Telepractice Training for Early Intervention with Children who are Deaf/Hard-of-Hearing

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Abstract

*Telepractice is an increasingly popular service delivery model for serving individuals with
communication disorders, particularly infants and toddlers who are Deaf/Hard-of-Hearing
(DHH) served under Part C Early Intervention programs (Behl, Houston, & Stredler-Brown,
2012). Recent studies have demonstrated that telepractice is effective for providing children
who are DHH and their families with access to high quality early intervention services (Behl
et al., 2016; Blaiser, Behl, Callow-Heusser, & White, 2013). While telepractice has grown in
popularity, there continues to be a lack of formalized training opportunities to help providers
become more familiar with telepractice (Behl & Kahn, 2015). This paper outlines online
training courses for providers, families, and administrators of programs for children who
are DHH. Recommendations for follow up training and staff support are included.*

Background

Part C of the Individuals with Disabilities Education Act (IDEA) ensures that children who
have, or are at-risk for, developmental delays receive early intervention services. Unfortunately,
many children with special needs, including those who are Deaf/Hard-of-Hearing (DHH), are
unable to access specialized early intervention services because of their proximity to services, the
inadequate number of specialized early intervention professionals, and other constraints pertaining
to daily routines and financial limits (Behl, Houston, & Stredler-Brown, 2012). Yet, with this
increase in need, there has been a noted shortage of early intervention providers with expertise
in serving children who are DHH, particularly in rural and remote areas (Muñoz, Bradham, &
Nelson, 2011). As a result, early intervention programs dedicate a significant portion of their
budgets to the time and distance required of providers to serve families in rural or remote areas
(Olsen, Fiechtl, & Rule, 2012).

Because of these challenges, telepractice has been used increasingly with children who
are DHH and their families. The Winter Volta Review monograph (Brown, 2014) was dedicated
to current knowledge and best practices related to telepractice services for children who are DHH.
Several recent studies focus on family and/or provider satisfaction with the use of telepractice
(Cason, 2009; Crutchley & Campbell, 2010; Heimerl & Rasch; 2009; Kelso, Fiechtl, Olsen, &
Rule, 2009; Lalios, 2012). These studies use provider and/or parent satisfaction as the primary
metric. However, two recent studies have used controlled designs to examine the effectiveness
of services provided to children who are DHH via telepractice compared to traditional face-to-face

early intervention services (Behl, Blaiser, Dawson, & Brooks, 2015; Blaiser, Behl, Callow-Heusser, & White, 2013). Blaiser and colleagues (2013) used a randomized design to examine group differences in child language, provider behaviors, cost effectiveness, and perceived family support for 27 families of children who are DHH across Utah. In this study, children who received services via telepractice demonstrated statistically significantly (p<.05) better expressive language outcomes than their peers who received in-person early intervention services. Behl and colleagues (2015) had similar findings with a comparison group design involving 48 families from five early intervention programs. This multisite study demonstrated that services via telepractice yielded statistically significantly higher receptive language and total language scores as measured by the Preschool Language Scale -5th Edition (PLS-5; Zimmerman, Steiner, & Pond, 2011), as well as greater parent engagement and provider responsivity as measured by the Home Visit Observation Rating Scale (Behl et al., 2015). These improved outcomes can be related to a decrease in missed visits due to illness/weather, increased parent engagement during sessions, and/or increased coaching behaviors of the clinician during the sessions.

As increasing evidence to support telepractice grows, so has the adoption of telepractice by early intervention programs throughout the United States. For example, in 2010, there were approximately five early intervention programs using telepractice or in the planning stages for adoption of this service delivery model (Behl et al., 2012). In the last 6 years, the number of early intervention programs, particularly those serving families of infants and toddlers who are DHH, has increased dramatically, with an increase in the National Hearing Assessment and Management (NCHAM) Telepractice Learning Community membership from 12 in 2010 to 46 in 2016. Similar growth has been seen in the American Speech-Language Hearing Association's (ASHA) Telepractice Special Interest Group (SIG), with 125 members when the SIG was initiated 2011 to 1,366 members in 2016 (Cohn & Brown, 2012; Wilson & Seal, 2015).

