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Provider Perspectives on Telehealth Services for Children with Autism Spectrum Disorder
During the COVID-19 Pandemic

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What's New: This study explores the largely undocumented experience of multidisciplinary clinicians providing many services for children with ASD via telehealth for the first time during the COVID-19 pandemic. Results highlight related opportunities, barriers, and key factors impacting its success.

Abstract

Objective: The purpose of the current study was to explore provider perspectives on the strengths and challenges of telehealth services (e.g., behavioral interventions, physical, speech, and occupational therapy, medication management) for children with ASD during COVID-19 related shutdowns.

Methods: From September 2020 to May 2021, we conducted qualitative interviews with 35 providers across multiple disciplines from 17 sites in the Autism Care Network. Qualitative data was analyzed using a framework approach and common themes were identified.

Results: Providers across clinical disciplines identified strengths of the virtual model, such as its flexibility and the opportunity it provided to see children in their home environment. They also indicated that some interventions worked better virtually than others, and that there were several factors that impacted their success. Respondents were generally satisfied providing parent-mediated interventions but expressed mixed satisfaction in using telehealth for direct-to-patient care.

Conclusions: Results suggest that telehealth services for children with ASD could be a helpful tool in decreasing barriers and improving service delivery, especially when tailored to the individual needs of the patient. More research is needed on the factors contributing to its success in order to eventually inform clinical guidelines regarding the prioritization of children seen for in-person visits.

Introduction

Children with autism spectrum disorder (ASD) can benefit significantly from access to a range of services to support well-being (e.g., behavioral support, developmental therapies), especially when started at a young age.¹ Services vary with each child, and can be delivered by a diverse array of clinicians and educators.² Main goals include improving social communication, minimizing meltdowns, facilitating child development, and promoting adaptive skills with the goal of maximizing functional independence.² Children with ASD frequently also require individualized medical and/or behavioral therapy for co-occurring conditions (e.g., seizures, ADHD).

Many children and families experience barriers in accessing services.³ Children with ASD are at risk for, and experience significantly higher levels of unmet needs than typically developing children⁴ and children with other special needs.⁵ Many factors contribute to this disparity, such as insurance challenges, high healthcare costs, and a lack of specialized providers treating common co-occurring conditions and mental health challenges.⁵ Furthermore many families experience particular challenges in accessing services. A recent systematic review of access and use of allied health services (e.g., occupational therapy, applied behavioral analysis (ABA)), found that the children with ASD who were least likely to receive services were older, had less severe challenges, and were from minority groups and certain geographic regions.⁶ These results mirror findings of previous studies indicating disparities in service use for children and families with limited English proficiency,⁷ low-income and racial and ethnic minority children,⁸⁻¹⁰ children with co-occurring psychiatric conditions,¹¹ and children in rural areas.¹²

Telehealth provides a potential mitigation strategy for many barriers families face in receiving services, such as transportation, child care, and taking time off of work for

appointments.¹⁰ The COVID-19 (coronavirus disease 2019) pandemic induced an unprecedented shift from in-person care to telehealth, a practice which was not standard in ASD services previously. A growing body of research exists on telehealth in this population, the vast majority of which includes only implementer-mediated interventions, in which specialists (e.g., psychologists) train others (e.g., parents) in the implementation of interventions. Despite encouraging evidence of acceptability and efficacy of virtual-delivery in these studies,¹³⁻¹⁷ there are significant gaps in the literature. First, there have been few studies identified that examine telehealth in which the direct recipient of care is the child with ASD.¹⁸ In a review of pre-COVID studies,¹⁶ only four examples were identified,¹⁹⁻²² of which only one focused on providing direct care to children with ASD and a co-occurring condition.²¹ Though the few direct-care studies reported encouraging findings (including satisfaction with the telehealth model), more research is needed that includes larger sample sizes, more types of services, and greater attention paid to the factors that may contribute to success with this model, such as age, ASD symptom severity, and co-occurring conditions,¹⁶ information that could assist pediatricians and specialists alike in delivering care via telehealth.

During the onset of the COVID-19 pandemic, providers were forced to change their service delivery model virtually overnight. Due to restrictions related to in-person contact, institutions were confronted with having to prioritize which patients should be seen in person,¹⁸ and there was much national variation in the degree of shutdown of in-person services.²³ Clinicians with varying levels of experience with telehealth were challenged to successfully administer ASD services by video. As a result, many services for children of all ages were conducted via telehealth for the first time, the experience of which remains largely undocumented.

