



Telehealth Delivery in Part C Early Intervention: Provider and Caregiver Perspectives

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Abstract

Telehealth is a promising modality for Part C early intervention (EI), services typically implemented face-to-face in home and community settings. Barriers to telehealth in EI reported prior to COVID-19 included lack of training and access to reliable internet. The abrupt telehealth shift at the onset of the pandemic did not permit a phased adoption approach. This mixed-methods study aimed to characterize perspectives of service changes resulting from the telehealth transition. Providers ($n = 39$) and caregivers ($n = 11$) completed surveys about perceptions towards the telehealth switch. All providers indicated at least one aspect of services had changed. Approximately half of caregivers reported satisfaction with services decreased and half that satisfaction remained the same. Implications for telehealth in EI beyond the pandemic are discussed.

Keywords Early intervention · Part C · Telehealth · Caregivers · Providers

Introduction

Infants and toddlers from birth to age 3 with developmental delays or disabilities and their families are eligible for early intervention (EI) services through Part C of the Individuals with Disabilities Education Act (IDEA, 2004). A priority for Part C is service provision in the child's natural environment, which is often their home or day care setting. Prior to the onset of the COVID-19 pandemic, telehealth delivery of EI services was not yet widespread in practice but appeared to be a promising solution to limited EI service access in rural locations (Cole et al., 2016) and facilitating continuation of care when services may otherwise need to be halted (e.g., inclement weather, illness). With the onset of the pandemic, social distancing and safety mandates created a need for EI programs to pivot rapidly to the use of telehealth as their primary service modality. Without an existing telehealth blueprint to follow, however, it is unclear how EI programs and the families they served navigated this transition.

The term “telehealth” stems from the medical profession's use of “telemedicine” as a mode for practice, which has been defined as the “use of telecommunication and online technologies to provide health care at a distance,” (Neely et al., 2017, pg. 850). The success of telemedicine has since resulted in an expansion of virtual services beyond medicine to other human service fields, resulting in the broader terms “telehealth,” “telepractice,” and “teletherapy” (Baharav & Reiser, 2010; Cole et al., 2016; Grogan-Johnson et al., 2013). These umbrella terms encompass a variety of approaches, including the delivery of services via phone and teleconferencing. While there are limited studies on the implementation and feasibility of telehealth in EI settings (Behl et al., 2017; Blaiser et al., 2013; Cole et al., 2016; Olsen et al., 2012), the pre-pandemic evidence indicates that EI delivered via telehealth can be comparable to EI delivered traditionally, i.e., in-person (Behl et al., 2017; Blaiser et al., 2013; Buchter & Riggelman, 2018; Stredler-Brown, 2017). In fact, studies suggest that telehealth may actually increase aspects of the intended Part C caregiver coaching model that are often missing from in-person services (Douglas et al., 2020; Fleming et al., 2011), such as provider responsiveness, caregiver engagement, and opportunities for caregivers to practice strategies while receiving feedback, relative to in-person services (Behl et al., 2017; Olsen et al., 2012; Stedler-Brown, 2017). In addition to promoting

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caregiver coaching, EI delivered via telehealth has been implemented successfully and shown to be cost-effective with families of children who are deaf or hard of hearing (DHH) (Behl et al., 2017; Blaiser et al., 2013; Stredler-Brown, 2017). Children who are DHH and received EI via telehealth demonstrated significantly higher expressive language scores and similar or better auditory skill outcomes when compared with children who are DHH and received in-person visits (Behl et al., 2017; Blaiser et al., 2013). Additional research examining coaching for caregivers of young autistic children/children with autism spectrum disorder (ASD) outside of the Part C EI system has validated telehealth as a feasible child intervention model. This research supports telehealth-delivered caregiver coaching for comprehensive treatment programs such as Project IMPACT and the Early Start Denver Model (Ingersoll & Berger, 2015; Ingersoll et al., 2016; Vismara et al., 2018), as well as focused assessment and intervention such as functional behavior assessment and functional communication training (Machalicek et al., 2016; Simacek et al., 2017).

Many EI providers report that telehealth allows for increased flexibility in their work, increases their reach to families (Cole et al., 2019; Little et al., 2018), and is consistent with the EI-endorsed family-centered coaching model (Rush & Shelden, 2011). However, fewer data exist regarding caregiver perceptions of telehealth delivery within EI. Caregivers of children who are DHH reported that participating in telehealth put them “in the driver’s seat” and that they learned more about supporting their child through telehealth compared with in-person visits (Blaiser et al., 2013). In addition, research on telehealth assessment and caregiver coaching for young autistic children/children with ASD outside of the Part C EI system suggests that caregivers experience telehealth as acceptable, feasible, and convenient for service delivery (Bearss et al., 2018; Boisvert & Hall, 2014; Corona et al., 2020; Little et al., 2018; Owen, 2020; Simacek et al., 2017; Vismara et al., 2018). Frequently the goal of such research has been to connect families with ASD intervention services given the overall shortage of providers who specialize in ASD and ASD-specific evidence-based practices (Waltman et al., 2020). However, this research took on additional importance with the onset of social distancing requirements and the continued need for services for young children with developmental disabilities or delays. Bearss and colleagues (2018) conducted a feasibility trial of a caregiver training program to address challenging behavior of young autistic children/children with ASD delivered via telehealth. While all caregivers endorsed feeling comfortable with the delivery of training via telehealth and reported that they would recommend the program to others, 1/3 endorsed it as “unnecessarily complicated” (Bearss et al., 2018). At the same time, none of the providers endorsed this statement.

This study highlights the value of considering the potentially disparate perspectives from providers and caregivers regarding telehealth experiences.

