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## Pediatric Telehealth in the COVID-19 Pandemic Era and Beyond

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### Abstract

The coronavirus disease 2019 (COVID-19) pandemic led to an unprecedented demand for health care at a distance, and telehealth (the delivery of patient care using telecommunications technology) became more widespread. Since our 2018 state-of-the-art review assessing the pediatric telehealth landscape, there have been many changes in technology, policy, payment, and physician and patient acceptance of this care model. Clinical best practices in telehealth, on

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the other hand, have remained unchanged during this time, with the primary difference being the need to implement them at scale.

Because of the pandemic, underlying health system weaknesses that have previously challenged telehealth adoption (including inequitable access to care, unsustainable costs in a fee-for-service system, and a lack of quality metrics for novel care delivery modalities) were simultaneously exacerbated. Higher volume use has provided a new appreciation of how patients from underrepresented backgrounds can benefit from or be disadvantaged by the shift toward virtual care. Moving forward, it will be critical to assess which COVID-19 telehealth changes should remain in place or be developed further to ensure children have equitable access to high-quality care.

With this review, we aim to (1) depict today’s pediatric telehealth practice in an era of digital disruption; (2) describe the people, training, processes, and tools needed for its successful implementation and sustainability; (3) examine health equity implications; and (4) critically review current telehealth policy as well as future policy needs. The American Academy of Pediatrics (AAP) is continuing to develop policy, specific practice tips, training modules, checklists, and other detailed resources, which will be available later in 2021.

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The coronavirus disease 2019 (COVID-19) pandemic led to an unprecedented demand for health care at a distance, and telehealth (the delivery of patient care using telecommunications technology) became more widespread.<sup>1,2</sup> Since our 2018 state-of-the-art review assessing the pediatric telehealth landscape,<sup>3</sup> there have been many changes in technology, policy, payment, and physician and patient acceptance of this care model. Clinical best practices in telehealth, on the other hand, have remained unchanged during this time, with the primary difference being the need to implement them at scale.

Because of the pandemic, underlying health system weaknesses that have previously challenged telehealth adoption (including inequitable access to care, unsustainable costs in a fee-for-service system, and a lack of quality metrics for novel care delivery modalities) were simultaneously exacerbated.<sup>4-7</sup> Higher volume use has provided a new appreciation of how patients from underrepresented backgrounds can benefit from or be disadvantaged by the shift toward virtual care. Moving forward, it will be critical to assess which COVID-19 telehealth changes should remain in place or be developed further to ensure children have equitable access to high-quality care.

With this review, we aim to (1) depict today’s pediatric telehealth practice in an era of digital disruption; (2) describe the people, training, processes, and tools needed for its successful implementation and sustainability; (3) examine health equity implications; and (4) critically review current telehealth policy as well as future policy needs. The American Academy of Pediatrics (AAP) is continuing to develop policy, specific practice tips, training modules, checklists, and other detailed resources, which will be available later in 2021.

## TELEHEALTH PRACTICE MODELS

### Ambulatory Telehealth

Pediatric ambulatory telehealth use increased from 2015 to 2017 as direct-to-consumer and subspecialty care telehealth models were developed, but usage within primary care was still low pre-pandemic.<sup>8</sup> In the 2016 AAP Periodic Survey, only 15% of pediatricians had used telehealth in the past year, with payment and billing issues reported as barriers to adoption and use.<sup>9</sup>

COVID-19 waivers subsequently enacted by payers mitigated many of these barriers, facilitating telehealth's rapid expansion in ambulatory settings. For example, shortly after Center for Medicare and Medicaid Services (CMS) waivers went into effect in March 2020, there was a 154% increase in telehealth visits compared with the same time frame in 2019.<sup>10</sup> However, measurements of telehealth usage during the pandemic have varied. In one source, researchers reported that telehealth accounted for 13.8% of all visits in April 2020,<sup>11</sup> whereas, in another, researchers found telehealth was used for 50% of all physician visits in the same time period.<sup>12</sup> This variability underscores the need for standardized data definitions and evaluation approaches.

