The Telemedicine Experience in Primary Care Practices in the United States: Insights From Practice Leaders

Grace Rabinowitz[1]*
Logan D. Cho[1]*
Natalie C. Benda, PhD[2]
Crispin Goytia[3]
Katerina Andreadis, MS[2]
Jenny J. Lin, MD, MPH[4]
Carol Horowitz, MD, MPH[3]
Rainu Kaushal, MD[2]
Jessica S. Ancker, PhD, MPH[5]
Jashvant Poeran, MD, PhD[4,6,7]

[1]Department of Medical Education, Icahn School of Medicine at Mount Sinai, New York, New York
[2]Department of Population Health Sciences, Weill Cornell Medical College, New York, New York
[3]Department of Population Health Science & Policy, Icahn School of Medicine at Mount Sinai, New York, New York
[4]Department of Medicine, Division of General Internal Medicine, Icahn School of Medicine at Mount Sinai, New York, New York
[5]Department of Biomedical Informatics, Vanderbilt University Medical Center, Nashville, Tennessee
[6]Institute for Healthcare Delivery Science, Department of Population Health Science & Policy, Icahn School of Medicine at Mount Sinai, New York, New York
[7]Department of Orthopedics, Icahn School of Medicine at Mount Sinai, New York, New York
*These authors contributed equally as co–first authors.

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VISUAL ABSTRACT

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CORRESPONDING AUTHOR

Jashvant Poeran
Institute for Healthcare Delivery Science,
Department of Population
Health Science & Policy,
Icahn School of Medicine at Mount Sinai
1425 Madison Avenue Box 1077
New York, NY 10029
jashvant.poeran@mountsinai.org

ABSTRACT

PURPOSE The need to rapidly implement telemedicine in primary care during the coronavirus disease 2019 (COVID-19) pandemic was addressed differently by various practices. Using qualitative data from semistructured interviews with primary care practice leaders, we aimed to report commonly shared experiences and unique perspectives regarding telemedicine implementation and evolution/maturation since March 2020.

METHODS We administered a semistructured, 25-minute, virtual interview with 25 primary care practice leaders from 2 health systems in 2 states (New York and Florida) included in PCORnet, the Patient-Centered Outcomes Research Institute clinical research network. Questions were guided by 3 frameworks (health information technology evaluation, access to care, and health information technology life cycle) and involved practice leaders' perspectives on the process of telemedicine implementation in their practice, with a specific focus on the process of maturation and facilitators/barriers. Two researchers conducted inductive coding of qualitative data open-ended questions to identify common themes. Transcripts were electronically generated by virtual platform software.

RESULTS Twenty-five interviews were administered for practice leaders representing 87 primary care practices in 2 states. We identified the following 4 major themes: (1) the ease of telemedicine adoption depended on both patients' and clinicians' prior experience using virtual health platforms, (2) regulation of telemedicine varied across states and differentially affected the rollout processes, (3) visit triage rules were unclear, and (4) there were positive and negative effects of telemedicine on clinicians and patients.

CONCLUSIONS Practice leaders identified several challenges to telemedicine implementation and highlighted 2 areas, including telemedicine visit triage guidelines and telemedicine-specific staffing and scheduling protocols, for improvement.

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INTRODUCTION

The abrupt onset of the coronavirus disease 2019 (COVID-19) pandemic required a rapid implementation of telemedicine—the synchronous delivery of health care in an audio-plus-video or audio-only modality—in primary care. With few practices offering telemedicine routinely before the pandemic,[1,2] the urgent deployment of telemedicine in primary care resulted in the rollout of premature programs that differed substantially between practices.[3,4]

The volume of published literature in this area has increased rapidly. Before the COVID-19 pandemic, telemedicine utilization was impeded by reimbursement concerns and a lack of regulation.[5] Early analyses of telemedicine's impact on primary care credited its role in reducing viral spread and optimizing clinicians' limited time and availability.[6] Limitations, including challenges with respect to physical examinations, diagnostic testing, and imaging, have also been noted.[7] In addition, special consideration of underserved populations has been identified as a potential means of ensuring access to care.[8]

The limited capacity to evaluate telemedicine programs at the onset of the pandemic precluded the thoughtful development of such programs, with limited ability to share best practices with peer practices in real time.[9] To better understand the variable deployment and maturation of telemedicine programs in primary care, we interviewed practice leaders in 2 states on the East Coast of the United States (New York and Florida).

