Inside the Virtual Visit: Using Tele-Intervention to Support Families in Early Intervention

Amal, Derek, and their 12-month-old daughter Kai have been receiving Part C early intervention (EI) services since Kai was 2 months old. Kai enjoys playing tickling games with her older brother and parents and is particularly drawn to musical toys and instruments. Kai was born with Cri Du Chat syndrome and frequently requires oxygen due to her chronic pneumonia. Amal and Derek have seen significant accomplishments in Kai’s communication and motor skills through developmental, speech and language, and physical therapies and value the weekly times they have with their EI service providers. As winter season approaches, Amal and Derek heard reports of a huge surge of flu cases and are extremely concerned about Kai’s health. Because Kai is prone to pneumonia, they are worried that individuals coming into their home might be exposing Kai to potential viruses during this active flu season. Amal and Derek have shared these concerns with Kai’s service providers and asked if services can be delivered virtually.

EI providers—who deliver Part C services under the purview of the Individuals with Disabilities Education Act (IDEA) for children birth-3 years old with/at risk of disabilities—play an important role in promoting the development of young children and their caregivers. Enhancing caregiver capacity to meet the developmental needs of their children with disabilities is central to EI services. Through home visits, EI providers focus on supporting caregivers in building capacity, competence, and confidence to promote their children’s development. Research and recommended practices (RPs) in the field have strongly suggested the use of family-centered approaches in EI service delivery to meet these central goals (Division for Early Childhood [DEC] of the Council for Exceptional Children [CEC], 2014; Dunst et al., 2014). Specifically, the DEC of the CEC (2014) RPs focusing on family centeredness, family capacity-building, and family–professional collaboration encourage providers to consider and offer flexible delivery models ensuring that children and their caregivers have continued access to EI services when face-to-face visits are not optimal or possible (F1, F3, F4, F6; DEC of the CEC, 2014). The purpose of this manuscript is to share strategies that support an effective and efficient EI home visit via tele-intervention.

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Molly E. Poole, MEd
University of Washington

Angel Fettig, PhD
University of Washington

Rachel A. McKee, MS, CCC-SLP
Kindering

Ariane N. Gauvreau, PhD, BCBA-D
University of Washington
Tele-Intervention Advancements and Benefits

Tele-intervention is a service delivery model that uses video conferencing platforms (e.g., Zoom, Microsoft Teams, Google Hangout) to deliver services to patients and clients. This model can be used to enhance EI service delivery as a hybrid model or can stand alone to meet the needs of families and service providers. The terms “telehealth,” “telemedicine,” “tele-intervention,” “teletherapy,” “telepractice,” “telerehab” and “virtual visits” are often used to describe these remote technology-mediated services. The use of tele-intervention has been implemented and studied in EI settings to address the unique needs of service delivery in remote and rural areas (Behl et al., 2017; Olsen et al., 2012). For the purposes of this article, within the context of Part C, tele-intervention and virtual visit will be used interchangeably to describe remote EI service delivery. Tele-intervention utilizes videoconferencing technology that allows EI providers to connect with caregivers via both video and audio formats and deliver services without having to “visit” their home. The individualized nature of EI services lends itself well to a tele-intervention format. The emphasis on family-centered practices and the commonly used evidence-based service delivery models (e.g., Routines Based Intervention [McWilliam, 2010], Primary Coach Model [Rush & Shelden, 2020]), are likely to be delivered with ease via virtual platforms. Given Amal and Derek’s concerns regarding Kai’s medical fragility, in the opening vignette, EI services can continue to be delivered via tele-intervention.

With the introduction of the smartphones and tablets in the early 2000s, technology advancements have put videoconferencing right at the fingertips of many. Most portable technologies (e.g., cell phones, tablets, and laptops) have built-in cameras, microphones, and speakers that allow for the transmissions of video and audio remotely from device to device. Wireless internet continues to allow for increased connectivity across settings and situations. According to Pew Research Center’s (2019) smartphone ownership survey, 81% of adults have devices that allow video conferencing. Furthermore, access to the internet in the home has increased significantly over the last few years. As of 2019, 73% of American households had internet access at home and 17% of adults use mobile devices as their primary source of internet access (Pew Research Center, 2019). As access to technologies continues to grow, the fields of medicine, rehabilitation therapies and psychology have begun adopting practices of telehealth to increase access to their services to the greater population (Lustig, 2012). Given the availability and access to technology and the successful adoption of this delivery model in other fields, accessing EI services via tele-intervention presents an attractive and flexible option for families.