The variability in recent usage data may be attributed to local variability of telehealth integration within pediatric care as well as difficulty generalizing specific data to large populations. Significant issues have arisen with the rapid adoption of telehealth, including broadband connection demands, electronic health record integration, and workflow challenges. Along the way, clinicians have adapted telehealth to the visit types and patient populations best suited for it in their own practices.

Behavioral and mental health concerns are particularly amenable to virtual care and have increased since the start of the pandemic, with >1 in 4 parents reporting worsening mental health and 1 in 7 reporting worsening behavioral health for their children.<sup>13</sup> Telehealth is increasingly used to meet these patients' needs, with many practices adopting it for attention deficit and hyperactivity disorder and depression management, as well as behavioral problems exacerbated by social distancing and virtual learning. In-home virtual visits also facilitate a visual assessment of a child's home environment and may lead to identification of psychosocial concerns, such as food insecurity, that may be unrecognized in a traditional clinic setting.

During behavioral telehealth care and screenings, as well as adolescent telehealth in general, privacy challenges are of concern. Creating an environment in which adolescents can freely answer private questions may be done by asking the adolescent to move to another space, asking family members to leave the room, or having the adolescent wear headphones with the provider asking questions in a yes-or-no format. Flashcard questions asking for nods or thumbs-up answers are another option.

Chronic condition management, presurgical visits, and follow-up appointments after hospitalizations or emergency department encounters are other telehealth use cases that may add value. These visits may be more convenient for families, overcome travel barriers,<sup>14</sup>

and expand education opportunities while observing home environment factors relevant to the patient's condition. There is no diagnosis, specialty, care setting, or population that is inherently appropriate or inappropriate for telehealth care. Success depends on patient factors, the physical examination components that are necessary for medical decision-making, and what resources are available to enhance remote examination.

### **Hospital-Based Telehealth**

Beyond the ambulatory environment, COVID-19 had immense impact on inpatient and emergency care. Most hospitals experienced periods of operating below pediatric capacity with physical distancing restrictions followed by intermittent surges in patient volumes.<sup>15</sup> Telehealth has enabled clinical support to regions experiencing a surge while maintaining care team and family cohesion when in-person connections are restricted.

Between facilities, pediatric telehealth has been used to provide expert consultations to hospitals and clinics overwhelmed by patients with COVID-19. Reports of emergency medicine, neonatology, critical care, and infectious diseases specialists using telehealth to support understaffed emergency departments and ICUs have resulted in the national recognition that telehealth is a component of disaster preparedness.<sup>16,17</sup>

Within facilities, inpatient and emergency telehealth has been implemented as part of a broader infection control strategy. Virtual care conserves personal protective equipment and allows care teams to serve patients safely without undue risk of exposure.<sup>16</sup> Additionally, telehealth adoption has facilitated family-centered rounds and kept patients and their care team connected to caregivers and family when hospital visitor restrictions are in place.

To expand virtual communication capacity, many hospitals repurposed existing equipment.<sup>18</sup> Computers previously used for documentation were redeployed with webcams as mobile telehealth carts. Some hospitals also allowed care team members and students to participate in patient care from alternate workspaces using their own computers and phones. In contrast, other organizations restricted use of personal devices for telehealth because of privacy and security constraints in the setting of exponential remote work growth; these organizations then invested in new telehealth equipment to meet their needs.

### **Health Equity Considerations**

Across all practice settings, telehealth has significant potential to improve health inequities related to access to care by bringing remote services to both rural and urban settings that are underresourced. However, there must be intentional effort to ensure that inequities are not exacerbated.<sup>19-22</sup> For instance, lack of access to Internet, smartphones, or other technology should not prevent children from accessing their medical system. High-quality interpretation and adaptive technology should also be available for families with limited English proficiency and hearing or vision impairment. In Table 1, we include basic tips for improving access to telehealth, with more comprehensive recommendations in the resources described in the introduction.