In early 2020, the application of telehealth in EI settings went from being a promising but distant possibility, to an immediate, large-scale reality for providers and caregivers as the COVID-19 pandemic swept the globe. Understanding the barriers that prevented meaningful, large-scale adoption prior to the virus may provide insights into some of the problems that may persist. Prior to the pandemic, the reported barriers included lack of training and experience with telehealth for providers, poor access to reliable and high-speed internet for families (i.e., the “digital divide”; Romsetty & Adams, 2020), and few technical supports. Some professionals also believed that telehealth was less effective and less preferred by families than in-person services (Cole et al., 2019; Iacono et al., 2016). While COVID-19 restricted the ability to select in-person services, it is plausible that such beliefs might impact satisfaction with and the perceived quality of services. The evaluation of telehealth in Colorado’s Part C EI system indicated a reluctance by families and service coordinators to agree to telehealth (Cole et al., 2016). However, it appears that some caregivers may be more willing to try telehealth than providers may believe. Caregivers from an ASD-specific EI program expressed greater willingness to consider telehealth services than did providers in the same program, with caregivers expressing willingness at 3 times the rate of providers (Iacono et al., 2016).

In addition to the pre-existing challenges to telehealth, the pandemic introduced a series of unique disruptions and did not allow for an optimally planned, phased approach to telehealth adoption, which may have significant implications for providers’ and caregivers’ experiences and attitudes for this modality. Intervention practices have now been additionally influenced by factors such as providers and caregivers working from home with increased distractions, limited training in technology troubleshooting, and continued disruptions to childcare services (e.g., day care centers) given prior social distancing guidelines and ongoing needs to quarantine. Yet, preliminary evidence has demonstrated family satisfaction with telehealth implementation in EI. Kronberg and colleagues (2021) trained four EI providers to deliver telecoaching to caregivers at the beginning of the pandemic, and found significant improvements in caregiver satisfaction, child performance, and goal attainment after 9 weeks. Interestingly, no differences were found between families’ satisfaction by those who had previously received in-person services and those who had not. Of note is that in this and many pre-pandemic studies regarding telehealth in EI, participating providers received training in coaching via telehealth; training which was unavailable to many EI providers during the abrupt service delivery shift. However,

another study surveyed 207 caregivers across the continental US on their satisfaction with EI telehealth during COVID-19 and found that 41% reported high satisfaction, 30% reported medium satisfaction, and 29% reported low satisfaction (Murphy et al., 2021), indicating that the majority of caregivers were at least somewhat satisfied with services.

The current mixed-methods study aimed to characterize the key changes to EI services brought about by the mass transition to telehealth from both the perspective of providers and caregivers with children with social communication concerns. Specifically, an online survey was sent to EI providers and caregivers who were participating in a larger study about EI services for children with social communication concerns, to capture perspectives in real time. Both groups of participants were asked to share their perspectives and attitudes on whether and how services had changed, the benefits and challenges of shifting to telehealth, and to offer suggestions for improving telehealth sessions throughout the pandemic and beyond.

Method

Participants

This study included 39 EI providers and 11 caregivers from three different Part C EI agencies located in a Northwestern U.S. county. Participants were recruited from a larger, ongoing study examining EI practices with caregivers of children with social communication concerns that began prior to the COVID-19 pandemic. For providers, eligibility criteria required that they were actively providing services to families on their caseload via telehealth. Approximately 1/3 of providers were early childhood special educators (30.8%), another 1/3 were speech language pathologists (28.2%), and the remaining 1/3 of providers were occupational therapists, physical therapists, home visitors, or “other” (see Table 1). For caregivers, eligibility criteria required that their child be under 36 months of age, they were currently receiving services from an agency participating in the larger study, and that they spoke English. No remuneration was provided.

The local mandate for the transition to telehealth began on March 19, 2020, and surveys were collected from providers and caregivers in May and July 2020, respectively. Demographic data were obtained via a brief survey as part of their participation in the larger study (see Tables 1 and 2).

Procedures

This study used a cross-sectional survey design and was approved by the University Institutional Review Board. Survey development and deployment was rapid to be responsive

Table 1 Demographic characteristics of providers

Mean Age	34.1 (<i>sd</i> =8.0)
Gender	
Female	39 (100.0%)
Race	
Black or African American	1 (2.6%)
White/caucasian	35 (89.7%)
More than one race	2 (5.1%)
Other	1 (2.6%)
Ethnicity	
Hispanic	3 (7.7%)
Non-Hispanic	36 (92.3%)
Professional background	
Speech language pathologist	11 (28.2%)
Occupational therapist	7 (17.9%)
Physical therapist	3 (7.7%)
Early childhood special educator	12 (30.8%)
Home visitor	2 (5.1%)
Other	4 (10.3%)

Table 2 Demographic characteristics of caregivers

Mean age	35.1 (<i>sd</i> =4.5)
Gender	
Male	1 (9.1%)
Female	10 (90.9%)
Race	
Asian	3 (27.3%)
American Indian or Alaska Native	1 (9.1%)
White/caucasian	7 (63.6%)
Ethnicity	
Hispanic	1 (9.1%)
Non-hispanic	9 (81.8%)
Unknown	1 (9.1%)
Parental education	
High school or GED degree	3 (27.3%)
Associate’s degree/college coursework	1 (9.1%)
Bachelor’s degree	5 (45.5%)
Advanced/graduate degree	2 (18.2%)

to the onset of the pandemic, in alignment with the purpose of a pragmatic trial. Surveys were developed using a collaborative and iterative process by the first, second, and last authors who have worked directly in or with the EI system and were aware that moving away from face-to-face, in-home services was a departure from typical service provision. The second and last authors met to discuss the information desired from caregivers and EI providers about changes to EI services. Major survey topics were identified through discussion and, for ease of participation, electronic

surveys were chosen for data collection. Initial questions were drafted and ordered by the second and last authors before sharing with the first author for input and revision. Due to the rapidly changing nature of COVID-19 at the time of this research and the nature of the survey topics of interest, survey items were not tested for validation.

All providers and caregivers gave informed consent before participation. After consenting, providers and caregivers received their respective online versions of our Pandemic Telehealth Survey, which was programmed through REDCap (Harris et al., 2009, 2019), and were asked to complete it within 2 weeks. Thirty-nine of the 54 providers (72%) and 11 of the 21 caregivers (52%) who received the survey completed it. An additional 3 caregivers indicated that they were not receiving EI services and were therefore not included in the survey.