Using tele-intervention for EI service delivery has shown many benefits to caregivers and EI providers, including flexibility in scheduling, efficiency of resources, fewer cancelations, and increased caregiver engagement (Behl et al., 2017; Olsen et al., 2012).
flexible delivery model opens doors for intervention delivery during specific routines at home (e.g., family meals, morning routines) or at locations such as child care settings that allow caregivers to join remotely. When caregivers work nontraditional hours, tele-intervention allows for sessions to occur outside of traditional work hours. Furthermore, tele-intervention presents convenient opportunities for multiple EI service providers to be present for interdisciplinary and collaborative service delivery that in-person sessions often cannot accommodate.

Tele-intervention also allows providers to serve families without risking the spread of illness and to protect immunocompromised children, caregivers, and providers from exposure to germs. For families who face similar challenges to Kai’s family in the opening vignette, high levels of cancelation for face-to-face home visits are likely to occur to protect Kai from illnesses. In addition, cancelations may also occur in situations when providers have medical or personal reasons that restricts traveling. Traffic patterns in some larger cities may also present challenges for EI providers who must travel great distances or navigate rush hour to serve multiple families per day. In addition, families living in rural areas may not have EI providers in their immediate vicinity, and have limited access to these services (Meadan et al., 2013). Tele-intervention presents a solution to these challenges.

In addition to the benefits of increased frequency and flexibility of intervention, tele-intervention is naturally set up to support caregiver coaching, rather than a direct-service model. Research on coaching practices are not used as extensively as providers and systems often believe (Campbell & Coletti, 2013). Instead, studies suggest that EI providers often work directly with the child, rather than support caregivers to implement interventions and embed instruction (Branson, 2015). During a virtual visit EI providers are required to increase their use of coaching strategies throughout sessions, rather than providing 1:1 instruction to the child as they might during a face-to-face home visit.

**Tele-Intervention Strategies**

**Technology and Virtual Visit Setup**

The *Tele-intervention virtual visit checklist* can be used to guide planning and structure of the steps presented in a virtual visit (Figure 1). The first step to tele-intervention delivery is for both the providers and caregivers to select and set up a *videoconferencing platform* on a compatible device (e.g., smartphones, tablets, laptop computers) that allows for flexible camera placement (Figure 2). The goal is for caregivers to be able to converse with providers during ongoing routines, so the ability to talk while playing with a child on the floor, seated at the table during meals, or outdoors is crucial. Wired connections into desktop computers or laptops can limit flexibility during a session but are sufficient if wireless options are not available. It should also be noted that video conferencing utilizes a significant amount of cellular data; therefore, caregivers must be made aware that this time could reduce their available data or bandwidth.
Providers, along with the service delivery agencies, also must carefully select a videoconferencing platform that is password protected and compliant with the Health Insurance Portability and Accountability Act of 1996 (HIPAA). Provided these regulations, no information about the client or their family can be shared without written consent and familial knowledge. Many platforms offer the ability to create passwords, wait room functions, and restrict actions of participants to further...
Figure 2
Tele-intervention strategies

### Technology & Virtual Visit Setup

| Set Up Videoconferencing Platform | • password protected  
|                                 | • HIPAA compliant |
| Set Expectations                | • provider & caregiver as active participants  
|                                 | • send activity ideas  
| Electronic Note Sharing         | • share and transfer visit notes  
|                                 | • caregiver access to update progress |

### Building Relationships

| Connect with Caregivers          | • discuss challenges and strengths of the week  
|                                 | • review previous session |
| Follow Child’s Lead             | • encourage continuation of routines  
|                                 | • support observation of child’s interests |
| Embrace Silence                 | • creates opportunity for observation and self-reflection |

### Providing Caregiver Coaching

| Effectively Communicate         | • simple language and direct statements  
|                                 | • repeat and reward as needed |
| Model with Props                | • use dolls/toys to show strategies or positioning |
| Guided Practice                 | • invite caregiver to try or demonstrate  
|                                 | • ask caregiver to describe strategies/observations |

### Caregiver-Provider Reflection

| Reflective Questioning          | • use to support caregiver reflection  
|                                 | *“What do you think he is trying to tell you?”*  
| Wrap-up with Meaning           | • use task analysis with visual supports  
|                                 | • pause frequently for check-ins |
| Collaborative Planning         | • check for caregiver understanding  
|                                 | • reflect on session strategies and wonderings |
| Follow-up                      | • create goals for next session  
|                                 | • outline a specific practice plan |
|                                 | • send email with session highlights, plan and schedule  
|                                 | • share electronic notes |