However, despite this interest in telehealth, many early interventionists are not prepared to meet the growing need for this service delivery model. Few graduate training programs in communication sciences and disorders offer telepractice coursework and/or clinical opportunities (e.g., Wilson & Seal, 2015). In a recent survey of 26 early intervention providers who use telepractice to serve young children who are DHH, Behl and Kahn (2015) found that roughly one-third (n=10) of telepractice providers were self-taught and another one-third (n=10) received some inservice-type training. None of the respondents reported that they had any training in telepractice in a university or pre-service setting. As a result, many providers are reluctant to use telepractice and/or demonstrate low confidence in the service delivery model.

In response to this apparent and growing need, the authors of this paper were awarded a grant from the Daniels Fund to develop training materials to support the introductory use of telepractice to meet the needs of families of infants and toddlers who are DHH. A description of the content and format for these training materials is provided, followed by recommendations for peer coaching, ongoing systematic support, and collaborative learning.

Methods for Development

Format of Courses

The authors determined that free, online training courses would be optimal to ensure that training in telepractice was affordable, accessible, and available "just in time" (i.e., information that is easy to access when needed) for users. It was essential that the material produced was compliant with Section 508 of the Rehabilitation Act of 1973, ensuring that the content was accessible to individuals who are Deaf/Hard-of-Hearing or who have vision or motor disabilities. A university-based project that supports the creation of accessible content, WebAIM (http://webaim.org), was consulted to ensure instructional strategies were used that would ensure access to web-based information.

To make the courses engaging for users, each course includes video examples of telepractice sessions, parent interviews, and downloadable documents and resources (e.g., sample consent forms, articles related to the Health Insurance Portability and Accountability Act (HIPAA)/Family Education Rights and Privacy Act (FERPA) guidelines, technology checklists to set up a session). The provider and administrator courses conclude with activities suggested for early intervention programs to use in building their own telepractice learning communities.

Content

A review of the literature pertaining to telepractice was conducted to identify existing training materials that could be valuable for providers in the field of early intervention. Interviews were conducted with program administrators and providers who used telepractice to serve children who are DHH to learn about any potential training materials that may not be revealed in a literature search. A "needs assessment" was conducted with the National Center for Hearing Assessment and Management (NCHAM) Learning Community (NCHAM, 2016) to help identify content to be included in the online trainings. A survey was distributed to a group of telepractice providers in the NCHAM Learning Community and their colleagues. This survey included questions related to training, components of the telepractice process, problems reported, top aspects needed in training, and training audiences. Responses were collected from 27 telepractice providers. The survey responses provided a systematic way of determining telepractice training needs and setting priorities for content development. A summary of the needs assessment results provided the following information: providers needed training in telepractice technology and coaching, and program administrators needed support in understanding, and development of, the infrastructure to address such issues as cost, security, and internet connectivity. The needs assessment, as well as interviews with providers using telepractice and results from the Blaiser et al. (2013) and Behl et al. (2015) studies, identified value in offering training to families who would be telepractice recipients. Based on these efforts, it was determined that new training materials needed to be created and that three separate courses would be designed for different audiences (and corresponding web addresses):

- Tele-intervention 101: Administrators, www.ti101.org/administrators
- Tele-intervention 101: Early Intervention Providers, www.ti101.org/providers
- Tele-intervention 101: Families, www.ti101.org/families

Audience-Specific Resources

The content needed to implement telepractice varies based on the audience: administrators, service providers, and families. Table 1 provides a bulleted list of the content covered in each of the training courses.

Table 1. Content Highlights for Each Online Training Course of Tele-Intervention (TI).

Course 1:	Course 2:	Course 3:
Administrators Focus: How do I create a TI component to EI services? Includes: • Budget • HIPAA, FERPA considerations • Technology • Use of recordings • Reimbursement • Licensure • Supporting and Monitoring TI staff	Providers Focus: How do I implement TI and engage families? Includes: • Value of TI • Setting up a TI session • Communicating with families • TI connectivity trouble shooting • Preparing materials • Coaching strategies • Using TI for teaming, interpreter involvement • Using recordings to guide intervention	Families Focus: How can I be successful in using TI with my child? Includes: • Value of TI • Family role as primary intervener • Partnering with provider • Tips for ensuring a successful TI session • Making TI fit in your daily routines • Informed consent • Preparing for a TI session • Getting feedback • Engaging family members

Administrators. Administrators typically have questions or concerns pertaining to whether or not their early intervention programs are adhering to policies and procedures, are operating within budgetary constraints, and are meeting the needs of children and families. Thus, the focus of telepractice training for early intervention program administrators is, "How do I create a telepractice component to early intervention services?" The training course for administrators provides a sample and interactive budget to initiate the use of telepractice across an early intervention system. It also includes documents outlining HIIPAA and FERPA considerations, as well as provides suggestions for supporting staff as they are starting telepractice services (i.e., creating a learning community, using meetings to review telepractice recordings for strengths and opportunities, and assigning peer models and coaches).