Pandemic Telehealth Survey–Provider Version

This survey included five open- and close-ended questions to assess provider perceptions and attitudes about the switch to delivering EI services via telehealth (see Appendix). Providers were asked to indicate the percentage of families in their caseload who were receiving: (1) telehealth sessions involving both video and audio, through platforms such as Zoom; (2) audio-only/phone-only sessions; (3) in-person home sessions, and (4) no services since the pandemic began. Providers were also asked to indicate which of the following aspects of their service delivery had changed due to the transition to telehealth: (1) child-specific treatment strategies used; (2) caregiver-specific strategies used; (3) treatment goals/objectives for sessions; and (4) topics/content covered during sessions. If a category was endorsed, an open-ended question asked respondents to describe how it had changed. A second open-ended question asked for recommendations for additional supports and tools that would improve their provision of telehealth services. In addition, 7 items asked providers to rate the extent to which key aspects of their treatment delivery had changed with the transition to telehealth, such as the frequency and duration of visits, the amount of time spent working with the child and the caregiver, provider judgement about improvement in child outcomes, and perceived engagement and rapport with caregivers. The rating scale response options were: “overall increase,” “overall decrease,” “mixed,” and “no change.”

Pandemic Telehealth Survey–Caregiver Version

This survey included eight open- and close-ended questions to examine caregivers’ perceptions and attitudes regarding EI service delivery via telehealth (see Appendix). Four open-ended questions asked caregivers to characterize the transition to telehealth including: the effect on their

interaction with their child’s provider; the effect on their interaction with their child during telehealth sessions; the advantages and disadvantages of telehealth; and recommendations for additional supports and tools for improving the experience of telehealth services. Additional questions asked caregivers how they were receiving services and to rate key aspects of services, including the duration of visits, topics covered, satisfaction with services, and perceived overall value of EI services, using the following rating response options: “overall increase,” “overall decrease,” “no change,” and “not sure.” An additional item asked caregivers to rate the ease of the transition to telehealth services on a 7-point Likert scale that ranged from “extremely difficult (1)” to “extremely easy (7).”

Data Analysis

Descriptive statistics (percentages, means, and standard deviations) were calculated using SPSS version 26 (IBM Corp., 2019) to examine providers’ and caregivers’ item ratings that measured the relative ease of transitioning to telehealth services and how it had changed key aspects of service delivery (e.g., frequency and duration of sessions, satisfaction with services).

Qualitative analysis of the responses to open-ended questions was developed using a systematic and iterative approach consisting of: (1) affinity diagramming (Harston & Pyla, 2012; Kawakita, 1992); (2) developing a codebook; and (3) independent coding and review. Affinity diagramming is an inductive process through which a team (i.e., 2 or more people): (1) records participant responses onto cards/post-it notes, (2) evaluates each response to identify distinct key components, which are then grouped with related ideas, (3) reviews and finalizes the clustering of groups, and (4) assigns a descriptive label (i.e., specific theme) represented by each of the final groupings. Separate coding teams of two coders each implemented affinity diagramming using the online Mural platform (Tactivos, Inc., 2019), which provides virtual white boards and post-it notes. One coding team completed affinity diagramming with the provider data and a second coding team completed affinity diagramming with the caregiver data. The first coding team consisted of two research psychologists (second and last authors) with ongoing research partnerships with EI agencies. The second coding team consisted of a clinical psychology doctoral candidate and a bachelor’s-level research assistant (third and fourth authors) who were actively involved in EI research and had received training in affinity diagramming from the second author. For each item, coders read the response in its entirety and discussed and reached consensus on the distinct components/ideas in the response. Each distinct component was transferred onto a separate post-it note and the two coders jointly sorted each post-it into groups with similar

themes. For example, “I find myself engaging in more direct caregiver coaching, but I am also directly engaging the child less,” would be separated into two post-it notes and sorted into different groupings because the statement conveyed distinct ideas/points. Once all responses for a given question were sorted, the coding team reviewed and labeled each group to best indicate the theme that it captured.

Each coding team developed a codebook with operational descriptions and mock examples for all themes for each question. Responses were coded by an independent coder, a doctoral candidate in special education with prior work experience as a Part C EI provider (first author), who was not part of the affinity diagramming process, for reliability purposes. Percent agreement was calculated by identifying the instances in which the independent coder agreed with the affinity diagramming team on a given response (numerator) in relation to the total number of times a theme was endorsed by either the independent coder or the affinity diagramming team (denominator). If a given theme was under 70% agreement, the affinity diagramming team reviewed disagreements and reached consensus when appropriate. The percent agreement for each theme ranged from 75–100% for the provider data and 80–100% for the caregiver data.

Results

Provider Perspectives

Item Ratings

EI providers reported that 77% of their families were receiving EI services through telehealth sessions that used both video and audio, 12% were receiving audio-only/phone-only sessions, and 9% were no longer receiving services due to

the onset of the pandemic. All providers indicated that at least one key aspect of services had changed, with 62% reporting changes for child-specific strategies used, 64% for caregiver-specific strategies, 41% for overall goals/objectives, and 54% for content/topics covered. The majority of providers indicated that with the transition to telehealth, the amount of time spent coaching caregivers increased and the amount of time interacting directly with the child decreased. However, their ratings for the effects on child improvement and level of rapport/engagement with families were mixed (see Table 3,4). Nearly 50% of providers also reported that the frequency and duration of intervention sessions had decreased, but that the amount of time they were able to spend on IFSP goals did not change.

Themes

Overall, seven themes emerged from providers responses about changes to their use of intervention strategies with children and caregivers, goals/objectives for sessions, and topics/content covered during sessions. Three additional themes emerged in their recommendations for ways to improve the telehealth experience.