## PRACTICE TRANSFORMATION

Although practice management and organizational structure are often considered separate from clinical practice, success is most likely when clinical services develop intentional telehealth operations. Pediatric practices that have been developed around in-person care may find it necessary to adapt practice models and culture to sustain telehealth services beyond the pandemic.<sup>23</sup>

### Building a Sustainable Telehealth Program

Telehealth's multidimensional context includes clinical, business, and technology interests. Some of these interests are within the control of those who practice telehealth, but factors such as patient broadband access and digital literacy and payer policies are less easily modified.

Because these factors vary widely among geographic areas and patient populations, there is no single model for success under all circumstances. In Fig 1, we outline a universal approach that accounts for local factors.

Steps 1 through 3 assess the environment in which telehealth will be implemented. For example, in step 1, one might ask, "How do I describe my organization and/or practice and our patient population? What are our key drivers? What cultural, financial, and/or regulatory factors affect my practice and patients?" A key question for step 2 is "Are there unmet patient needs?" For step 3, an evaluation of intangible resources, such as pediatricians' willingness to adopt telehealth and key stakeholder support, is just as essential as an inventory of tangible resources (eg, webcams).<sup>24</sup>

Steps 4 through 7 stem from the principles of effective change management, a structured process that leads people to adopt new practices through system improvements, effective communication, and motivational techniques.<sup>25</sup> This is particularly important in the COVID-19 era, which has been characterized by economic and emotional stressors that can impede change and also unprecedented incentives for telehealth growth. In Table 2, we list tips for building a practice culture conducive to telehealth sustainability, with Kho et al providing a comprehensive review of telehealth change management.<sup>23</sup>

At a higher level, disruptive innovation business theory can be used to support health care organizations' decisions when investing in new telehealth technology and practice models. Its key components are that disruptive innovations begin in low-volume or new market footholds (ie, the pre-COVID-19 telehealth environment) and do not become mainstream until quality approaches preexisting (ie, in-person care) standards.<sup>26</sup> Applied to telehealth, this means that durable success requires a longer-term commitment to practice change, rather than supporting one-off telehealth visits for occasional patients, with a focus on a high-quality technical experience and clinical care throughout the process.

The primary limitation of applying disruptive innovation theory to telehealth is that the measures used to evaluate clinical care quality do not fully equate to traditional business measures of success, such as customer satisfaction. For example, in 1 study, researchers

correlated 5-star physician ratings with the likelihood of an antibiotic prescription when pediatric patients were seen via telehealth for respiratory infections, and the authors pointed out that patient-satisfaction drivers may not be concordant with treatment-guideline adherence.<sup>27</sup>

### **People, Training, Processes, and Tools**

As shown in Fig 1 and Table 2, incorporating telehealth across the continuum of pediatric care requires strategic planning, alignment of goals among various stakeholders, and investment of capital and human resources.

Successful telehealth requires intentional investment in the nonclinical aspects of care delivery, similar to in-person care. These include, but are not limited to, information technology, billing, risk management, and marketing. Large health systems may have individuals dedicated to each of these, and small practices can be equally successful by ensuring that managers maintain focus on these aspects of telehealth operations. On the clinical side, eligible telehealth providers vary by state and often include personnel other than physicians, such as psychologists, child life specialists, and case managers. Lastly, the support of an executive sponsor or other practice leader is critical to success.

Telehealth training is recommended for each team member, with schedulers and clinical providers requiring dedicated training given their high visibility and impact on the patient experience and quality of care. Although telehealth training has not been standardized nationally, some organizations have developed comprehensive materials, and training programs are increasingly incorporating telehealth into their curricula.<sup>28-30</sup> The American Association of Medical Colleges recently published competencies to guide future telehealth education.<sup>31</sup>

Despite the lack of standardization, there is literature in which researchers indicate that provider acceptance of telehealth hinges on ease of use and perceived usefulness,<sup>32</sup> with training influencing both of these. Additionally, training facilitates practice consistency and ensure regulatory compliance. Locally developed training should, at minimum, address organization and/or practice policies and expected standards of care to reduce potential liability and review guidance from applicable accreditation bodies, such as The Joint Commission<sup>33</sup> or Utilization Review Accreditation Commission.<sup>34</sup> Telehealth training should also cover clinical workflows, virtual examination skills and presence (ie, “webside” manner), documentation, billing, and technology use.