Four administrators of early intervention programs for children who are DHH reviewed a draft of the administrator course. On average, it took the reviewers 70 minutes to complete the course. Reviews of the course showed that the content was easy to understand (2.75 from a 1 to 4 Likert scale, with 1 indicating "strongly disagree" and 4 indicating "strongly agree"). It was important to obtain these types of reviews during the development process to ensure that the content and the pace of the courses were appropriate for the users. Although a 2.75 on a 4-point scale is not a stellar review, it provided some feedback if the content was relevant and on the right track. More important, however, the authors received qualitative feedback about how to improve each course. Reviewers for this course liked the recorded parent interview, the ability to "self-pace" the module, and the organization of the information. Reviewers' suggestions for improvement included adding more resources to the documents provided (e.g., a sample budget shown in Figure 1), increasing the narrative to introduce the video examples, and ensuring that the links within the training were working.

Figure 1. Sample Early Intervention Program Cost Estimation for Initiating Telepractice

Technology: Hardware & Internet	Description	Quantity	One-time Costs:	Recurring monthly costs (one year):
Ethernet cable	50 foot New Egg	1/family @$10	$300.00	
Laptop computer for family	Lenovo G770 17" Laptop:	1/family @$600	$18,000.00	
Webcam for family	Logitech C910 HD Webcam	1/family @$89	$2,670.00	
Webcam for provider	Logitech C910 HD Webcam	1/provider @$89	$534.00	
Headphones for provider	Plantronics C620	1/provider @$85	$510.00	
Laptop/computer for provider	May use existing computer or purchase	1/provider @$600	$3,600.00	
External hard drive	For storing recorded sessions	1/provider @$100	$600.00	
Internet connection for family	Likely cost to strengthen connection	1/family @$60/mo.		$21,600.00
Internet connection for program	Likely cost to strengthen connection	1/center	$100.00	
Technology: Software				
Vidyo for Provider and families	Softhware for live video	2 ports (30 users)	$210.00	$840.00
Vidyo Recording software	Records sessions			$420.00
IT support				
technology consultant	Create system image	3 hours/start up @ $25/hr	$75.00	
technology consultant	Setting up each machine	1 hour/computer @ $25/h	$25.00	
technology consultant	Supporting computer use/family	1 hour @ $50/hr for initial	$4,500.00	
Subtotals			$31,124.00	$22,860.00
Total Cost:				$53,984.00

Service providers. The focus of telepractice training for service providers revolves around the question, "How do I implement tele-intervention and engage families?" Based on the needs assessment survey, key aspects of provider training include an introduction to the technology (hardware and software), suggestions for troubleshooting problem sessions, preparing for sessions, and using recordings for family training and self-reflection. The online training for service providers includes material specific to coaching in early intervention sessions. Although many early intervention providers understand the importance of parent coaching, in practice, very few actually effectively employ parent-coaching strategies during their sessions (Guskey, 2002; Wilcox, 2012). Coaching is inherent to telepractice, as the provider is physically not in the home, thus making the parent the primary communication partner with the child (Behl et al., 2016).

The content for the service providers' course was evaluated in two ways. Prior to building the online courses, three separate 2-day, face-to-face workshops were conducted for early intervention providers in Oregon, Utah, and Colorado. The purpose of these workshops was to obtain feedback on the instructional content that would be used in the provider course. A total of 67 providers attended these workshops. Evaluation data collected before and after each of the workshops were used to measure the effectiveness of the content and delivery. Test questions focused on issues pertinent to the implementation of telepractice, such as privacy, Internet protocols, and coaching techniques. For example, data collected from the Colorado workshop demonstrated increases in understanding of ASHA's policies related to telepractice (from 60% correct pre-test to 80% correct post-test) and knowledge related to state licensure protocols for telepractice (from 73% correct pre-test to 80% correct post-test). Additionally, providers demonstrated increased knowledge of the factors to consider for privacy and security when implementing a telepractice session (1 out of 15 providers identified all four factors at pre-test, and 8 out of 10 providers identified all four factors at post-test).

