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Achieving Successful Outcomes in a Tele-Intervention Program

K. Todd Houston, PhD[1]
Lauri H. Nelson, PhD[2]
Brianna Job, MEd[2]
[1]The University of Akron, Akron, OH
[2]Utah State University, Logan, UT

Abstract

For well over a decade, family-centered early intervention services have been delivered through models of tele-intervention (TI) to children who are deaf and hard of hearing (DHH) and their families. Ongoing outcome data continue to demonstrate the viability, effectiveness, and positive impacts these services provide to both the service providers and the families served. However, establishing a successful TI program requires careful planning to reduce or eliminate barriers and potential roadblocks. When these challenges are adequately addressed, TI programs are more likely to achieve the primary goal of delivering appropriate family-centered early intervention.

Keywords: tele-intervention, telepractice, family-centered early intervention, hearing loss, deaf, hard of hearing

Acronyms: DHH = deaf or hard of hearing; IT = information technology; TI = tele-intervention

Correspondence concerning this article should be addressed to: K. Todd Houston, PhD, Telepractice & eLearning Laboratory, School of Speech-Language Pathology and Audiology, College of Health and Human Sciences, University of Akron, Akron, OH 44325. E-mail: houston@uakron.edu

Most professionals providing family-centered early intervention services are comfortable with in-person (i.e., in the home, center, or educational facility) services, the standard practice prior to the COVID-19 pandemic. The public health crisis forced professionals, with little to no lead time, to change their service delivery to being completely online—using various virtual platforms to deliver early intervention and emergency remote learning. Although many professionals embraced this challenge and successfully transitioned to tele-intervention[1] (TI) providers, others struggled with this service delivery model due to a lack of careful program and service planning and little or no professional development.

However, as described in this issue, there are distinct advantages of tele-intervention services for parents, families, and caregivers[2] of children who are deaf or hard of hearing (DHH), such as having access to a provider with specialized skills, service delivery convenience, and effectiveness that can be better than or equal to in-person services (Behl et al., 2017; Blaiser et al., 2013; Houston & Stredler-Brown, 2012). The urgent and unexpected implementation of emergency remote intervention during the COVID-19 pandemic was met with mixed reviews from both parents and professionals and should not be viewed in the same context as the benefits and successes of established TI programs (see Rudge et al., 2022 in the present monograph). The establishment of a successful TI program requires careful planning through the administration of a thorough needs assessment, service provider training, and ongoing program support and evaluation.

Needs Assessment: A Place to Start

Prior to initiating any new TI program, a thorough process of review should be implemented by a team of dedicated professionals. The California Telehealth Resource Center (CTRC) first published the Telehealth Program Developer Kit in 2014, and recently updated it in 2021, as a roadmap for successful telehealth program development. Additionally, the American Speech-Language-Hearing Association (ASHA) suggested a similar process of telepractice program development (2010). The following process combines the key elements of these recommended steps and serves as a starting point for program administrators and service providers when implementing a program of TI services. Each early intervention program is different, and the following steps should be adapted as needed to accommodate local or state needs, policies, and procedures.

[1]For the purposes of this article, the terms tele-intervention and telepractice will refer to the use of distance telecommunication technology to deliver family-centered services to children who are deaf or hard of hearing and their families.

[2]The definition of parents, caregivers, and families encompasses a rich variety of circumstances, cultures, and individual details. To improve readability, the term parents is used throughout the article, but is inclusive of all caregivers and family constructs.

Assess and Define

Three steps support assessing the environment and defining the proposed program.

Step 1: Assess Service Needs and Environment

- Assess the service needs of the families and children within the program.
- Identify potential TI opportunities.
- Assess the organizational or program readiness to launch a TI program.

Step 2: Define the TI Program Model

- Consider the type of TI program that will meet the needs of the families/children served. That is, will synchronous, asynchronous, and hybrid models be used?

Step 3: Develop a Business and/or Funding Case

- Determine the impact of the proposed TI program (i.e., the number of families served, reduced travel costs of service providers, more consistent level of early intervention provided and better child/family outcomes, cost effectiveness, etc.).

The first three steps will determine the early intervention and community needs that would be supported through the development of a TI program. Within Step 1, a needs assessment is undertaken to collect quantitative data on service level needs. Based on the information gathered, the type of TI service can be defined and a certain level of specificity can be developed about the TI program model. During these initial steps, the business case will be considered to determine how the program fits into the organization's business model, funding model, or revenue streams. In summary, the first three steps will:

- Identify and document the need and rationale for the planned TI program;
- Define the early intervention or other services the TI program will deliver;
- Determine the funding source (whether state funding or third-party reimbursement will be used for reimbursement);
- Describe how the targeted services will be delivered; and
- Perform a market analysis to determine if there is a market for the proposed service and a willingness and mechanism to pay for it.