It is also critical to work with caregivers to set up session expectations and guidelines prior to the initial virtual visit (Hughes & Peterson, 2007). Some caregivers may be stressed around the misconception that their child is to remain seated and engaged.
throughout the virtual visit; clearly outline the role of the provider and caregiver as active participants in the virtual visit. Others might worry about what the video camera might capture in the environment. Setting up expectations and guidelines prior to or at the beginning of the initial visit could help alleviate these negative feelings. These guidelines could assure caregivers that there is no judgment of the authentic nature of the home environment, as well as include strategies on following the child’s lead and ideas for accessible activities that utilize a variety of readily available materials. These suggested activities should not be viewed as a toy bag of sorts, but a springboard for collaboration, while normalizing the unique feel of a tele-intervention session. Providers should also frequently check for audio and video clarity, as well as instruct caregivers to use specific camera placement to maximize opportunities for supporting caregiver–child interaction (E3; DEC of the CEC, 2014).

It can also be helpful to set expectations regarding note-taking formats for virtual sessions prior to the first visit. Agreeing on an electronic platform to share and transfer visit notes is critical to ensure that caregivers have easy access to information and ability to edit, refine, update progress as they support their child’s development between home visits. As the session progresses, it is important to remain flexible and revisit the guidelines regularly—practices any EI provider should do in both virtual and face-to-face home visits.

Heather, Kai’s speech therapist, explored the resources available within her agency and offered to provide tele-intervention services until Kai is healthy enough to engage in face-to-face visits. Prior to the first visit, Heather had a phone call with Amal and Derek to understand their technology needs. With the confirmation that an iPad and highspeed wireless internet is available for Amal and Derek, they worked on setting up the agency approved, HIPAA compliant Microsoft Teams platform on the iPad in preparation for their first virtual home visit. Heather also discussed guidelines and expectations of the virtual visits with Kai’s parents and emailed the agreed upon guidelines to them prior to the first session.

**Relationship Building**

Building strong relationships with caregivers is essential to EI service delivery (Allen, 2007; F1; DEC of the CEC, 2014), especially when using a tele-intervention model.

Building strong relationships with caregivers is essential to EI service delivery (Allen, 2007; F1; DEC of the CEC, 2014), especially when using a tele-intervention model. Creating clear guidelines prior to the first virtual visit, as mentioned above, sets the foundation in building strong relationships. Similar to in-person home visits, virtual sessions should begin by connecting with the caregivers about the week and inquiring about how things are going overall. In addition, it is important that providers acknowledge the differences and challenges that virtual visits might pose compared
Providers should embrace silence and engage in observation to allow caregivers opportunity to practice evidence-based strategies.

with in-person sessions and present the willingness to adapt and adjust to meet the caregivers’ needs when necessary.

For caregivers to engage in opportunities to learn evidence-based practices to support their children, their basic needs must be met. When high levels of stress occur due to unmet physiological, safety and emotional needs, accessing new information, or simply engaging with a provider may prove challenging (Maslow & Lewis, 1987). More than ever, checking in at the beginning of the tele-intervention session regarding their immediate needs and engaging in conversation around feelings of the day will build a strong foundation and demonstrate the providers’ invested interest. Often this conversation will reveal the strengths and challenges that families are currently experiencing, thus providing a natural opportunity to review strategies and discuss possible options moving forward. In addition, this discussion supports collaboration to identify goals and priorities for the virtual session, driven by the family (F3; DEC of the CEC, 2014).

While in a tele-intervention session, we stress the importance of following the child’s lead. Providers must continue to monitor and ensure that they are following the leads of the caregiver–child dyad throughout and encourage caregivers to continue naturally occurring routines and observe activities in which the child is interested. These interactions are essential to maintaining authentic practice of strategies. Providers should embrace silence and engage in observation to allow caregivers opportunity to practice evidence-based strategies.

During the first virtual session, Heather spent the first 5 min greeting Kai as Derek gets him ready for lunch routine. Amal used this opportunity to position the iPad mounted on a tripod to ensure Heather can see Kai and his parents in this lunch environment, and to ensure the sound quality is conducive for the visit. Once Heather observed that Derek, Amal, and Kai have comfortably settled into the start of the lunch routine, she quickly reviewed the goals and expectations of the session and asked parents to provide updates regarding successes and challenges since the last visit. Heather jotted down notes and shared additional resources with families based on the family’s requests.