Changes to Intervention Strategies Used Increased Caregiver Coaching and Support. Given the inability to work in-person with the child, most providers indicated a greater reliance on caregiver coaching during their sessions. One provider reported that, “Tele-intervention has been a great tool to really letting parents be hands on when integrating therapy strategies into sessions.” Several providers reported increasing their efforts to be supportive and to seize opportunities to provide caregivers with positive feedback as they worked with their child. One provider stated, “I want parents to feel like they are being heard, giving them strategies as

Table 3 Provider reported extent of change since transitioning to telehealth sessions

Variable	Extent of change				
	Overall increased <i>n</i> (%)	Overall decreased <i>n</i> (%)	Mixed <i>n</i> (%)	No change <i>n</i> (%)	Missing <i>n</i> (%)
The frequency of my sessions with families	0 (0)	18 (46.2)	15 (38.5)	6 (15.4)	0 (0)
The length of my sessions with families	2 (5.1)	18 (46.2)	10 (25.6)	9 (23.1)	0 (0)
The amount of time I spend focusing on IFSP goals	0 (0)	9 (23.1)	11 (28.2)	19 (48.7)	0 (0)
The amount of time I spend on coaching the parent to work with the child	31 (79.5)	2 (5.1)	4 (10.3)	2 (5.1)	0 (0)
The amount of time I spend interacting directly with the child	0 (0)	36 (92.3)	2 (5.1)	1 (2.6)	0 (0)
The rate of improvement I see in children’s progress	2 (5.1)	5 (12.8)	23 (59.0)	7 (17.9)	2 (5.1)
The level of engagement or rapport I have with families and children	4 (10.3)	3 (7.7)	22 (56.4)	10 (25.6)	0 (0)

Overall increased = increased for the majority of families, Overall decreased = decreased for the majority of families, Mixed = increased and decreased for similar numbers of families

Table 4 Provider themes and sample quotes

Theme	Quotes
Increased caregiver coaching/support	<p>“I have coached parents through attempting the same task we are asking their child to complete before working with their child so they can feel the motion.”</p> <p>“I’ve been extremely encouraging, supportive, and focus on very small strategies for parents to try since they have SO much on their plates and less access to support.”</p>
Changes with modeling	<p>“Spending more time explaining why and how we are going to help the kiddo. I feel like virtual therapy requires therapists to use words to coach vs showing parents.”</p> <p>“In person I would often model something and then coach a parent through it. Now I do more direct coaching, and try to use video models when appropriate.”</p>
Increased child engagement efforts	<p>“...I have to do a lot more to engage the child. Puppets. Bubbles. Playing a (muted) book on youtube and sharing my screen.”</p> <p>“We use a lot more peek-a-boo and songs since we cannot physically interact.”</p>
Emphasis on daily routines/home life	<p>“I am often providing strategies to parents for how to manage their child’s needs during this time when there are changes in schedule, parents/siblings home all day, no school or classes, etc.”</p> <p>“Families are often asking how to keep their children entertained when unable to go out into the community as frequently.”</p>
Emphasis on family mental health/well-being	<p>“More focus on mental health, stress and coping strategies.”</p> <p>“We are more focused on family’s basic needs and child’s stress level.”</p>
Increased time navigating technology	<p>“Tech difficulties, viewing what I need to see through the camera, and strategizing about how to decrease the child being distracted by the screen have been barriers.”</p> <p>“... the technology slows things down a little.”</p>
Fewer goals/objectives	<p>“In general, I come to expect less to be accomplished in a full session.”</p> <p>“I’ve had to decrease the amount I can accomplish in 1 h.”</p>
Technological needs	<p>“Some families do not have the devices or strong enough wifi to have consistent phone or video check ins/visits.”</p> <p>“Free internet and devices for families.”</p>
Video and visual supports needs	<p>“Video clips we can share with families of a provider modeling specific language/interaction strategies.”</p> <p>“Resources for parents to reference regarding therapy techniques and strategies (videos, hand-outs).”</p>
General information resource needs	<p>“More resources to address basic family needs so those can be less of a focus.”</p> <p>“General guidelines on what a session via zoom should look like might be helpful.”</p>

needed.” Many providers described adapting their communication style with caregivers by changing how they deliver instructions, explanations, and feedback to maximize clarity and directness. One provider said, “I find myself using more simple and direct directions when suggesting a strategy to a parent.” Some providers enhanced communication by incorporating new ways to collect and share information with caregivers, including using videos and sending families session information via email before or after visits. One provider reported that she “asked parents to take videos of certain interactions during the week and then we watch them together and debrief during our visit.”

Changes with Modeling. With greater emphasis and reliance on caregiver coaching, several providers expressed new challenges with modeling/demonstrating actions for caregivers, sometimes due to lacking similar objects or toys in the home. A provider mentioned that she “found that it is harder to model some strategies if a parent is not understanding...

it is still very much possible, just more difficult.” However, some providers reported *increasing* their use of modeling, since working with the child directly was not viable. In these cases, they described *showing* caregivers what to do via the screen and incorporating a therapy doll in their telehealth demonstrations.

Increased Child Engagement Efforts. Providers described new challenges with attaining and maintaining child engagement through a laptop or smartphone screen and having to contend with numerous distractions in the home that diverted their attention. Strategies that emerged to support child engagement included the use of videos to keep children interested and incorporation of interactive games, such as songs. One provider indicated that they “need to be more animated through the screen to maintain their attention, which makes it difficult to interact.”

Changes to Content and Goals for Sessions *Emphasis on Daily Routines/Home Life.* Providers focused on generating strategies to help caregivers manage new challenges that emerged for daily routines and new home life demands/constraints. One provider suggested that caregivers need “significant amounts of support engaging with their child and finding ways to balance work responsibilities.” Several providers reported that they spent additional time addressing strategies specifically relating to the children’s sleep routines. One provider described a discussion with a caregiver that addressed “sleep concerns that their child is having with the change and restrictions for getting out and about.”