METHODS

Study Design

This study was part of a nationwide project evaluating telemedicine implementation in primary care during the COVID-19 pandemic from the perspective of primary care practice leadership. We developed semistructured interview guides to assess practice-level policies. Interviewers were trained to encourage respondents to elaborate if short answers were provided to any of the questions. For topics for which respondents appeared to have substantive experience or perspective, follow-up questions were used to elicit more information. The semistructured interview approach allowed for the capture of qualitative responses. We present here an analysis of the open-ended responses to 32 questions. We followed the consolidated criteria for reporting qualitative research (COREQ) checklist for reporting.

Participants

Individuals were eligible if they held leadership roles in ambulatory primary care practices at 1 of 2 participating medical centers participating in PCORnet,[10] the Patient-Centered Outcomes Research Institute's (PCORI) clinical research network.

Recruitment

Each institution supplied a list of their primary care practices and ≥1 practice leader. Interviewers had no prior relationship with any respondent. Primary care practices were defined as practices in general practice, family practice, ambulatory internal medicine, preventive medicine, or geriatric medicine. E-mail and telephone calls were used to recruit practice leaders to participate in 25-minute Zoom (Zoom Video Communications Inc) interviews from April to September 2021.

Interview Guide and Data Collection

Interviews were guided by a semistructured survey informed by 3 primary evaluation frameworks designed with a board of stakeholders. These frameworks related to health information technology evaluation,[3] access to care,[11] and the health information technology life cycle.[12]

We included 32 items in the semistructured survey (Supplemental Appendix 1). Structured questions ranged from practice and patient population characteristics to available support/resources. Early in the interview, respondents were asked to identify a self-reported point of telemedicine maturation within their practice (ie, when their program had worked through its initial issues). This point of maturation was used throughout the interview as respondents were asked questions relating to their telemedicine program at the pandemic onset (March 2020) and at the self-reported point of maturation. The rationale behind the use of this subjective, self-reported time point was twofold as follows: (1) to assess how long it took to reach a mature state, and (2) to allow respondents to think abstractly about their matured programs. Respondents were encouraged to elaborate and speak freely regarding any aspect of telemedicine. Although questions focused on practice-level policies, many respondents were themselves practicing clinicians and provided examples from their own work. Respondents were asked to share additional experiences not covered elsewhere. Recordings were transcribed and checked for accuracy (performed by G.R. and L.D.C.). This project was approved by the Biomedical Research Alliance of New York (BRANY) institutional review board (IRB) as the single IRB, with acknowledgment by the IRBs of the 2 participating medical organizations.

Analysis

Inductive qualitative coding of interview transcripts was performed by 2 researchers (L.D.C. and G.R., under the guidance of J.P. and J.J.L., both with experience in qualitative research) simultaneously. Inductive coding allows researchers to be guided by the data rather than limited by preconceived hypotheses.[13] Intercoder consistency was achieved via a group consensus process (ie, interview transcripts coded by all members of the coding team, with subsequent discussion of differing coding applications until achievement of consensus). Subsequently, qualitative codes were synthesized into salient themes by application of the approach described by Braun and Clarke.[14] One researcher (L.D.C.) reviewed and finalized the themes. Finally, excerpts were stratified by respondent/practice characteristics such as geographic location and previous experience with telemedicine.