In order to identify the strengths and challenges of telehealth for children with ASD during this unique time, we conducted qualitative interviews with clinicians providing virtual services during COVID-19 shutdowns. The purpose of this study was to explore provider perspectives on these strengths and challenges. Themes and potential implications for future use of telehealth in ASD services are discussed.

Methods

Participants

From September 2020 to May 2021, we enrolled 35 clinicians from 17 institutions across 12 US states and two Canadian provinces. All the institutions were participating sites in the Autism Care Network (ACNet), a learning health network of 20 autism clinics in academic medical centers across North America. Interviewed clinicians all regularly participated in assessments and/or services for ASD and represented six different disciplines (see Table 1). Results regarding diagnostic assessment are reported in Kryszak et al., 2022.²³ The current study is a secondary analysis of interviews from the same study but reports on responses regarding services rather than diagnosis.

Measures

We developed a semi-structured interview guide that included open ended questions and probes, and a brief online survey. The targeted guide (asking about experiences during COVID shutdowns at any point during the pandemic) and survey (asking about shutdowns in mid-March 2020) were reviewed and pilot tested by the ACNet Behavioral Science Committee, which is comprised of ACNet clinicians and parents of children with ASD. See Appendix 1 for services-related questions included.

Procedure

The study was conducted at two institutions, at which IRB approval was obtained (MassGeneral Brigham, Nationwide Children's Hospital). Snowball sampling was used to recruit subjects via the ACNet site principal investigators (PIs). First, we shared advertisements with all 20 PIs to share with relevant clinicians at their institutions, who then contacted the study team if interested in participation. Trained members of the team also emailed clinicians directly who had been identified by the PIs as potentially interested. Although all 20 site PIs were contacted, interviews were only conducted at sites where interested clinicians were available to schedule interviews (3 sites did not respond).

Individual interviews (~1 hr.) were conducted via a HIPAA compliant videoconferencing platform. Conversations were audio-recorded and transcribed. As much as possible, participants were interviewed by team members with whom they had not previously collaborated closely with in ACNet. Repeat interviews were not conducted, transcripts were not returned to participants for comment, nor did they provide feedback on the findings in part because they were being conducted during the beginning of the pandemic when providers were under considerable stress and time restrictions. The study team met regularly to discuss interim results. Thematic saturation was determined by consensus that no new themes emerged in interviews at both institutions.

Data Analysis

Qualitative Analysis

All qualitative coding was conducted in Dedoose v.9.0.15²⁴ using a framework approach, which involves the continuous comparison of codes.²⁵ Upon reviewing 17 transcripts, we created a thematic coding framework, which was then used to systematically categorize data into themes and subthemes. To start, the team independently reviewed several transcripts and discussed

initial impressions to develop a preliminary coding framework. The framework was iteratively revised upon testing with a random sample of transcripts. Then, two authors with prior training and experience in qualitative methodology (LF, female senior research coordinator and CA, male clinical psychologist) independently reviewed data and met to sort the codes into categories based on the domains of the original open-ended questions. They met regularly to discuss impressions and continue to refine codes and framework. The refined framework was reviewed with the rest of the study team, who reviewed and revised its operationalization and application with comparisons to the raw data. Using the final framework, data was then recoded. To illustrate each identified theme, we included exemplar quotes in the results section below.

Quantitative Analysis

Pre-interview survey data describing the level of COVID-19-related shutdowns at clinics were explored using descriptive statistics (frequencies and percentages).

Results

Quantitative Results

All participants completed the pre-interview survey. See Table 2 for results.

Qualitative Results

Clinicians from across disciplines described a broad range of telehealth services, commenting its benefits, the factors impacting its success, and opportunities and challenges related to particular services. Themes are presented below: 1) across telehealth service modalities (parent-mediated, direct to patient care), and then stratified based on telehealth service-modality of 2) parent-mediated and 3) direct to patient services.

Themes Identified Across Service Modalities

General satisfaction with the impact of the flexibility of the telehealth model

Across all clinical disciplines and service modalities, participants commented on the benefits of the increased flexibility allowed by the telehealth model. Whether it was an Individualized Education Program (IEP) meeting with families and educators, therapy session, or clinical debriefing, clinicians appreciated the ability to include more family members and members of a patient’s care team into a visit (see Table 1, “Increased care coordination”). At the clinic level, many participants commented that the virtual model also allowed for increased flexibility of staff responsibilities, allowing teams to be “more nimble” in meeting families’ needs. Several clinicians noted that this provided opportunities to offer new services. For example, one respondent described that changing clinic staff responsibilities allowed them to assign one staff member to provide one-off behavioral consultations, which families found to be beneficial. Similarly, a psychologist from a second site described that their team designated a staff member to run a referral clinic, providing short term, individualized services, commenting that this “was something that the psychologists had wanted to start... and could never really get the go ahead [before the pandemic].” Likewise, another participant noted that they were “able to actually conduct evaluations for children who have been hospitalized... [or in] residential facilities, hospitals, group homes.”