Experiential learning techniques, such as role play and simulation, are resource intensive but allow for better understanding of perceived barriers and challenges.<sup>35</sup> Addressing these barriers and challenges early may then improve telehealth engagement. Videos, tip sheets, and online-learning modules<sup>36,37</sup> are less resource intensive and may be better suited for smaller practices or those needing to rapidly expand telehealth.

To drive telehealth adoption and use at scale, workflow processes should mirror existing in-person operations as much as possible, with certain steps, such as virtual patient check-in, vital sign collection, and dissemination of after-visit summaries, requiring

additional consideration to perform them remotely. Finally, efforts should be made to ensure the appropriate modality of care (in-person, synchronous [real time] video visit, or asynchronous [also known as “store-and-forward”] information exchange) is offered for each clinical situation and patient.

For many use cases, basic videoconferencing software is sufficient, whereas synchronous telehealth for complex or high-acuity conditions may benefit from the addition of peripheral devices. There are many options (with different quality and price points) for electronic stethoscopes, otoscopes, high-resolution close-up cameras, oximeters, ultrasound machines, and other devices that create an information-rich experience when used in conjunction with videoconferencing. These have been used in schools, child care centers, and hospitals to enhance telehealth-based diagnosis. Some peripheral devices can even be used at home by parents without a trained telepresenter, such as a medical assistant.<sup>38</sup> Asynchronous tools include Health Insurance Portability and Accountability Act-compliant software that is used to transfer photographs (eg, of burns and rashes) or echocardiography images to a telehealth clinician, as well as dedicated e-consult platforms that facilitate remote consults with distant subspecialists.

Matching peripheral device and asynchronous telehealth tool purchases to clinical scenarios that the practice expects to treat via telehealth is a key aspect of building a high-value program.<sup>39</sup> Pediatricians should consider which physical examination components they will need for medical decision-making and whether they expect to see patients in their homes or another health care setting. Technology currently exists for remote evaluation of almost any examination component; decisions to purchase these tools should be based on cost-benefit analyses that take into account the anticipated patient volume, available care options in the patients’ communities if telehealth were not offered, the minimum necessary equipment quality and/or digital resolution, and price.

## MEASURING AND EVALUATING SUCCESS

Once a pediatric telehealth program is implemented, evaluation is critical to ensure that high-quality, effective, and efficient care is being delivered. The proposed value equation for telehealth is that value equals the benefits gained divided by costs incurred, considered from the perspective of 5 key stakeholder groups (patients, physicians and other clinicians, health systems, payers, and policymakers). Because each group’s role in the health care system is different, their telehealth value equations may or may not align for various use cases, and a shared mental model is critical.

The AAP’s Supporting Pediatric Research in Outcomes and Utilization of Telehealth (SPROUT) Network has synergized the work of organizations such as the National Quality Forum,<sup>40</sup> Agency for Healthcare Research and Quality,<sup>41</sup> and World Health Organization<sup>42</sup> with its members’ expertise to develop a telehealth evaluation framework called SPROUT Telehealth Evaluation and Measurement (STEM). There are 4 measurement domains: health outcomes, health delivery: quality and cost, individual experience, and program implementation and key performance indicators (KPIs).<sup>43</sup> In a more recent economic

framework, researchers provide additional guidance on evaluating a telehealth's value at the health-system and societal levels.<sup>44</sup>

STEM's first domain, health outcomes, refers to clinical measures of individual and population physical and mental health. These measures are the health-condition targets (eg, hemoglobin A1C and mortality rate) recommended by professional societies and other organizations as markers of high-quality health care. Determining the impact of telehealth services on health outcomes requires well-designed clinical or implementation trials in which the quality and cost of delivering health is measured, which is the second STEM domain. This domain includes the National Academy of Medicine (formerly the Institute of Medicine) quality constructs,<sup>45</sup> such as those that measure timeliness of care during quarantines, equity for those without technology, disease screening rates, harm indices, and financial cost. STEM's third domain, individual experience, describes measures of patient and provider experience with telehealth and its impact on their daily lives. The final domain, KPIs, describes telehealth program measures (eg, technical failure rate) that are important to practice managers and executive sponsors.

