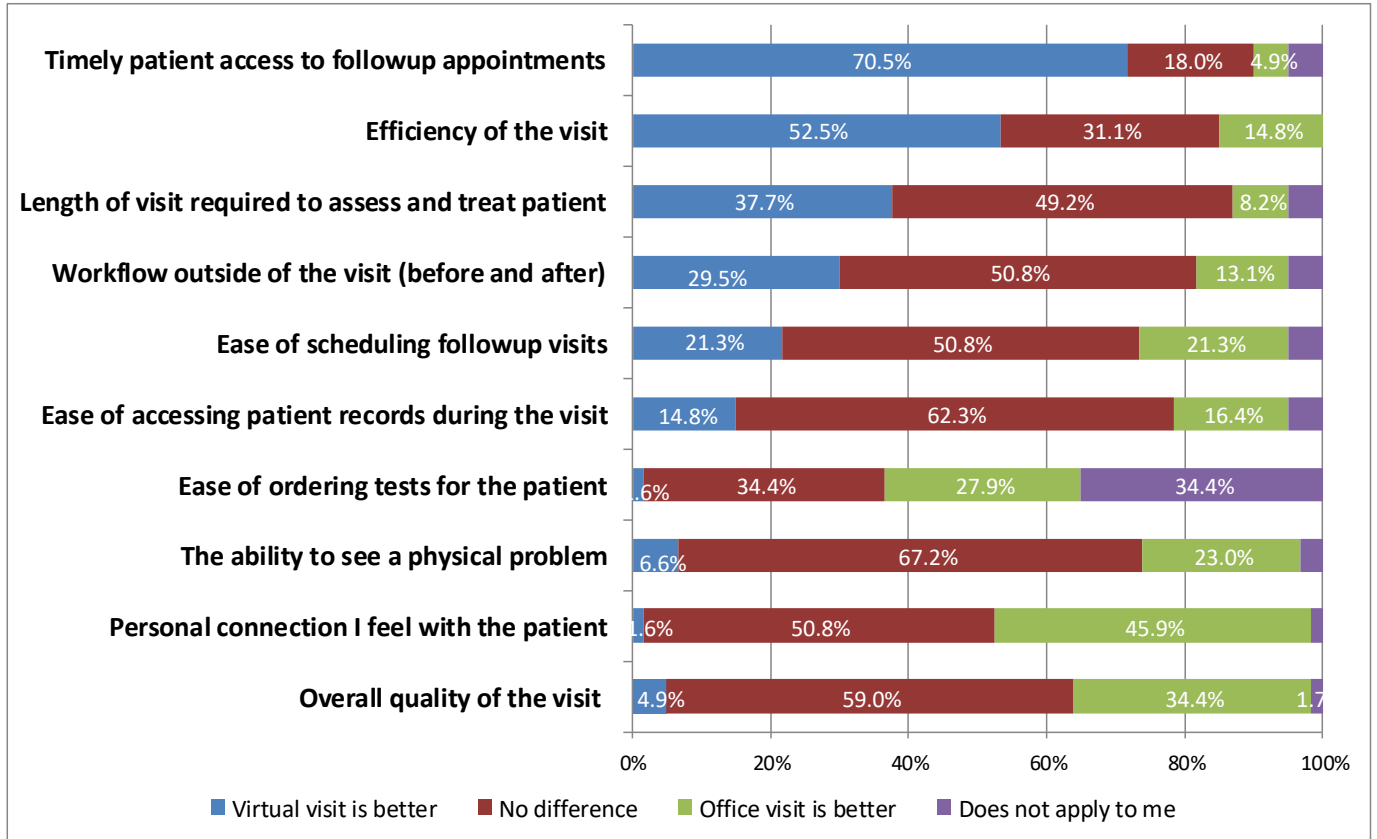
	<b>Patients</b> (N = 254)
<b>Gender</b>	
Female	135 (53.1%)
Male	119 (46.9%)
<b>Age, years</b>	
0-17	68 (26.8%)
18-29	51 (20.1%)
30-59	79 (31.1%)
≥65	56 (22.0%)
<b>Race</b>	
White, non-Hispanic	220 (86.6%)
Other	34 (13.4%)
<b>Insurance type</b>	
Private insurance	195 (76.8%)
Medicaid	12 (4.7%)
Medicare	41 (16.1%)
Patient payments	6 (2.4%)
<b>Service or department</b>	
Psychiatry	113 (44.5%)
Neurology	92 (36.2%)
Cardiology	30 (11.8%)
Other	19 (7.5%)
<b>Device used for virtual video visit</b>	
Desktop computer	44 (17.3%)
Laptop computer	146 (57.5%)
Tablet	56 (22.1%)
Smartphone	2 (0.8%)
Other	3 (1.2%)
<b>Travel time</b> <i>How long does it take you to travel to MGH for office visits?</i>	
≤40 minutes	63 (24.8%)
41-59 minutes	54 (21.3%)
60-89 minutes	59 (23.2%)
≥90 minutes	66 (26.0%)
Not answered	12 (4.7%)