As a result of the increased flexibility provided by telehealth, many clinicians noted improved patient retention for services, possibly due to decreased transportation or scheduling barriers. A few participants noted that parents seemed to appreciate and even prefer the telehealth option (see Table 1, “Decreased barriers to service”). As one clinician noted, for some services, many families “have preferred the option to do it over telehealth because it's more convenient for them.”

[INSERT TABLE 1]

Benefits of working with children in their home-environment

Other benefits of virtual services commonly identified across disciplines included the ability to see and work with families in their home environment. One occupational therapist interviewed commented on the benefit of providing services in a more naturalistic setting, as it allowed for the practice of adaptive living skills in the environment in which they will be used. Other clinicians noted their appreciation for seeing the child in their home context as this aided in service planning. As one clinician noted, they were very satisfied because of this opportunity:

“Being able to be in the home, I can coach you through what to do for a problem in the home. I worked with one family on sleep, and it was just great to go into the child's bedroom to see, "Oh, that giant TV on the wall, that probably has to go,"... it was just really helpful to be able to problem-solve with the parent in the actual environment of how we were going to address the problem. I loved that piece of it.”

Factors impacting the success of and ease of virtual services

Most respondents noted that telehealth did not work equally well for all patients and families, and that there were several factors that impacted its success and clinicians' ease or difficulty in delivering services. In their perspective, telehealth seemed to work better for parents who were more engaged and attentive over video, and for children with more verbal capacity (see Table 2). Many respondents commented that in general, telehealth services were challenging for children with more severe or aggressive behavioral challenges and/or co-occurring developmental delay or psychological conditions (e.g., ADHD).

Many respondents further noted that it was important to consider a variety of factors when making the decision as to which patients should be seen virtually versus in person (e.g.,

“we do have a lot of considerations in when we do telehealth and when we do on-site, whether that's parent factors, child factors, behavior factors”). Moreover, one clinician attributed her satisfaction with telehealth to institutional guidance provided at their site. Clear guidelines assisted in decision making for who should be seen virtually, and built-in flexibility supported clinicians in meeting patients’ individual needs (e.g., flexibility for patients who couldn’t tolerate mask wearing, prioritizing in person services for children who need “to learn that skill to get back to school”).

[INSERT TABLE 2]

Themes Identified by Service Modality

While the broad themes above were identified across all interviews, two major themes were identified between service modalities: 1) General satisfaction with parent-mediated interventions (including parent-mediated behavioral therapy and virtual psychiatry visits) 2) Mixed satisfaction with direct to patient services (including speech therapy, play therapy, psychological therapy, and behavioral interventions).

Parent-mediated interventions

Most respondents involved in parent-mediated behavioral interventions commented that it worked well via telehealth. Respondents frequently expressed satisfaction with parent-training, noting that it was effective, enjoyable, and “lends itself perfectly to the virtual space.” Without barriers such as transportation and childcare, clinicians also noted that more parents were able to join sessions (see Table 3, “Parent training”).

However, a minority of respondents noted that parent-training could be challenging in the virtual setting if parents were not actively participating in the session. One participant mentioned

that virtual parent-education programs were challenging with large groups of parents: “One on one, it's easy. But once you get in a group, it's really hard. And you can't tell.... who's listening or not.”

The psychiatrists interviewed commented that though there were small differences, telehealth allowed them to conduct some visits virtually in the same way they would have in person; almost all referred to their interactions with parents, who mediated the virtual visits for younger children and children who could not otherwise attend a telehealth appointment alone. Psychiatrists indicated that though the workflow was different via telehealth, medication management could be handled just as well virtually as it could be in person. For example, instead of collecting vital signs and weights in the clinic, psychiatrists received this information from a child's primary care provider, school, or parents using at-home equipment (see Table 3, “Psychiatry visits”). On the other hand, psychiatrists noted that for patients with ADHD and other challenging behaviors, telehealth was more difficult (see Table 2, “Factors contributing to challenges”).