When assessing a telehealth program or service, evaluators are encouraged to identify at least 1 measure in each STEM domain and consult stakeholders to determine how each measure could be beneficial or costly to them. In Table 3, we present an example of applying STEM to a pediatric use case, including methods to capture data in each domain.

## POLICY CONSIDERATIONS

Telehealth policies and regulations have historically lagged behind patient demand, technology, and business strategies. These have ranged from payer restrictions on telehealth reimbursement to complex medication-prescribing regulations for virtual care.<sup>46</sup>

Fortunately, with the onset of the COVID-19 pandemic, a combination of Medicare, Medicaid, federal and state government, and commercial-payer actions have played a critical role in increasing access to primary and specialty health services through telehealth.<sup>47</sup>

### Payment

Before the COVID-19 public health emergency (PHE), fee-for-service Medicare payment for telehealth services remained limited because of the 1834 (m) restrictions of the Social Security Act.<sup>48</sup> In 1 report, researchers suggested that the most significant restrictions on telehealth use were Medicare's requirement that the patient's originating site be rural and the exclusion of patients' homes as an eligible site for telehealth. After the PHE declaration, CMS issued waivers and interim final rules that addressed these barriers for Medicare beneficiaries<sup>47</sup> by eliminating geographic restrictions and went further by expanding the list of Current Procedural Terminology codes eligible for payment when telehealth is used.<sup>49,50</sup> Although Medicare does not directly impact most pediatric care, it is important to understand these changes because Medicare policy often informs Medicaid and commercial-payer decisions.



Within Medicaid, all 50 states and the District of Columbia provide some form of reimbursement for telehealth care.<sup>51</sup> Medicaid innovations adopted by many states include coverage not only for video-based telehealth care but also for remote monitoring and store-and-forward services. After declaration of the PHE, most states mirrored the Medicare changes in their Medicaid programs to enable continuity of care for children, pregnant women, and medically complex patients.<sup>52</sup>

Forty-two states plus the District of Columbia now require commercial insurer plans originating in their state to cover telehealth services, although not necessarily at parity with in-person services.<sup>51,53</sup> Many Employee Retirement Income Security act plans have also chosen to cover telehealth services, but it is important to recognize that commercial insurer plans originating in a different state and Employee Retirement Income Security act plans may not be subject to state mandates. Post-PHE, there is concern that many of the plans that temporarily expanded coverage in line with Medicare may begin to eliminate or restrict coverage for telehealth services, unless there are clear data to reveals its value.<sup>54</sup>

Because telehealth payment varies at the state level, it is essential that pediatricians understand Medicaid and commercial-payer policies in the state(s) in which they practice. A good state-by-state resource is the Center for Connected Health Policy Web site.<sup>51</sup>

### State Licensure

States have the authority to regulate the practice of medicine and other health professions within their boundaries.<sup>53</sup> This is particularly applicable when the patient and provider are in different states because telehealth is generally understood to take place at the patient's location for regulatory purposes. As a result, most states require out-of-state clinicians providing telehealth services to be licensed in the patient's state, with some states implementing waivers during the COVID-19 PHE to facilitate telehealth care. (A separate CMS waiver allows for reimbursement for services provided to patients in states in which the practitioner is not licensed, but it is important to note that this is not a waiver of state licensure requirements.)