**eAppendix Figure 1.** TeleHealth Patients' Perceptions of Virtual Video Visits vs Office Visits



Source: Data from MGH TeleHealth Patient Survey.

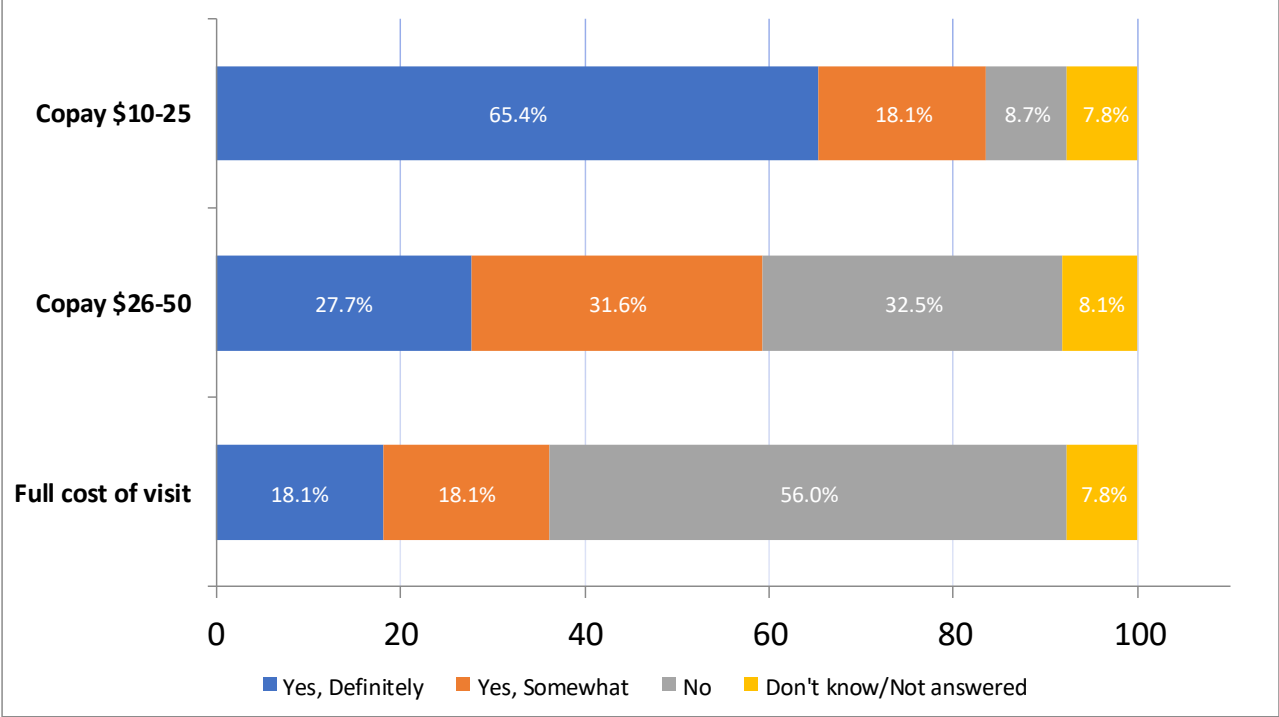
**eAppendix Figure 2.** TeleHealth Clinicians' Perception of Virtual Video Visits vs Office Visits



Source: Data from MGH TeleHealth Clinician Survey.



**eAppendix Figure 3. TeleHealth Patients' Willingness to Pay for Virtual Video Visit**



Source: Data from MGH TeleHealth Patient Survey.