[INSERT TABLE 3]

Direct to patient services

Many respondents described new experiences in providing services directly to patients (without any parent mediation) via telehealth. Across disciplines, providers noted challenges due to several factors. One respondent noted that speech therapy was “very complicated” via telehealth, as their patients tend to be younger. Likewise, play therapy was difficult, given participants were younger and many had co-occurring diagnoses of ADHD and/or anxiety (e.g.,

“Zoom just is not appropriate for a lot of our [youngest] children in play therapy”). The same was noted for children in behavioral therapy, since patients tended to have less verbal ability and more challenging behaviors.

Clinicians providing direct psychological therapy expressed both challenges and successes while conducting virtual services (e.g., “it’s hit and miss”). One clinician cited that it was particularly difficult to engage those patients who do not want to take part in therapy (e.g., “what do I do with this 12-year-old who doesn’t want to talk to me and is literally like, ‘I can’t stand you,’ and then goes off the screen). While a few other clinicians shared their satisfaction with the successes of virtual therapy. For example:

“The teletherapy aspect... has been great, very satisfying. I can think of two off the top of my head where I’m like, ‘This is such a success story. Maybe we should always be online with you. Even online school seems to be a great fit for you.’ And these are patients that were previously suicidal, kind of in and out of hospitalization and PHC programs. So that feels super satisfying, like, ‘Wow, we did it.’”

Discussion

The purpose of the current study was to explore provider perspectives on the strengths and challenges of providing virtual services for children with ASD during COVID-19 related shutdowns. Providers across clinical disciplines identified strengths of the virtual model, such as its flexibility and the opportunity it provided to see children in their home environment. They also indicated that some services worked better virtually than others, and that there were several factors that impacted their success. Results may lead to a better understanding of when telehealth works best for children with ASD.

Providers commented that telehealth provided a level of flexibility that had not previously been available prior to the pandemic. They shared several benefits, including the potential for telehealth to reduce disparities in care access (through reducing barriers in transportation, time off work, etc.). The ability to have more people (e.g., family members, care providers) in virtual visits was also noted as a strength. As has been noted in the literature, this provides a unique opportunity to improve care coordination for children with ASD (via a team including a child's pediatrician and interdisciplinary specialists), a much needed and often inaccessible aspect of services that can assist both providers and children alike.^{26,27} Shutdowns also provided an opportunity to design creative solutions to care access. As several respondents noted, these circumstances allowed clinics to implement innovative new models, similar to the work of the clinical "champions" described by Solomon & Soares, who highlight their importance in motivating colleagues to pilot and strengthen new telehealth initiatives in ASD care,²⁷ as well as in large health systems.^{27,28}

Respondents also expressed that some ASD services lent themselves better to the virtual settings than others, such as parent-training. Virtual parent-training has been found to be a feasible, effective, and cost-effective intervention.²⁹ It is as a useful method to reach families experiencing logistical and geographic barriers in attending in-person sessions^{30,31} and a sustainable option for parents to access programs now and in the future.

Providers also highlighted little differences in moving to virtual psychiatric visits. Though this has been previously documented,³² it is important to consider the particular challenges to providing this care to children with ASD, as was noted by respondents. Psychiatrists interviewed noted difficulties seeing children virtually who have challenging or

self-injurious behavior, or co-occurring conditions such as ADHD, a challenge that was also mentioned across disciplines.

Respondents found services across disciplines to be more successful with older children, for children with more verbal capacity, and when parents were more actively engaged on video calls. These results are important in highlighting potential factors contributing to disparities in care access for these groups,⁶ particularly in the virtual setting. In parallel, similar factors were noted as the potential cause for challenges in delivering services with younger children (e.g., speech therapy, play therapy) and those with more severe behaviors and less verbal capacity participating in behavioral therapy.

Many respondents emphasized the importance of considering a variety of factors when deciding which patients should be seen via telehealth. Such considerations may include families' access to and ability to use live-technology, parental learning style (telehealth interventions can often be more abstract), clinician training (number of people interested, willing, and able to offer telehealth), as well as institutional level factors such as infrastructure and administrative support. Future studies should build upon this work to consider the specific circumstances in which telehealth is preferable to in person services and vice versa.

Ultimately, telehealth may best be conceptualized as an intervention tool that can be used on an individualized basis to decrease barriers and improve service delivery across general pediatrics and specialist disciplines. It is not without limitations, such as differential insurance coverage and connectivity issues. More information is needed to help providers and institutions decide when the use of this tool is most appropriate. Literature on this topic is limited,¹⁸ and the results of the current study affirm the need for future research focused on triage and prioritization

of in-person visits, with the ultimate goal of developing clinical and institutional guidelines for the use of telehealth for ASD services.