RESULTS

We interviewed 25 practice leaders representing 87 unique primary care practices from 2 health systems in 2 states (New York and Florida). Respondents were diverse in terms of their professional role, practice designation, and number of staff (Table 1). The diversity in practices was also reflected in the patient populations served; the percentage of patients with a non-English primary language ranged from 0% to 60%. Thirteen respondents noted that their practices had telemedicine capabilities before the pandemic, but few were practicing telemedicine at a meaningful volume.

Overall, 122 key data points from open-ended answers (notable quotations not otherwise captured by structured questions, ie, salient anecdotes, unexpected responses) were identified from interview transcripts. We identified 4 themes relating to telemedicine implementation (Supplemental Appendix 2).

Theme 1. Ease of Telemedicine Adoption Depended on Prior Experience Using Virtual Health

Patient training, particularly on portal use, was noted as a key area for improvement. One practice found success using a system in which staff performed demonstrations before patients left the clinic. This was particularly helpful for older and low-literacy patients who needed "people there

to walk them through it again [respondent 20]." Interview respondents noted clinicians' comfort with telemedicine as an important factor. One respondent even credited an unrelated pre-COVID-19 pandemic Zoom educational event for getting staff comfortable by helping them "be able to do training remotely when it all hit in March 2020 [respondent 19]." Some clinicians appeared to prefer virtual visits, and respondents noted that some practices were forced to "mandate clinicians to start coming back to the practices in person [respondent 16]."

Practices with already established telemedicine programs did not face the same adaptation challenges. However, the scheduling volume of telemedicine visits among these practices was a broadly cited acute problem, with things "a little crazy and disorganized at the start [because a] big challenge was the demand [respondent 13]."

More specifically, practices with prior experience showed a scheduling advantage. Respondents from practices without prior telemedicine remarked that, "It is imperative to group telehealth visits together [because] what doesn't work well is when I'm seeing patients face to face and there's a telehealth visit scheduled right in the middle [respondent 2]." Others commented on their experiences "running from telemedicine back into the office [respondent 24]" with descriptors ranging from finding it "very difficult" to characterizing the "jumping around" as "a little bit frustrating [respondent 24]." Respondents noted different patient expectations surrounding punctuality, commenting that, "Patients are much more tolerant of waiting in the office than they are on the phone…If somebody is on the phone at home and after 3 minutes, 'Why are you wasting my time?' [respondent 20]."

Practices were often strained, owing to low staffing and unfamiliarity with telemedicine. Respondents noted the need for more formal training, as opposed to the "see one, teach one, do one situation [respondent 25]" they often found themselves in, particularly regarding state regulations and how to communicate effectively over a virtual platform.

Differences in patient portal use led to differences in telemedicine uptake and revenue effects. One respondent overseeing multiple practices remarked at how "amazing [it was that their] most technologically advanced and most technologically challenged practices entered March 2020 at the same financial point [respondent 19]," yet each had opposite financial trajectories. Practice leaders felt these different financial trajectories were attributable to patient portal familiarity and subsequent telemedicine volume.

Theme 2. Regulation Varied and Differentially Affected Rollout

Two of 7 respondents from Florida discussed restrictions on controlled substance prescribing via telemedicine. One asked, "How do we have safeguards in place to make sure we can prescribe controlled substances in a way that does not harm patients [respondent 19]?" Another noted Florida's highly specific emergency order that limited controlled substance prescribing only to preexisting patients. In the words of one respondent, "Some of Florida's laws put a monkey wrench in [telemedicine] [respondent 19]." Patients taking controlled substances, such as testosterone, would have to come in person for refills.

The rapid transition to telemedicine-only visits necessitated implementation of regulations. Before the COVID-19 pandemic, telemedicine visits were limited by insurance type, but these restrictions waned. However, respondents commented on growing restrictions related to visits, such as the annual preventive visit, which was initially conducted virtually in some practices but was noted to be "not allowable currently via telehealth [because] there are certain commercial insurance plans that do not pay [respondent 2]." In addition, respondents noted that whereas the most common conception of telemedicine is a video visit, "The reality is telephonic visits are also as important [respondent 9]." Recent decisions have restricted visit modalities as well, despite the fact that, "It is better for some of our older patients to do audio-only telemedicine. Unfortunately, Florida just pulled the emergency act, so it now has to be video and audio [respondent 19]."