Develop and Plan

Two steps support fully defining the activities necessary for program implementation.

Step 4: Develop and Plan Program and Technology

- Create a detailed project plan.

Step 5: Develop a Performance Monitoring Plan

- Define monitoring and evaluation mechanisms and program improvement processes.

Steps 4 and 5 focus on planning and identifying the tasks that need to be done and the steps required to achieve each of the work products. In these steps, the team should continue to focus on planning and not doing. It is important to capture the steps that the staff/team will be undertaking, who is responsible for each, and when those steps or work products are expected to be completed. In summary, Steps 4 and 5 will:

- Use all of the information collected in Steps 2 and 3 to create a plan that details all of the areas that require work during the implementation;
- Define all the tasks needed to build, test, deploy, and operate the program;
- Determine who will be needed to perform the tasks;
- Estimate the hours required to do the work (effort);
- Estimate the timeline for the work;
- Determine if additional staff are required in certain areas; and
- Develop a plan to monitor program performance and evaluate the TI program.

Implement and Monitor

The final two steps support implementation and ongoing monitoring.

Step 6: Implement the TI Program

- Perform the work required to implement the program.

Step 7: Monitor and Improve the Program (ongoing)

In the final two steps the team is ready to implement the TI program. Steps 6 and 7 allow an organization or early intervention program to use the written plans developed in Steps 5 and 6. Because there are written plans, the program administrators can fully monitor the progress and provide assistance when challenges arise. Likewise, the team can monitor the documented time, costs, and use of resources to support the TI program. Ongoing monitoring of the program will continue and the use of performance indicators can be used to assess the impact of the program. In summary, Steps 6 and 7 will:

- Put into action the plans, decisions, and approaches identified in Step 4; and
- Begin monitoring the program using the approach identified in Step 5.

Completing a comprehensive needs assessment that leads to a comprehensive implementation plan will ensure that the TI program will be successful. While the above steps describe a broad approach, an effective and efficient TI program will also incorporate the following considerations provided by Boisvert and colleagues (2012).

1. The TI program must adhere to all professional licensure requirements for the service providers

as well as all federal laws and regulations, such as the Family Educational Rights and Privacy Act (FERPA, 1974), the Health Insurance Portability and Accountability Act (HIPAA, 1996), and the Health Information Technology for Economics and Clinical Health (HITECH, 2009) Act.

2. Service providers must have a high level of technological competence, and the program should develop its own standardized protocol for service delivery. A broadband Internet connection is, at a minimum, required to sustain adequate audio and video input and output necessary for the delivery of early intervention and assessment sessions. The provider's and family's location should have a computer or laptop, a larger monitor, webcam, microphone, speakers, and an online platform (e.g., Zoom for Healthcare, WebEx, etc.) that allows screen sharing. Although having these components at the remote site (i.e., family's home) would be ideal, families are increasingly using their smartphones or tablets for these connections.

3. There is a range of supplementary equipment that can enhance the quality of the TI services. Additional tools, devices, and equipment vary according to the application of services and the desired outcomes of the program. For example, a second or third monitor, web and document cameras, headphones, cell phones, and back-up storage devices may be required.

4. On-site or support personnel are essential to delivering quality TI services. When considering TI, most sessions will likely involve connecting to the family's home. In these situations, the on-site personnel or e-helper is actually the parent or caregiver and should be trained in how to access the TI platform, troubleshoot issues when there are problems, and understand how to use and manipulate their technology (e.g., smartphone, tablet, laptop) in support of the TI session. Furthermore, the parent or caregiver may be the primary consumer of the early intervention. That is, the service provider is demonstrating techniques and strategies to facilitate communication or other developmental objectives and will then coach the parent or caregiver to successfully integrate the strategies into the child's daily routines and play.

5. The TI program should be evaluated for clinical effectiveness and must include client (if applicable), parent/caregiver, and service provider satisfaction surveys to obtain quality assurance outcome measures (ASHA, 2010). Ongoing documentation and progress monitoring should occur using a safe, secure caseload management system. The documentation for TI should include the same information as in-person services: (a) date of the session, (b) length of the service, (c) technical issues encountered, (d) intervention goals addressed, and (e) data collected for each target objective. Service providers must document family and/or child progress and outcomes toward each goal addressed as well as any additional referrals and/or recommendations (Boisvert et al., 2012).