The Interstate Medical Licensure Compact,<sup>55</sup> launched in 2017 and now available in 29 states, does facilitate multistate medical licensure to support cross-state telehealth care, but it is not true licensure reciprocity or portability. Additionally, evolving licensure restrictions, scope of telehealth practice, and allowances vary by state and clinician type; clinicians should know the rules applicable for their profession's licensing body<sup>56</sup> in each state in which they are licensed and recheck them often, particularly when PHE waivers with variable expiration dates are in effect.

### Other COVID-19–Related Waivers

During the PHE, the Office of Civil Rights issued guidance on the use of non–Health Insurance Portability and Accountability Act–compliant videoconferencing and data-sharing platforms, which has added flexibility for clinicians.<sup>57,58</sup> The Drug Enforcement Administration also waived components of the Ryan Haight act that restricts controlled-substance prescribing after telehealth visits.<sup>59</sup> These are temporary waivers that will expire

when the PHE ends, unless new policies are made, and states may have more restrictive electronic security or controlled-substance prescription policies.

### **Broadband Internet Access**

Through the Telecommunications Act of 1996, the Federal Communications Commission (FCC) established the Rural Health Care Program with support for broadband infrastructure in health care facilities. Despite this, the FCC reported that 18.3 million Americans lacked sufficient broadband in 2018 to access benchmarked services as articulated in the National Broadband Plan.<sup>60</sup> In a further study, researchers mapped broadband availability with health status indicators and suggested that lack of broadband represents a health equity issue.<sup>61</sup> Fortunately, many new programs and policies are addressing this inequity with hundreds of millions of dollars allocated through the Coronavirus Aid, Relief, and Economic Security act, the Connected Care Pilot Program, and other federal and state programs.

### **Telehealth Policy's Future**

To create a sustainable model of integrated virtual and in-person care, it will be important for advocacy and professional organizations to ensure that many of these regulatory changes last beyond the PHE. Emerging evidence of telehealth best practices, supported by a surge of new data during the pandemic, will strengthen advocacy efforts in which telehealth has particular impact on pediatrics (eg, population health, integrated medical homes for children and youth with special health care needs, and access to pediatric subspecialty care).

Making Medicare, Medicaid, and commercial-payer waivers permanent (most notably, elimination of geographic restrictions, allowing the home as a site of telehealth care, and expanding the types of clinicians eligible to provide telehealth services) are important steps to support those priorities. Additionally, continued expansion of allowable Current Procedural Terminology codes should be approached in collaboration with payers, informed by research and evidence. Although there has been concern that expanded payment flexibility will increase fraud and abuse, integration of telehealth services into the patient-centered medical home will substantially reduce the risk.<sup>62</sup>

The solutions needed to sustain telehealth are now so tightly intertwined with the evolution of the health care system itself that telehealth advocacy has become, simply, health care advocacy. There is a pressing need to accelerate the shift to value-based payment models that enable telehealth services, create a stable financial environment for providers that is not dependent on pandemic waivers, address disparities, and develop a more robust public health program. Updated information for those interested in telehealth advocacy is available through the AAP, the Center for Connected Health Policy,<sup>63</sup> and the Health Resources and Services Administration Regional Telehealth Resource Centers.<sup>64</sup>

## **TELEHEALTH LIMITATIONS**

Aside from the digital barriers discussed earlier, barriers to telehealth access typically mirror existing barriers to in-person care. Additionally, there may be limitations in technology platform capabilities, family acceptance of virtual care, and staff and clinicians' ability to adapt to new telehealth workflows. There are also current limitations to certain physical

examination components and point-of-care diagnostic testing, but many innovative solutions are in development, such as lower-cost, portable peripheral devices and home diagnostic test kits. Lastly, there are payer and regulatory-agency decisions that may limit telehealth for certain patient populations despite policy changes that occurred during the PHE.