There are limitations to the current study. Firstly, respondents were self-selected, so they may represent providers with greater interest in telehealth. As we recruited from academic medical centers using snowball sampling, the results may not reflect the perspectives of clinicians providing services in other settings (e.g., schools), and we are unable to report on the number of providers approached and refusal rate. We do not include complete information on specific therapies provided to children, and differences in infrastructure and regulations by state and province limit generalizability of findings. While some findings may be more relevant to providers working at similar institutions as in ACNet (providing more intensive services), some findings, such as observing children in the home environment, may be just as relevant to primary care providers in their work and in referring patients to specialty care. Strengths of study include a sample of clinicians from across the US and Canada, representing a diverse array of clinical disciplines and service providers.

Results from the current study highlight the unique experience of providers offering virtual ASD services during the COVID-19 related disruption to in-clinic services. Though providers experienced challenges with telehealth, it also allowed for many opportunities to innovate services and increase access for families. Providers indicated key factors impacting its success, which will be important to consider as we continue to explore the possibilities of using telehealth for ASD services in the future.

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Table 1. Participant and Site Characteristics

N=25	% (N)
<i>Participant Age in Years</i>	
29-40	36 (9)
41-50	36 (9)
51+	28 (7)

<i>Median (Range) Work Experience in Years**</i>	15 (3-41)
<i>Regions Represented by Participating Sites*</i>	
US Northeast	24 (6)
US Midwest	36 (9)
US Southeast/Southwest	12 (3)
US West	16 (4)
Canada	12 (3)
<i>Reported Level of Site Shutdowns</i>	
Complete shutdown (100% of in-person services were stopped),	63%
Partial shutdown (closed for some services)	34%
Median (range): Estimated proportion in-person services in partial shutdown	28% (5 -75%)
No shutdown (clinic never shut down, 100% of in-person services remained open)	3%

Missing N=10 (participants were recontacted to solicit demographic information)

**States and provinces represented: US: (AZ, CA, CT, MA, MO, NY, NE, OH, PA, SC, TN, WI); Canada (AB, ON).*

***Experience in current discipline. Disciplines represented: psychology, developmental behavioral pediatrics, psychiatry, occupational therapy, speech-language pathology, and nursing (nurse practitioners).*

Table 2 Sample Quotes Illustrating Satisfaction With Flexibility of Virtual Services

General Clinician Satisfaction with the Impact the Flexibility of the Telehealth Model	
Increased care coordination	<i>I've been in some really great IEPs where maybe the family has invited not only me, but their ABA therapist and their occupational therapist and their grandma. And it's this wonderful team of people that - sometimes half the battle is just getting everybody in the room that wants to talk about that one child or get some perspective on that one child. And so in that regard, I'm super excited about the benefit of telehealth, because I feel like it has created these opportunities to-- "Oh, my gosh. I can talk to the teacher and the ABA provider and the grandma...and can we all agree on this one thing that we're going to do to help?" And so that's been a really good thing.</i>
Flexible clinic model	<i>What's changed is that we have had the opportunity to observe what's happening in the home and to also have other family members present, which has been awesome.</i> <i>I actually think [one-off behavioral consultations] are really beneficial and I don't think would have flown as quickly in a model where parents had to come actually in. I just think the fluidity makes it a lot more doable, and it's a great resource for families.</i>
Decreased barriers to service	<i>I think most of us are seeing more patients more frequently because we can see them closer to when we actually wanted to see them, as opposed to when they could actually get back into the [clinic]</i> <i>I can do brief video visits more frequently, whereas before that family that lives an hour away, it's really hard to find an appointment to get them back in</i> <i>...in our feeding program there's been a huge increase in the ability to serve kids who are distant from [the clinic]. And so it's resulted in a huge increase in referrals to our feeding program and really has improved care to kids in rural and more outlying areas...and so our feeding program has grown a ton.</i> <i>I have one ongoing treatment case that this has been such a godsend to her because she's got three different kids in treatment, so she could have them all on different devices doing treatment at the same time, or she can do one person's assessment while she's helping - one of them could be in treatment while another one's working on homework. So she's loved it because... they're not from far, but it saves them a ton of driving time even, so.</i>

Table 3 Sample Quotes Illustrating Factors Impacting the Success and Ease of Virtual Services