6. Successful TI programs must have access to information technology (IT) support who are experts in technology selection and compatibility when initiating the program. When TI services are launched, ongoing IT support will be required to maintain the technology as well as facilitating quality assessments, managing firewalls and encryption, and ensuring sufficient bandwidth.

7. All service providers require initial and ongoing training to remain informed about any advancements in technology, practices, and TI methodologies. Boisvert and her colleagues (2012) suggest the following topics should be addressed: (a) an overview of the feasibility, standards, benefits, and limitations of TI; (b) the necessity to obtain outcome data using standardized procedures and processes; (c) evidence of professional certification and licensure; (d) regular scheduled meetings; (e) intervention and assessment planning; (f) data collection and documentation; (g) data security and privacy; (h) intervention or clinical techniques and behavioral management strategies; (i) a review of assessment (e.g., speech, language, developmental, etc.) and screening protocols that are used with TI; (j) consultation with parents/guardians, caregivers, special educators, and other service providers (i.e., specialists, physicians, etc.); (k) print and digital resources and materials to be used in TI; and (l) the collaboration with on-site personnel or e-helpers.

The implementation plan described above provides an overview of steps that should be taken to ensure the successful launch and maintenance of a TI program. However, the plan can be adjusted to include local and state policies, populations served, and other administrative or program limitations.

Barriers to Tele-Intervention Programs

Administrators and service providers seeking to implement a comprehensive TI will face barriers and other challenges that must be addressed to ensure the long-term success of the effort. Otto and Harst (2019) investigated the implementation barriers for telemedicine initiatives, and their findings indicated three (sometimes overlapping) areas that presented the most challenges—people-related barriers, process-related barriers, and object-related barriers.

People-Related Barriers

People-related barriers are defined as the needs and expectations of the *consumer* of the TI service and the service provider. That is, when designing a TI program, the users of the service must be considered. Questions such as who will be consuming the intervention (i.e., parent, child, family, etc.)? How will those individuals interact with the TI platform? Is the technology chosen to deliver the service appropriate, or does it have its own limitations?

Another aspect of the people-related barriers is the training in the use of the technology. The service provider should be highly trained in how to use the TI platform, including how to troubleshoot the equipment and Internet connection when issues arise. Likewise, the parent or family also must know how to access the TI platform and how to do some troubleshooting of their technology (i.e., laptop, tablet, smartphone, etc.). If additional support personnel, such as e-helpers, are required, those individuals should be highly trained as well.

Administratively, ensuring that the program's leadership supports and has buy-in will be critical to the long-term success of the TI services. Administrators can provide and reinforce needed policies and procedures, allocate resources, and become strong advocates for the program.

Process-Related Barriers

Process-related barriers refer to barriers that inhibit the seamless and effective integration of TI services into the program's current system. Resistance to change can occur at all levels, from the service providers to key administrators. Conducting a needs assessment, sharing information, being transparent in program planning, and communicating with all stakeholders are required steps to diminish or eliminate any resistance.

In a similar fashion, the consumers of the TI program—the parents or families—also may be resistant to receiving this service based on preconceived beliefs about its effectiveness. Making sure that parents and caregivers fully understand how these services will benefit the child and family may be an important aspect during the initial intake process.

Another aspect of process-related barriers includes how the TI operates. That is, does the program have clearly established operating procedures? The service provider should have well-defined procedures for scheduling, planning, delivering both intervention and assessment sessions, and for communicating with those families being served. Additionally, the service provider should have a method for capturing outcome data for individual sessions as well as for the overall program.

The parents or family receiving the TI service also must be fully informed about the processes involved in service delivery, and they should understand their expected level of participation, materials, and the goals and objectives of the session prior to the appointment. Beyond simple troubleshooting, parents or caregivers also should be aware of IT resources and who to contact when more serious technology issues do occur.

And finally, the funding of the TI program must be defined. Will public funding be available to support the services and/or will reimbursement from insurance companies and other third-party funders be necessary to sustain the service? Regardless of the approach, prior approval may be required before initiating the service followed by the collection and submission of ongoing documentation of intervention outcomes.

Object-Related Barriers

Object-related barriers are typically technologically based. The TI platform should be user-friendly and easily accessible to the parent or caregiver. Systems that are overly cumbersome and confusing will cause frustration and contribute to a lack of buy-in from the parents or family.