Providing Caregiver Coaching

Best practice in EI includes caregiver coaching and routine driven models of service delivery, to provide services within the child’s natural environment (INS5; DEC of the CEC, 2014; Hughes & Peterson, 2007). Caregivers may feel uncomfortable with the concept of being coached, in addition to the element of being seen virtually through a screen. EI providers must continue to build on the foundations of their established relationship, by being responsive to the caregivers’ needs during coaching interactions.
Tele-intervention pushes providers to increase the amount of explicit caregiver coaching strategies they use and requires that caregivers engage with the child directly during sessions (Cole et al., 2019; Stredler-Brown, 2017). One of the challenges in caregiver coaching is to clearly articulate ideas and strategies in family-friendly, accessible language. It is not uncommon for providers to heavily rely on direct modeling to communicate when in person (Hughes & Peterson, 2007); however, this approach is not feasible during a virtual visit. Instead, providers must effectively communicate to caregivers how they can enact certain practices or strategies, without demonstrating these practices themselves. Effective communication, including use of simple language and direct statements, repeating and rewording as needed, must occur throughout. Utilizing task analysis with visual supports could also aid caregivers in implementing key practices. Pausing frequently for check-ins with caregivers regarding their understandings will allow for clarification and affirmation when necessary.

Modeling with props can aid this clarification. When only the use of language is not enough, modeling can enhance understanding by using dolls or toys to show strategies or positioning. A largely viewed barrier to tele-intervention for some EI services such as physical therapy and occupational therapy services is the lack of kinesthetic feedback or opportunity to manipulate children into proper positioning. Utilizing dolls or toys helps to strategically coach caregivers through each step, giving them the opportunity to experience the kinesthetic feedback. Through guided practice, they can then utilize the strategies throughout their daily routines.

This guided practice is an essential component of a successful caregiver coaching loop. Providers often miss the next step of inviting the caregiver to try or demonstrate, which is imperative in a virtual visit, as the provider is not physically present. Requesting that caregivers describe the strategy can be beneficial, as they walk the provider through utilizing the strategies with feedback. Providing an opportunity for caregivers to practice in the moment of a virtual visit, authentically embeds strategies into the naturally occurring routines, in ways even less intrusive than an in-person visit. While children are exploring and learning, it is important that caregivers remain available to meet the emotional needs of the child. The role of the EI provider transitions to supporting the child and caregiver through high levels of positive praise and encouragement from afar through the virtual platform (Rush & Shelden, 2020). Children will often simply seek shared enjoyment in a task from their caregiver, as this meets their emotional need of feeling worthy of their attention.

It is also crucial to consider the occurrence of unpredictable behaviors and strategies for addressing them. Parents of young children with disabilities and developmental delays report higher levels of stress related to their child’s behavior (Hayes & Watson, 2013). These unpredictable (and often developmentally appropriate) behaviors are a way children communicate their wants and needs, and presents a natural opportunity for a positive coaching interaction. Providers can use this time to observe

Through guided practice, they can then utilize the strategies throughout their daily routines.
calmly, slightly disconnect from the emotion present in the room, objectively discuss the situation and guide reflection supportively.

**Caregiver–Provider Reflection**

While caregivers are faced with the task of meeting the social emotional needs of the child, providers are tasked with helping to meet the social emotional needs of the caregiver. This includes providing a safe space for caregivers to reflect, feel acknowledged and understood, and to feel competent in their efforts (F5; DEC of the CEC, 2014). Frequent recognition and praise of these notable interactions should not go unrecognized. As caregivers continue to process through these interactions, strategies can begin to be implemented.

Guiding the reflection through reflective questioning can be significantly more beneficial than the provider simply stating the clinical observations. Reflective questioning further supports building caregivers’ capacity for ongoing reflection and problem solving outside of the session (Rush & Shelden, 2020). This is particularly true during a virtual visit because caregivers are being given space to share their observations and expertise about their child, rather than a provider’s recommendation as to what caregivers “should do.” Reflective questions should be used in a nonjudgmental manner, as this is an opportunity for the caregiver to form a recognition of their own emotional needs, observations and ideas. As reflection takes place, collaborative planning can occur around what to do in similar moments in the future. Some reflection questions are “What do you think he is trying to tell you?,” “How do you feel right now?,” and “How can I better support you during our virtual visits?”

By engaging the caregiver in reflection, a smooth transitioning to the closing of a tele-intervention session can occur. It is important to continue to follow the lead of the caregiver and child in your closing and **wrap up with meaning**. The ending of a virtual session should not be a quick sign off, but rather, an intentional check for the caregiver’s understanding of strategies discussed during the session as well as an affirmation of the conclusions drawn through reflection as you move into the collaborative planning phase. **Collaborative planning** consists of the caregiver–provider teaming to discuss how strategies can be implemented throughout the family’s upcoming week and to create goals for the next session (TC2; DEC of the CEC, 2014). It can be helpful to outline this practice plan very specifically; finding feasible and intentional times the caregiver will commit to practice. Finally, a crucial part of effectively concluding a virtual visit, is following up with email. The **follow-up email** should emphasize highlights that were discussed, documentation of the discussed weekly practice, and plan for the next session. Any other electronic notes from the session should be shared at this time.