Emphasis on Family Mental Health/Well-being. Several providers indicated that they were spending more time covering issues relating to family mental health and well-being, such as anxiety, depression, stress, and trauma. Some providers mentioned they were focused more on “how to overcome fear/anxiety and depression,” and “higher levels of family needs.” Furthermore, children’s behavioral challenges also emerged as a prominent topic, as providers addressed caregivers’ concerns and requests for help to deal with these behaviors. One provider said that “there is much more discussion around behavior...since all of these have been impacted by being home with family all of the time.” Another provider added that she more frequently found herself “sharing resources and assisting the parents with problem solving how to respond to their child’s stress or behaviors of concern.”

Increased Time Navigating Technology. In addition to allocating time to support families’ unique needs and demands, providers also made adjustments to treatment sessions to incorporate and address the new technology required for telehealth. Session time was spent preparing families for telehealth as well as addressing “tech difficulties” and “slow downs,” which were disruptive and led to shorter visits. One provider added that there was “difficulty viewing what I need to see through the camera.”

Fewer Goals/Objectives. Given the new content and topics covered, some providers reported that the shift to remote services caused them to work on fewer treatment-specific goals. As one provider mentioned, “The biggest change is that it feels that less is accomplished in a session, so I have fewer expected goals in a session.”

Recommendations for Supports and Tools *Technological Needs.* Providers reported that improving technological access and tools for themselves and families would help them overcome some of the issues they encountered. They suggested that providing families equipment (e.g., tablets) may make it easier for both sides to easily see each other and see what happens in the home during the session. One provider recommended that caregivers call “on two different devices so one can be positioned on the child and one can be more for caregivers to communicate” and that “multi-

ple screens for providers” may also assist in their ability to navigate the session. Another provider explained, “Not all families in our program have tablets or laptops, most families are completing their weekly visits via phone,” and suggested that “improved digital devices and networks would be great.”

Video and Visual Supports Needs. Several providers indicated that content in the form of video examples as well as the ability to show videos to families would be helpful during sessions to convey strategies and objectives to caregivers. A provider suggestion included, “Short videos (1–3 min) to share with families demonstrating skills to work on.” Some providers also mentioned that other visual supports and resources that convey examples and intervention-related information to families would be helpful during sessions, including showing photo examples, written documents with intervention strategies or information, and/or a therapy doll for modeling purposes. One provider suggested, “Handouts with pictures, demonstrating skills targeted.”

General Information Resource Needs. Some providers reported that other informational resources would help them support caregivers with broader issues that arose such as (but not limited to) navigating telehealth, routines, or engagement issues. One provider recommended, “Handouts and resources for parents about what to expect for a virtual session.” Another provider mentioned that “handouts across a variety of developmental topics would be helpful.”

Caregiver Perspectives

Item Ratings

Of the 11 caregivers surveyed who were receiving services via telehealth, 36% were using a laptop, 36% were using smart phone/iPhone, 27% were using a tablet, 9% were using a desktop, and 9% indicated a webcam and TV monitor. On a scale of 1–7, caregivers’ average rating for the ease of transitioning to telehealth services was 4.36 ($sd = 1.75$), with a mode of 4, indicating a “neutral” rating. The majority of caregivers indicated that with the transition to telehealth: (1) the amount of time spent discussing daily routines increased; (2) the duration of the sessions decreased; (3) the amount of time focused on the child’s therapy goals decreased; (4) the amount of time spent watching the provider interacting directly with the child decreased; and (5) the overall value of the intervention services decreased (see Table 5). Nearly 50% of caregivers indicated that there was no change to the frequency of their sessions, and caregivers were relatively split on whether their satisfaction with EI services decreased or remained the same.

Themes

Overall, nine themes emerged from caregivers' responses across the open-ended questions about changes to their interactions with their children and providers during telehealth sessions and their perceived advantages and disadvantages to the transition to telehealth (see Table 6). Two additional themes emerged in their recommendations for ways to improve the telehealth experience.

Changes to Interactions with Children and Providers Decreased Child Engagement. Several caregivers described decreased child engagement during telehealth sessions, indicating that their child had a difficult time paying attention. Caregivers mentioned that the child "wants nothing to do with it," and that "a small child can't sit during all the session time." Some caregivers also noted that decreased child engagement in therapy was perhaps leading to less effective services overall. One caregiver explained, "My son doesn't show any interest in participating or interacting with the therapists, which makes it feel pointless," while another caregiver shared that, "After 5 min, [my] kid is no longer interested in the therapy and is disengaged."

Increased Caregiver Involvement. Several caregivers described a perceived increase in involvement and participation during therapy, including having to be more "hands-on," more engaged in discussions with providers, and having to report about the child's behavior. Caregivers noted that, "We interact with [my child] more in an effort to keep her engaged with the therapy." They also revealed an increased reliance on their reports during sessions, saying, "The provider only talks to the caregivers" during telehealth EI sessions.

Communication Difficulties. Several caregivers reported encountering communication challenges with their

providers, describing difficulties sharing concerns about their child with providers or challenges related to participating in telehealth sessions. Participation challenges were due to difficulties on either the providers' or caregivers' end and were caused by complications with technology or environmental factors. One caregiver highlighted environmental challenges by saying, "It depends on a provider's workplace. Not all of them had a quiet place to connect with us."

Increased Caregiver Stress. Some caregivers reported feelings of stress, impatience, and/or burden. This theme was often paired with "increased caregiver involvement." One caregiver stated, "Its [*sic*] been very hard," while another shared the increased burden on their shoulders stating, "I'm way more hands on which [was] initially stressful—balancing being a parent and a therapist."

Positive Telehealth Experiences/Facilitators. Despite certain difficulties, some caregivers indicated favorable perspectives about telehealth services, and mentioned facilitators that made transitioning from in-person to telehealth services more successful and enjoyable, such as a higher child attention span. One caregiver praised their provider's qualities by saying, "The speech [therapist] used the full hour and was enjoyable because the therapist is a fun positive person."

Advantages of Telehealth Increased Convenience/Flexibility. Some caregivers reported that receiving telehealth EI services lessened the impact of traffic and commute time for services previously received in a center-based setting, as well as increased flexibility for planning around child or family schedules. One caregiver described, "No worry of traffic delaying our appointment," and another noted the benefit of "not having to rush out the house and time busses [*sic*] travel time and worry about nap times."