The difficulty securing at least a broadband Internet connection that is reliable continues to be a major barrier to some families in rural settings but also can be an issue in more urban areas. Families who lack a stable Internet connection may benefit from a mobile hotspot, if one can be provided. In other situations, using a neighbor's or relative's Internet connection may be an option, but would require the family to physically relocate to another setting for the session. Local public libraries, public health centers, and public schools also have been used when families had no or limited access to a broadband Internet connection, but when this occurs, the service provider must plan accordingly. Some training of the site's staff may be required to ensure successful TI sessions.

Although most barriers discussed can be described as people, process, or object related, there are situations that may involve a combination of these factors. Additionally, specific state systems or early intervention programs may face challenges not listed above, and therefore, the barriers discussed are not an exhaustive list. With careful planning, most of these barriers can be overcome and successful TI sessions can be accomplished.

Top Ten Tips and Strategies for Successful Tele-Intervention Service Delivery

Training and experience with the TI model can increase professionals' comfort level and effectiveness in guiding virtual family-centered sessions. This top 10 list of tips and strategies will assist professionals new to TI services in implementing TI services for children who are DHH and their families:

1. **Prioritize Development of the Parent-Professional Relationship.** A central component of providing effective family-centered services is developing a strong and positive parent-professional relationship with families. Professionals who are new to the field or who are accustomed to traditional in-home services may feel apprehensive about their ability to connect with families via a TI model.

As discussed in the parent survey (see Nelson et al. 2022, in the present monograph), these relationships can be just as strong for parents and families who use TI services as they are for in-person services. Professionals who take the time to learn of the family, their culture, their activities, and their desires for their child can have a meaningful impact on the child and family well-being. This service delivery priority can and should be an unwavering aspect of family-centered care, whether services are in-person or delivered via TI.

2. **Be Prepared with Materials to Facilitate Demonstration.** A central premise of parent coaching is helping parents identify how their child's speech, language, or other developmental goals can be embedded throughout the day during typical daily routines. For this reason, many in-person providers bring few if any materials into the home to reinforce the importance of identifying listening and language opportunities that naturally occur and to reduce the parent perception that facilitating their child's goals requires specifically prepared materials. The TI model, with the provider not physically present in the home, is even more conducive to facilitating parent coaching to emphasize the role of parents as their child's most important teacher. However, this should not be interpreted by TI providers as an invitation for complacency in their preparation. Providers should be well-organized and prepared with materials on their end that may be used for demonstration. For example, coaching parents in using *auditory first* during a book reading activity can be more effective if the provider also has a book on their end to model the strategy rather than relying only on verbal descriptions. A TI provider who has toys or materials commonly found in most homes may find it improves their ability to demonstrate concepts and increase parent comprehension.

3. **Be Flexible.** Providing intervention services using a virtual connection can facilitate coaching opportunities in a variety of settings, reinforcing to parents the various strategies they can implement across environments to promote their child's goals and development. For example, the TI provider may join the family while they are visiting grandparents, outside gardening, or even when on vacation, thus expanding language and listening opportunities that naturally occur within the family's activities. An approach that is flexible can help reduce parent stress and promote a positive parent-professional partnership as parents feel the provider's support and understanding of the many demands they face. And most importantly, it can effectively support parent understanding of how to foster their child's developmental goals throughout the day within natural activities, various locations, and under a range of circumstances.

4. **Stay Calm and Confident.** Many TI providers find it helpful to set the pace of the session by controlling their rate of speech and projecting a calm demeanor. This can be particularly important if the session doesn't go as planned. For example, parents may feel stress or tension if their child misbehaves or if there are distractions occurring in the home that impact the session. As these situations arise, a calm and confident provider can guide the conversations or diffuse the situation in positive ways. The provider can reassure the parent of their empathy and understanding and allow time for the parent to take care of the situation. Similarly, challenges associated with technology also require a calm and confident response from the provider. With any virtual connection, occasional disruptions are sure to arise (e.g., computer malfunction, power outage, poor internet connection). A clear and predetermined response plan to situations as they may occur can minimize frustration and portray the desired professionalism of service delivery.

5. **Get Comfortable with the Virtual Connection.** Since the onset of the Covid-19 pandemic, parents and professionals have engaged in virtual connections more frequently than at any time in the past. However, for some adults, there can be a period of adjustment in seeing themselves and communicating with others on a computer screen. Professionals and parents who feel reticence may find it encouraging to know that, with time and experience, their comfort and confidence with virtual services can increase. Similarly, children may have a period of behaving differently when they see themselves on the screen, such as becoming shy or being silly, until the services become routine rather than novel. Encouraging open conversations about potential concerns parents may have about themselves or their children can give providers insights as to how to support the virtual connection.