Enforcing state boundaries in a virtual landscape led to issues that not only negatively affected patient care but also were differentially enacted, leading to respondents' perception of "a moving target [respondent 2]." One respondent noted that many colleagues in Florida obtained medical licenses from the state of Georgia to be able to treat preexisting patients. Licensure had been a "moving target throughout the past year [respondent 2]."

Table 1. Respondent and Practice Characteristics (N = 25)

Characteristic	No. (%)
Respondent role	
Administrator	3 (12)
Clinician	7 (28)
Both (eg, medical director)	15 (60)
Practice designation	
Hospital based	19 (76)
Community based	5 (20)
Private	1 (4)
No. of physicians	
<10	19 (76)
≥10	6 (24)
No. of nonphysician staff	
<10	7 (28)
≥10	18 (72)
Geographic location	
Florida	7 (28)
New York	18 (72)
Telemedicine before COVID-19 pandemic	
Yes	13 (52)
No	12 (48)

Theme 3. Unclear Visit Triage Rules

Respondents uniformly agreed that not all visit types are suitable for a telemedicine encounter, leaving much of the decision-making power to the discretion of practices. Respondents noted that the triaging process changed throughout the pandemic, with one stating that early on, they "felt strict about what was and was not appropriate for telehealth [respondent 1]" but that now, they "just do them like a kind of triage [to assess appropriateness for a telemedicine visit], but don't know whether that's valuable [respondent 1]." Other respondents concurred, mentioning the "wasted appointments [respondent 7]" for complaints that clearly needed to be addressed in person. Telemedicine was sometimes used as an "overflow for a space problem [respondent 7]" instead of a specialized visit suitable for specific complaints. Respondents agreed that a "robust triage process [respondent 1]" is needed so they do not have to "flip the switch and have to deal with acute chest pain that is not appropriate for telemedicine [respondent 1]." In addition, visit triage was also affected by staff availability.

A challenge regarding unclear telemedicine triage rules related to the risk of unsafe situations. For example, while instructing a patient to stand for a shoulder examination, one respondent recalled that, "The patient stood up and then ended up falling. I saw this fall on video and couldn't help. It was a disaster [respondent 3]." Barriers as a result of limited physical examination were echoed regarding emergency situations in which a respondent said, "We aren't going to take a person that might have appendicitis and say 'palpate your abdomen' [respondent 15]."

Theme 4. Positive and Negative Effects of Telemedicine on Clinicians and Patients

Even though most practices had no experience with telemedicine, many respondents found that it offered unique benefits. It was particularly useful for addressing certain visit types including mental health care and diabetes management. The ability to "jump on a Zoom to talk about anxiety without schlepping over [respondent 14]" was perceived to be a major benefit. Telemedicine was believed to be a "disparity buster [respondent 20]" by a leader overseeing a practice with large percentages of Medicaid and Medicare patients.

Two respondents indicated that telemedicine provided a billable opportunity to "reinforce and review the results of testing after the visit [respondent 6]" as opposed to patients coming in person for another full visit weeks later. This was highlighted for patients with chronic conditions. One respondent stated, "A 10-minute phone call with a diabetic has tremendous long-term benefits [respondent 6]." In one example, the respondent described a patient with diabetes with a hemoglobin A_{1c} >8%, which would normally take more than 1 year to control. With telemedicine, the respondent achieved comparable control in 1 month.

We found that clinicians worked beyond normal operating hours, helped patients with technical issues, made judgment calls as to what required an in-person visit, and lacked their normal office support. One respondent commented on the effect on clinician wellness, saying, "[Clinicians] feel alone doing telemedicine [and] say to themselves 'I don't ever want to do that again,' because a full day of telehealth is challenging [respondent 2]."