## CONCLUSIONS

Telehealth has undergone rapid and massive transformation spurred by the COVID-19 pandemic, with a vast increase in patients and providers experienced in its use. In conjunction, accelerating technology integration into pediatric care makes it difficult to imagine a return to the prepandemic health care environment. New policies and regulations have enabled much of this transformation, with evaluation of data generated during the pandemic and advocacy needed to reveal its value and enable lasting impact. Pediatric practices should strategically consider care delivery models in which telehealth and in-person care is further integrated to meet their patients' needs and position themselves for the future of health care.

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## ABBREVIATIONS

<b>AAP</b>	American Academy of Pediatrics
<b>COVID-19</b>	coronavirus disease 2019
<b>CMS</b>	Center for Medicare and Medicaid Services
<b>FCC</b>	Federal Communications Commission
<b>KPI</b>	key performance indicator
<b>PHE</b>	public health emergency
<b>SPROUT</b>	Supporting Pediatric Research in Outcomes and Utilization of Telehealth
<b>STEM</b>	SPROUT Telehealth Evaluation and Measurement

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**FIGURE 1.**  
Creating an accepted and sustainable telehealth program.



TABLE 1

## Tips for Improving Access to Telehealth Care

Barriers	Tips for Improving Access
Limited access to technological devices	Use telehealth software vendors that support mobile device access; most households now have a basic smartphone. Recommend that families ask if computers are available for telehealth use in their local school or library. Recommend that families ask if computers are available for telehealth use in their local school or library. Ask community organizations to offer temporary use of their computers for telehealth visits.
Limited access to Internet	Identify stores, schools, and community organizations willing to allow use of their Wi-Fi for telehealth visits. Provide patients with information about the FCC's Lifeline program.
Patients and/or families with limited English proficiency	Ask telehealth software and interpreter service vendors if they can integrate language interpretation into telehealth visits. Translate written materials that explain how to access telehealth visits and patient portals into other languages; include screenshots with translations on the side if your on-screen instructions are only available in English.
Patients and/or families who are deaf or hard of hearing	Ask telehealth software vendors if they support closed captioning and/or in-video American Sign Language interpretation. If lip reading is used, recommend that all other Internet users in the house disconnect their devices during a telehealth visit. This increases Internet speed and reduces the audio and/or video lag that can occur at slower speeds.

TABLE 2

## Change Management for Telehealth

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Start small and build on success.
Be ready to capitalize on unexpected opportunities or patient cases.
Solve anticipated problems and mitigate inefficiencies in advance.
Accept a tolerable degree of risk.
Find the right balance between preplanning and “just do it” when deciding on a start date.
Obtain high-level administrator support and identify clinical leaders upfront.
Support early adopters: they will spread the word.
Use a combination of objective data (metrics) and success stories to influence slower adopters.

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**TABLE 3**

Applying the STEM Framework to Telehealth Use Cases

Telemedicine Intervention	Domain 1: Physical or Mental Health Outcomes	Domain 2: Health Delivery Quality and Cost	Domain 3: Patient and/or Provider Experience	Domain 4: Program KPIs (eg, Logistics)
Mental health teleconsultation during the COVID-19 pandemic	Depression and anxiety level and rates	<ol style="list-style-type: none"> <li>Number of appointments completed for psychotherapist versus number of cancellations (Access)</li> <li>Compliance with medication prescription (Effective care)</li> <li>Harm indices (Safety)</li> </ol>	<ol style="list-style-type: none"> <li>Satisfaction with telehealth use</li> <li>Usability</li> <li>Feasibility</li> <li>Communication quality between provider and patient</li> </ol>	<ol style="list-style-type: none"> <li>Number of teleconsultations</li> <li>Average number and type of technical issues per month</li> <li>Implementation cost</li> </ol>
Data-capture method	PROMIS short-form instruments for anxiety, <sup>65</sup> Center for Epidemiologic Studies: depression <sup>66</sup>	Electronic medical record, safety monitoring, and reporting systems	Telehealth Usability Questionnaire, <sup>67</sup> Patient Assessment of Communication in Telemedicine <sup>68</sup>	Electronic medical record, Issues tracking

PROMIS, Patient-Reported Outcomes Measurement Information System; —, not applicable.