6. **Evaluate Your Own Facial Expressions and Mannerisms.** Professionals may be so inclined to focus on parents and the priorities within the session they forget to also evaluate their own behaviors and mannerisms. In a TI session, facial expressions can play a prominent role in the communication. For example, imagine the parent who feels insecure in trying a new strategy and the words the professional says are not congruent with the look on their face. This mismatch could instill hesitancy for the parent in trying new strategies in the future. Managing challenging behaviors from the child who is DHH or other siblings in the room can be difficult and stressful for parents. Professionals who believe they are patiently waiting

or pondering how they might provide suggestions may inadvertently add to parental stress if their facial expressions appear disapproving or impatient. Similarly, professionals may subconsciously show other mannerisms in which they may not be aware. For example, excessively touching one's face, playing with one's hair, or looking elsewhere in the room rather than the computer camera might be distracting to parents. A purposeful evaluation of facial expressions and other non-verbal mannerisms could inform the professional in meaningful ways to assure they convey the tone or communications intended.

7. **Guide Parents in Incorporating Their Child's Goals into Everyday Activities and Routines.** At the end of each session, parents should feel confident and empowered in knowing how to help promote their child's goals as routine components of their day. Parents who leave a session with the perception of having *homework* may not fully understand the goals of family-centered intervention and the importance of fostering their child's goals within natural and meaningful activities. Further, parents may exhibit confidence in carrying out specific activities as they occur during the session and with the TI provider present yet be insecure in using effective strategies when the provider is not there to provide coaching. Taking the time to brainstorm concrete examples of how specific goals or targets might be implemented in a variety of ways may be beneficial for parents. Such discussions can trigger an array of new thoughts as the parent and provider identify suggestions together, consistent with the activities typical of the family. And it can be satisfying and confidence-boosting for parents when they come up with their own ideas, possibly resulting in more consistent and effective implementation. Even when parents are adept at fostering their child's goals within their daily routines, the benefit of such brainstorming support should not be underestimated, particularly as the child progresses and new goals are identified.

8. **Learn to Take Notes with Minimal Distractions.** Whether brainstorming implementation of child goals, collecting ongoing data, or taking general notes, TI providers must learn to do these tasks with minimal distractions. In a virtual connection, there is a greater potential for miscommunication if the provider appears to be multitasking, regularly looking away from the camera, or having lengthy pauses in the conversation. Whether taking hand-written or electronic notes, providers can minimize session disruptions by being mindful of activities or behaviors that are distracting or may be misinterpreted by their virtual communication partners. This can take planning, practice, and a purposeful mindfulness for each provider to identify the strategies that work best for them.

9. **Provide a Written Summary.** As providers develop the skills to take meaningful notes throughout the session, they are then better equipped to provide parents with a written summary at the end of each session. A parent-friendly written summary can provide invaluable guidance to ensure parents can recall the details of the session, their child's goals and targets, and the jointly discussed suggestions for implementation. According to the parent survey (see Nelson et al., 2022 in the present monograph), just 35% of parents regularly received a written summary of their intervention session. For many parents, such omissions are not in keeping with practices of optimal family-centered care.

10. **Be Creative!** Tele-intervention offers a multitude of possibilities in supporting the development of children who are DHH and the willingness to be creative can foster boundless opportunities for both providers and families. This could include activities involving singing and using music or engaging with various apps or programs to create an art project. With the over-abundance of electronic resources, it can feel overwhelming to providers and there is no need to learn or use everything available. However, identifying a few tried and true resources to encourage creativity in session engagement can offer powerful examples to families of the potential that is there for them on a daily basis. Providers who are willing to try new things and take the family's lead in supporting them in their activities may find TI offers surprising and unique opportunities in service delivery.

Conclusion

The use of telecommunications and online platforms to deliver family-centered early intervention services for children who are DHH has been shown to be efficient, cost effective, and supportive of positive child and family outcomes. Going forward, families will continue to request these services as a means of necessity when securing hard-to-find and consistent early intervention services from well-trained providers. Regardless of where they live—in rural or urban communities—TI may be the best and most appropriate service delivery model to be used with a family. As early intervention programs develop and maintain TI programs, careful planning and ongoing data collection are critical for the long-term success of these efforts. Roles should be clearly delineated, and service providers, families, administrators, and other community stakeholders must work together to establish clear policies and procedures that will define the TI services. Barriers must be identified and, hopefully, mitigated or eliminated. When these steps are taken, the TI program will more likely achieve its primary goal of providing ongoing, evidence-based, and successful family-centered early intervention.

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