DISCUSSION

In this study using open-ended data from semistructured interviews with primary care practice leaders on the East Coast, we found that experiences differed on the basis of existing prepandemic clinician and practice familiarity with telemedicine and staffing and scheduling issues. Other themes involved differing state regulations and uncertainty. Finally, negative effects were also noted, particularly concerning clinician wellness.

Practices with prepandemic experience with telemedicine generally fared better than those that had to develop and implement a de novo telemedicine program. Dozens of studies have shown sociodemographic inequalities in the use of patient portals.[15,16] In the context of telemedicine, having to set up a patient portal as a prerequisite for a virtual visit might substantially amplify disparities in access to care, as shown in non–primary care contexts.[17,18] Whereas some have suggested improvements, such as incorporating patient portal enrollment into in-person care workflows and educating patients on the importance of telemedicine,[19] empirical work on the effectiveness of such interventions is missing and thus should be an important focus for future research.

The emergence of clinicians' familiarity with telemedicine as a topic from our interviews is in line with previous literature because it has been acknowledged to be a crucial factor for the success of telemedicine programs.[20] Here, the main difference between practices appeared to be caused by the rapid onset of the pandemic, which impeded clinician training programs, owing to time and resource constraints, a luxury that practices with prepandemic telemedicine services had. Logistical issues related to staffing, including complexities related to shifting between in-person and virtual visits and accommodation of complicated or late patients, have been reported by others as well.[21,22]

Respondents noted concerns regarding regulation of telemedicine, which varied across states. Such differences can be as basic as differing definitions of telehealth, telemedicine, and subsequent coverage laws, with only 15 states covering audio-only visits, whereas all 50 states reimburse for synchronous video visits.[23] Empirical studies showing the negative effect of such variations in regulation are missing and are an important future target.

Arguably the most salient—and potentially modifiable—finding was the noted need for telemedicine triage rules. Even though clear guidelines are crucial for planning virtual visits, formal guidance is currently lacking.[24] Patient-specific factors, such as a preference for privacy, could underlie the visit-type

decision.[24] Finally, clarity is needed on when to refer a virtual patient to emergency services. These gaps are not trivial and signify an opportunity to greatly improve virtual health care delivery.

Unique benefits of telemedicine over in-person visits, ranging from reduced concerns regarding transmission of infections to improved access for patients with limited mobility,[25,26] more flexible scheduling,[27] and improved patient satisfaction, are increasingly well documented.[28,29] Several benefits discussed by practice leaders alluded to the potential of telemedicine to be a "disparity buster" as suggested elsewhere[30]; however, others have noted concerns on the risk of inequitable access to care.[31]

Finally, the present study found that clinicians were often asked to work beyond normal operating hours, assist with technical issues, and make judgment calls without formal guidelines. Indeed, telemedicine-related concerns for physician burnout have been noted by some,[32] with suggested preventive measures including careful consideration of physician workflows. In contrast, others have commented on the reduction of burnout, owing to increased flexibility with telemedicine.[33] Continued monitoring will provide important data on the net direction of telemedicine's impact on physician well-being.

Limitations of the present study include generalizability, given that we only interviewed practice leaders from East Coast health systems. Other regions likely experienced the adjustment to telemedicine differently. Given the nature of data collection, saturation was not reached on the qualitative data. However, we believe that this work expands the understanding of the rapidly evolving field. Recall bias might exist given the time between the COVID-19 pandemic onset and time of interview, though most respondents recalled salient experiences. Lastly, telemedicine has continued to evolve and might operate very differently today than at the pandemic onset.

In conclusion, primary care practice leaders shared several experiences regarding telemedicine implementation. Whereas unique benefits were acknowledged, experiences differed on the basis of state regulations and learning curves for de novo programs. Importantly, future needs include formal triage guidelines and specific staffing and scheduling protocols.

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Key words: telemedicine; primary care; COVID-19 pandemic; East Coast; primary health care;

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Supplemental materials

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