Health Safety Benefits. Caregivers noted that telehealth services prevented the spread of germs, referring to reduced

Table 5 Caregiver reported extent of change since transitioning to telehealth sessions

Variable	Extent of change			
	Overall increased <i>n</i> (%)	Overall decreased <i>n</i> (%)	Not sure <i>n</i> (%)	No change <i>n</i> (%)
The frequency of my sessions	2 (18.2)	4 (36.4)	0 (0)	5 (45.5)
The length of my sessions	0 (5.1)	7 (63.3)	0 (0)	4 (36.4)
The amount of time I watch my EI provider work with my child during sessions	0 (0)	9 (81.8)	0 (0)	2 (18.2)
The amount of time I work directly with my child during sessions	3 (27.3)	4 (36.4)	0 (0)	4 (36.4)
The amount of time we spend working on my child's therapy goals during sessions	1 (9.1)	7 (63.3)	0 (0)	3 (27.3)
The amount of time we spend discussing home routines during sessions	6 (54.5)	3 (27.3)	0 (0)	2 (18.2)
My satisfaction with the quality of EI services my child is receiving	1 (9.1)	5 (45.5)	0 (0)	5 (45.5)
The overall value of the services I am receiving from Early Intervention	1 (9.1)	6 (54.5)	1 (9.1)	3 (27.3)

Table 6 Caregiver themes and sample quotes

Theme	Quotes
Decreased Child Engagement	“It's harder for [providers] to work directly with my child, especially at the beginning of quarantine....” “kid is disengaged....”
Increased Caregiver Involvement	“The sessions are more reports than [sic] observation. Not as much professional instruction.” “More conversational and talking about things retro-spectively [sic].”
Communication Difficulties	“Communication is less flowing, it is more difficult to address specific concerns.” “Its been hard. [Child] always wants to hold the phone and will have tantrums if he cant so i cant seem to be able to fill his providers in about whats been going on [sic].”
Increased Caregiver Stress	“Its [sic] been hard.” “Less patience.”
Positive Telehealth Experiences/Facilitators	“In the more recent weeks my child has been able to attend to his providers more consistently in his virtual sessions.” “It's easier with a provider we already work with for a long time.”
Increased Convenience/Flexibility	“The transitions into and out of sessions are smoother with virtual sessions.” “Flexibility in scheduling, start/end time of visit.”
Health Safety Benefits	“... zero germ exchange.” “... lower health risks....”
Increased Caregiver Burden	“I need to check the connection, change the location of laptop every time, because a small child can't sit during all the session time.” “...my kids competed with the screen for my attention.”
Less Effective Services	“Provider less able to actually visualize my son....” “[Occupational therapy] is not so effective, because I need to watch visual example. For example, how to teach a child some self-help skills.”
Better Caregiver Coaching Strategies	“For [physical therapy], more hands on instruction to the parent like...get the therapy ball and do this then that...put your hands here...see this, don't do it that way, yes...really like remote coaching.” “People skills are vital, so more educational support for therapists about how to coach parents to be the fill in therapist.”
No Recommendations for Improvement	“Im [sic] not sure of any.” “In my opinion virtual isn't a big help.”

virus exposure and health risks compared to what would be present with in-person services.

Challenges/Disadvantages of Telehealth Increased Caregiver Burden. In addition to describing increased involvement, several caregivers also indicated an increased burden due to telehealth sessions. Caregivers reported burden due to technology use, participating in therapy, and/or coordinating sessions. One caregiver mentioned, “Way more of the work falls on us as parents who aren't trained therapists, it's hard to balance being a videographer, parent, therapist, and student in these sessions.” Another shared that, “I was the one holding/controlling the iPad we used to stream the visit and would often have to move around and continue trying to get him in the screen.”

Less Effective Services. Some caregivers expressed the perception that core benefits of in-person services did not translate to the telehealth format. These descriptions were often affiliated with statements of providers' inability to work directly with the child or effectively see the child

during sessions. One caregiver shared that it had been “difficult for the therapist to see my kid's lips/mouth and help him with the speech therapy,” while another noted that “the interaction [during therapy] is not the same.”

Recommendations for Supports and Tools Better Caregiver Coaching Strategies. Some caregivers expressed a need for improved coaching from providers, additional instruction from providers, and/or more effective goal setting for sessions. One caregiver shared that a “video guide, video instruction will be helpful for [occupational therapy]...virtual EI sessions that have a plan, a goal could be more effective. For a parent it's not easy to understand what is the topic he needs to choose.”

No Recommendations for Improvement. Some caregivers noted no suggestions and/or indicated that telehealth sessions had not been appropriate for meeting their children's needs. Most caregivers simply wrote, “None,” or “Nothing,” while one caregiver specified being “unsure that our particular challenges can respond well to virtual services.” The latter suggests that some caregivers may simply be uncertain

about how to best remedy the challenges presented by telehealth sessions.

Discussion

This study examined how the abrupt shift to telehealth early intervention (EI) sessions impacted services from the perspective of both providers and caregivers. While some of the themes appeared to be closely associated to pandemic-specific constraints (e.g., altered daily routines and home life), other themes such as changes in caregiver coaching/involvement, caregiver-provider communication, child engagement, and existing technological needs will have broader and sustained implications for the future of telehealth EI services. Despite considerable alignment across some of the themes that emerged, providers and caregivers still expressed unique points of views, including different characterizations of caregiver coaching and involvement. The differing perspectives and impact of the changes were also reflected in provider and caregiver ratings, which included mixed and notable findings relating to the frequency and duration of sessions, provider-caregiver rapport, child improvements, and the value of services.