Factors Impacting the Success and Ease of Virtual Services	
Factors contributing to success	<p><i>I think a lot of [the success of virtual treatment] depended on the parents' abilities to assist kids...So, if parents were really engaged and onboard, and kids were a little bit more verbally able, I think telehealth went quite well.</i></p> <p><i>[My institution's] overall leadership did a really nice job of putting out some really clear guidelines... [for example:] This is when telehealth's approved...this is the percentage for this amount of time that you need to be telehealth versus in person. So, I felt like that they put some really nice guidelines out to kind of guide, so there wasn't a guessing game... I thought that was nice. I think that they were very supportive of our patient population and thinking about what exceptions we may need to have and considerations...for some of our patients, you may be 14, and it's really difficult to tolerate wearing a mask, or that's a skill that we have to learn.</i></p>
Factors contributing to challenges	<p><i>You won't get a sense for inattentive symptoms, really. So, it's hard to get the teacher's perspective right now. She might not get an accurate understanding of how they're doing academically, but so it's more of going off of the parent than what I'm seeing. So that is different.</i></p> <p><i>[With] aggressive behavior... you're not seeing the patient. You're just going off of what the parent says. So that's a lot different. Usually if you're in the clinic, you can see, scratch marks, bite marks on their skin, if they're self-injurious, but you're not getting that sense. So, it's really by parental report.</i></p> <p><i>But a lot of our population is more severely affected with autism and intellectual disability. And those kids were just not able to access intervention at all.</i></p> <p><i>And those tend to be kids who are less verbal and who have more challenging disruptive behavior, meltdowns and self-injury and that kind of thing, that might have less verbal skills to participate in telemedicine.</i></p> <p><i>I think particularly for our people that see zero-to-five, because the Zoom just is not appropriate for a lot of our children in play therapy. And I say that as most of our children have comorbid diagnoses of ADHD and autism, plus you're starting to see these symptoms of anxiety come through. And so, I think that's been the biggest challenge.</i></p>

Table 4 Sample Quotes Illustrating General Satisfaction with Parent-Mediated Interventions

General Satisfaction with Parent-Mediated Interventions	
Parent training	<p><i>We've struggled historically to maintain numbers in parent training groups. Families fall off really easily. Because we don't offer childcare, so there's a lot of barriers to coming to our location to do a group. And being able to offer a lot of those through telehealth, I think, has opened up a fantastic support and service line for our families.</i></p> <p><i>...the parent group was very helpful because we were giving new diagnoses, and we thought that would be a good way to continue to support.</i></p> <p><i>I never thought that would ever, could ever happen. But it works. I mean, I can just coach the mom right through the phone... PCIT [Parent-Child Interaction Therapy] is once a week for about 15 weeks. So if you don't live within 30 minutes of [the clinic], you just cannot pull it off. And so I'm able to do PCIT with people who live two hours away, and it's making a difference. PCIT is very effective. So that's fun too. I hope to be able to continue that.</i></p>
Psychiatry visits	<p><i>We've been really successful at getting what our team believes to be an adequate [virtual] physical exam to prescribe meds and, if needed, getting vital signs through schools or primary care docs or even families just using their home equipment. And so, our team has been really happy with being able to do med management by telemed.</i></p>

Appendix 1: Interview Guide and Pre-Interview Survey Questions

Treatment-related questions in semi-structured interview guide:

- 1) What kind of virtual treatment services were offered?
- 2) What part of your pre-COVID service matrix were you able to offer by telehealth and what services did you not offer?
- 3) Did you offer group treatment? What was that like?
- 4) What populations or type of treatment services do you think were delivered just as well or even better by telehealth?
- 5) What treatment services or types of patients were more difficult to serve or just didn't get served during the lockdown?
- 6) What kind of new treatment services did you develop for telehealth delivery that you may not have offered pre-COVID?
- 7) Were there differences in who got treated pre-COVID versus post-COVID? In what ways, did telehealth help with access to care and health disparities?

Pre-interview survey questions:

- 1) Would you describe your level of shutdown of in-person clinic services as:
 - a. Complete, closed fully; 100% of in-person services were stopped
 - b. Partial, closed for some in-person services and open for others
 - c. Never closed, remain opened for all services; 100% of in-person services remain opened?
- 2) If partial shutdown, estimate what percent of your services remained in-person?

What's New:

This study explores the largely undocumented experience of multidisciplinary clinicians providing many services for children with ASD via telehealth for the first time during the COVID-19 pandemic. Results highlight related opportunities, barriers, and key factors impacting its success.

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