As Kai and his parents continue with their lunch routines, Heather sees an opportunity to provide support with Kai’s goal of increasing communication and requesting items in his environment. She encourages Amal to hold up Kai’s favorite food, segmented oranges, and clearly model the word “orange.” Through the iPad, she demonstrates how to do
this by holding up an eraser as a prop. Amal holds up an orange slice and says, “Kai! Orange!” Heather can see Kai reference his mother and reach for the food. Heather jumps in to encourage Amal to model again—“Great Amal! Try that one more time! We want Kai to try to say the word!” Amal continues to hold the orange slightly out of Kai’s reach, and slowly models the word again. This time, Kai approximates the word, “Oooobbb,” and Heather enthusiastically praises Amal and encourages him to immediately give Kai the orange, while continuing to praise him for using the new word approximation. They try this a few more times during the meal, with Derek working on this skill as well. At the end of the session, Heather celebrates this success, the team reflects on how things felt, and Amal and Derek make a plan to work on opportunities for Kai to request his favorite bath time toys later that evening.

**Implementation Considerations**

As with all aspects of EI service provision, services must be provided in an equitable and inclusive manner, and there are several considerations related to tele-intervention. Understanding families’ access to and comfort with technology is a first step. Specifically, families with limited resources may not have access to the technologies necessary for tele-intervention. Due to systemic inequities that exist within our society, families of color—specifically Black and Hispanic families—are more likely to not have access to broadband internet in the home or rely exclusively on smart phones for internet access (Pew Research Center, 2019). This can prevent Part C systems from reaching families that may need these services. Providers and agencies must be aware of the disproportionality and take steps to ensure that families most impacted are served. Agencies can create a uniform questionnaire for all families to assess technology accessibility. By including this survey within the initial intake paperwork, EI agencies can understand the needs of each family, and offer support for those who may need supplemental technology for tele-intervention. These caregivers may be likely to decline tele-intervention services and may not discuss accessibility challenges nor be aware that support might be in place. Questions in this form ought to include types of devices each family has access to, as well as type of internet connectivity available. With this knowledge, agencies can loan devices or internet hot-spots, as needed and available. Some caregivers might also have concerns regarding their safety and privacy with the use of the internet and video conferencing platforms. Great care should be taken to discuss privacy supports with all caregivers, with an understanding that tele-intervention may not be the most comfortable service delivery method for all.

An added consideration of tele-intervention is the use of interpreters during virtual visits. To provide access to all children and caregivers, EI agencies should investigate availability of remote interpretation and provide appropriate services. During virtual visits, just as home visits, high-quality interpreters should be selected (Acar & Blasco, 2018). A variety of interpretation services are available to meet families’
and providers’ needs during virtual visit including remote videoconferencing interpretation, phone interpretation, or the use of translation applications. It should be noted that translation applications may not always provide adequate or accurate interpretation and should be used with caution (Acar & Blasco, 2018).

In rare situations such as the COVID-19 pandemic, where home visits are interrupted and services are only doable via tele-intervention, providing devices and internet to families who do not have access is a basic necessity for intervention to be delivered. To continue to meet the needs of the community, internet companies may provide broadband upgrades to those who have financial need, during these times. Providers, Family Resource Coordinators and agencies should explore possible options in their area. As tele-intervention in EI gains momentum across the country, many local and national resources exist to support providers and agencies in building capacity around this new service delivery model. A variety of technical assistance and community-based training and webinars exist to support the movement toward the use of tele-intervention models of service. Tele-intervention service delivery can exist as a hybrid model of service, in conjunction with in-person services to enhance learning experiences and protect resources. Currently, the National Center for Connected Health Policy at the National Telehealth Policy Resource Center offers access to training materials, research and policy information on a national level. Guidelines and policies for the use of tele-intervention within EI services continue to evolve as the use of tele-intervention expands. The addition of specific EI tele-intervention guidelines should be considered to include tele-intervention as an appropriate service delivery method for providing equitable service to eligible children and their caregivers.

Authors’ Note
You may reach Molly E. Poole by e-mail at mespoole@uw.edu.

ORCID iDs
Molly E. Poole https://orcid.org/0000-0001-9991-052X
Angel Fettig https://orcid.org/0000-0002-0954-2768
Ariane N. Gauvreau https://orcid.org/0000-0003-4431-1866

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