The perceived increase in caregiver coaching suggests that the constraints of telehealth services acted as a primary catalyst for more widespread adoption of the “aspired to” practice of coaching caregivers, since providers could no longer rely on directly working with the child. While caregiver coaching is considered best practice in EI, as it results in building caregiver capacity over time (Adams et al., 2013; Rush & Shelden, 2011), previous research has indicated that in practice, caregiver coaching often does not occur (Douglas et al., 2020; Fleming et al., 2011). In previous research, EI providers reported family *involvement* during sessions (e.g., asking questions, giving input, and choosing the focus of sessions), but did not commonly identify caregivers as the primary *facilitator* of strategy implementation (Fleming et al., 2011). This finding was further substantiated by item ratings by both providers and caregivers, which highlighted that services prior to the telehealth shift may have consisted of a more direct interaction between the provider and child rather than caregiver coaching.

While providers may view increases in caregiver coaching as aligning with the core practices of Part C EI services, for many caregivers this change may have seemed like a shift away from “traditional service delivery” and perceived as an *unavoidable side effect* of telehealth services, rather than as a step towards the implementation of services as intended. It

will be important to consider how the predominant caregiver coaching model fits with caregivers’ values and expectations and how to communicate to caregivers the role of coaching in achieving optimal child outcomes (Bearss et al., 2018; Ingersoll & Berger, 2015; Ingersoll et al., 2016; Machalicek et al., 2016; Simacek et al., 2017; Vismara et al., 2018). As with in-person coaching, some caregivers find being “front and center” or “parent and therapist” burdensome and prefer to learn by observing providers interact with their child.

This prominent change in the dynamics of provider, caregiver, and child interactions is also reflected in the themes of caregiver-provider communication and child engagement. Given the responses from some caregivers that their children were disinterested in interacting with the provider virtually or had difficulty attending, it may be beneficial to clarify expectations for how each individual will participate in sessions (e.g., the child does not have to actively participate throughout the session). While providers indicated that they were focused on trying to keep instructions and communication clear and simple, these findings highlight a potential need to further boost providers’ understanding of how to coach and share knowledge in order to effectively promote caregiver implementation of intervention strategies.

To further assist with caregiver coaching and provider-caregiver communication, both providers and caregivers recommended the need for videos, which have been successfully used to model strategies for caregivers via telehealth (e.g., King et al., 2020; Kunze et al., 2021) and seemed particularly critical to providers in this study for overcoming challenges with demonstrating strategies for caregivers. Providers also suggested that other visual handouts could facilitate this process, alternatives that are more cost effective and easier to develop in the short-term, compared with a video library. Both groups highlighted a need for increased structure and clarity for sessions. Caregivers also expressed that a clear plan and goal for each session would improve their experience participating in telehealth sessions.

Many providers also shared that the content and topics of the sessions shifted to covering topics related to overall family well-being, daily routines, and home life demands. The areas of need for families seem to be closely linked to effects of the pandemic, given that safety precautions and social distancing led to dramatically altered schedules, more children/relatives at home at a given time, and more activities being confined to the home environment. Some providers emphasized that it was important to them to be responsive and supportive and suggested that having more resources with general information about navigating these issues would be helpful.

The adoption of new strategies and adjustments to content may have contributed to providers' reports that they were accomplishing less within a session and covering fewer goals and objectives than with in-person services. This issue was also likely amplified by technical difficulties, visibility issues (e.g., ability to see the child), and child distractions reported by both providers and caregivers. Ratings of changes also indicated that 46% of providers ($n = 18$) and 36% of caregivers ($n = 4$) reported that the frequency of sessions had decreased, and 46% of providers ($n = 18$) and 63% of caregivers ($n = 7$) indicated that the length of sessions had decreased; these findings are notable and concerning given that sessions tend to be at most 1 h per week under normal circumstances. These significant shifts, which have the potential to redefine what EI services entail, may also explain why some participants reported that provider-caregiver rapport and the overall value of services decreased. However, it is important to keep in mind that these percentages solely pertain to the small sample represented in this study and may not have held true for the broader population at the onset of the pandemic. More research is needed to understand whether decreased service time and goal coverage is a pervasive side effect of telehealth provision of EI services, or rather a time-limited effect from the initial transition to wide-spread telehealth in EI.

While the need for telehealth-only EI sessions has been temporary, these findings will have broader programmatic implications for the implementation of telehealth in the future. It may be worthwhile for programs to consider continuing delivery of telehealth services to maintain some of the identified advantages experienced by providers and caregivers in this study, such as decreased driving time for providers and caregivers, and increased flexibility in scheduling and location of services. One way this may be accomplished is by offering hybrid services that take into account caregiver preference and logistics. Across multiple studies, caregivers have expressed that a combined, hybrid approach to telehealth is preferable to a telehealth-only service model (Corona et al., 2020; Little et al., 2018; Owen, 2020). In this way, telehealth can be used to *support* in-person visits by alternating in-person with telehealth or by using telehealth services as “booster sessions.”

Furthermore, guidance and support from the state and local agencies on *standard best practices* for telehealth caregiver coaching will be critical to its long-term success. While providers described an increase in caregiver coaching, it is unclear exactly which specific strategies or package of strategies they were implementing. Some caregivers suggested there was more caregiver-provider discussion rather than the opportunities typically associated with caregiver

coaching, including developing clear session goals, practicing new strategies, and receiving feedback. Agencies can support providers in using effective coaching practices such as setting and reviewing agendas and engaging in joint planning so that caregivers know what to expect from sessions. Supporting this skill set could be accomplished via telesupervision or telecoaching, as virtual platforms likely afford greater opportunities for mentorship and peer-to-peer coaching between providers.

Along with caregiver preferences and perceptions about the quality of services, technological access and optimization are the “elephants in the room” when determining the viability of mainstream telehealth. Providers suggested access to more equipment like multiple screens to improve their experiences. Despite identifying clear challenges, caregivers had fewer suggestions for re-designing and improving telehealth. One caregiver noted that s/he was unsure whether their challenges could be addressed through telehealth. Notably, providers indicated that nearly 21% of the families in their caseload stopped receiving services or were only receiving services via audio/phone, which reflects how the “digital divide” (Ramsetty & Adams, 2020) still represents a chasm that needs to be crossed to achieve widespread accessible telehealth. Ultimately, policy, funding, and infrastructure will have to come together in concerted effort to meet the needs of both providers and families if telehealth is to be sustained long-term.

While this study offers valuable provider and caregiver perspectives on telehealth EI services, some limitations must be acknowledged. First, the qualitative data were collected through open-ended questions, which elicited relatively short responses and may underestimate the complexity and depth of the respondents' perspectives relative to focus groups. In addition, only 52% of caregivers responded to survey solicitation, resulting in a sample size of 11 participants. Caregivers were also predominantly White and highly educated; thus, their perspectives likely do not represent the overall experience of families who were receiving EI services at the time. The generalizability of the current findings is further limited because providers and caregivers represent one county in Washington State. Finally, these data were collected very early during the COVID-19 pandemic, representing a point in time in which widespread telehealth in Part C EI was a new experience. Since then, resources have been disseminated to improve remote service delivery (e.g., Early Childhood Technical Assistance Center, 2021), indicating that follow-up work is needed to capture whether and how practice changes have occurred over time.

In conclusion, applying telehealth in EI settings went from being a promising but distant possibility, to an immediate, large-scale reality for providers and caregivers as the COVID-19 pandemic swept the globe at the beginning of 2020. This study provides important insights regarding the experiences of providers and caregivers, which highlight the strengths, challenges, and supports needed for continuing to improve the quality of telehealth EI, whether as a primary or complementary service delivery modality in the future.

Appendix

Pandemic Telehealth Surveys

Pandemic Telehealth Survey—Provider Version

The COVID-19 “stay at home” mandate has impacted many of the ways we interact with others and perform our job functions. We are interested in learning how your work with children and families has changed since social distancing measures have required you to transition from in-person interactions to “virtual” interactions with families. *This information will be invaluable to us as it will help us develop materials and strategies for improving Reciprocal Imitation Teaching coaching via telehealth.* The information you provide will not be shared with your program directors.

1. Below is a list of different ways in which the transition from home-based visits with families to virtual sessions may be impacting your work as an early intervention provider. Please check the box next to each item that applies to you and describe the change(s). *The more information you can provide, the better— please include as much detail and as many insights as possible.*

Since transitioning to “virtual” sessions with families, I have experienced changes in...

- a. My overall goals/objectives for sessions
- i. Please describe:
 - b. The content or topics I cover during sessions
- i. Please describe:
 - c. The strategies or approaches I use when working directly with children
- i. Please describe:
 - d. The strategies or approaches I use when coaching parents
- i. Please describe:
 - e. Other (please specify): _____
- i. Please describe:

2. Please indicate below the extent to which each of these activities has changed since transitioning to “virtual” sessions with families

	Overall Increased (Has increased for the majority of families I serve)	Overall Decreased (Has decreased for the majority of families I serve)	Mixed (Has increased and decreased for similar numbers of families I serve)	No change
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The frequency of my sessions with families

The length of my sessions with families

The amount of time I spend focusing on IFSP goals

The amount of time I spend on coaching the parent to work with the child

The amount of time I spend interacting directly with the child

The rate of improvement I see in children’s progress

The level of engagement or rapport I have with families and children

3. Please describe any specific advantages and challenges of providing virtual services to families:
 - a. Advantages:
 - b. Disadvantages:
4. Please provide suggestions for any type of supports and/or tools that would be helpful for improving your virtual sessions:
5. Please estimate what percent of your pre-COVID caseload is currently receiving services through each method:
 - a. Not receiving services at the present time:
 - b. Receiving virtual sessions (video and audio, such as Zoom or Skype):
 - c. Receiving audio-only or phone-only sessions:
 - d. Receiving in-home sessions:

Pandemic Telehealth Survey—Caregiver Version

The COVID-19 “stay at home” mandate has impacted all of our lives in numerous ways. We are interested in learning how the pandemic has affected your family as a whole, as well as your child’s Early Intervention (EI) services. **This information will be used to help us develop materials and strategies for improving telehealth services for families.** The information you provide will not be shared with your provider(s).

1. Please indicate how you are receiving services from your EI provider(s). Please check all that apply:
 - a. I am engaging with my EI provider(s) through “virtual” EI sessions, using Zoom or Skype (i.e., both my provider and I can see and hear each other)
 - b. I am engaging with my EI provider(s) over the telephone (i.e., audio only)
 - c. I am receiving in-home visits from my EI provider(s)
 - d. I am not receiving any EI services at the present time
2. On a scale of 1–7, how easy has it been to transition to “virtual” EI sessions?

1	2	3	4	5	6	7
Extremely difficult			Extremely Easy			
3. Please indicate which devices and equipment you are using for your “virtual” EI sessions (*check all that apply*):
 - a. Laptop computer
 - b. Desktop computer

- c. iPhone or smart phone
- d. iPad or Tablet
- e. Tripod or stand for video device
- f. Other:
 - i. Please describe: _____
4. How has the transition to “virtual” EI sessions affected how you interact with your EI provider(s) during therapy?
5. How has the transition to “virtual” EI sessions affected how you interact with your child during therapy?
6. Please describe some specific advantages and challenges you have experienced receiving “virtual” EI services compared to in-home visits.
 - a. Advantages:
 - b. Challenges/Disadvantages:
7. Please provide suggestions for any type of supports and/or tools that would help to improve your experience participating in “virtual” EI sessions:
8. Below are possible changes you may have experienced due to the transition to “virtual” EI services. Please indicate whether each item or activity has increased or decreased.

	Overall increased	Overall decreased	No change	Not sure
The frequency of my EI sessions				
The amount of time my EI sessions last				
The amount of time I watch my EI provider work with my child during sessions				
The amount of time I work directly with my child during sessions				
The amount of time we spend working on my child’s therapy goals during sessions				
The amount of time we spend discussing home routines during sessions				
My satisfaction with the quality of EI services my child is receiving				
The overall value of the services I am receiving from Early Intervention				

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Declarations

Conflict of interest All other authors declare that they have no competing interests.

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