When the online courses were developed, two providers and six graduate students reviewed the courses. According to these reviewers, the online course took approximately 65 minutes to complete. Reviewers liked the examples of telepractice sessions and how coaching can be incorporated into telepractice. Suggestions for improvement included editing details, navigation

enhancements, and provision of additional resources (e.g., the regional telehealth resource center contacts and spreadsheets for determining costs). These suggestions were incorporated into the course prior to it being published.

Families. Given the valued principle of families being partners in decision-making, it is critical that families receive an introduction to telepractice prior to starting services through this model. The training should help families answer the question, "How can I be successful in using telepractice with my child?" The family-based training course includes samples of telepractice sessions, checklists for preparing for a telepractice session, and an interview of a parent who has participated in telepractice sessions.

Six families from the NCHAM Family Advisory Board reviewed the online course. The average time it took reviewers to complete the course was 40 minutes. The reviewers suggested the content was easy to understand (mean=2.7 from the same 1 to 4 Likert scale mentioned previously). Families reported liking the parent interview that was included in the course; however, they found it difficult to hear. Based on this feedback, the parent interview was re-recorded. There was also feedback about the technology being difficult to navigate, which was an artifact of the Section 508 compliance. To better help users navigate the course, an introduction was added to each of the courses to help users identify the type of technology the learner was using prior to starting the course.

Discussion

Telepractice has the potential to meet the needs of families with children who are DHH enrolled in early intervention services. Telepractice allows families to have access to specialized providers, it increases the likelihood of fewer cancelations due to weather and illness, and it employs a "family-centered" approach in the home. Despite these benefits, many providers are reluctant to use this model because they lack the training and understanding of how to use it effectively. In response to this need, online training courses have been developed to highlight essential aspects of telepractice for administrators, providers, and families. The content and format of these courses attempt to provide a first-step in meeting the need for gaining the basic knowledge for implementing telepractice.

The online training courses have several notable strengths. A primary strength is that the courses are designed to meet the needs of three specific audiences. Because they are online and free, they provide learners with a "just in time" learning opportunity and the ability to "refresh" as needed. Learners can access materials and resources easily through the "documents" icon, without going through the entire course. The courses are designed to be accessible to individuals with visual or motor disabilities or to those who are Deaf/Hard-of-Hearing. These courses can be incorporated into graduate training programs for speech-language pathologists, deaf educators, and audiologists as an introduction to telepractice discussions and clinical practice.

As with any training program, there are limitations and challenges with the online telepractice training courses. The courses are currently only in English and need to be translated to other languages. There are no "tests" to assess mastery of the content or to verify how much of the content was actually viewed by the user. The field of telepractice is constantly evolving (e.g., federal security rules, new software platforms, licensing compacts) so the content will need to be revised on an ongoing basis to be current and relevant. The courses are meant to be an introduction to the concepts related to telepractice, therefore, early intervention programs should not use the materials in isolation to train providers to use telepractice.

Just as with the mastery of any new competence, additional training, technical assistance, and mentoring are important. Recommendations for implementing such support have been embedded into these courses, but in-person discussion about the importance of follow-up training, technical assistance, and opportunities for peer coaching and support is warranted. Administrators are encouraged to develop procedures (e.g., submit video recordings, create

a written test, demonstrate first-hand skills in providing a telepractice session) to ensure that providers have the skills and competencies needed to use telepractice with families. Learning Communities, such as the NCHAM "Tele-Intervention" Learning Community, can be a useful forum for collaborative learning, including reflection and discussion for providers who are developing new skills in telepractice. Opportunities to discuss technology preferences and uses are particularly helpful since technology changes quickly, as do privacy and security requirements.

Providers and administrators need to be knowledgeable about telepractice-related guidelines and policies created by professional organizations. Resources such as ASHA's guidelines for telepractice (see http://www.asha.org/Practice-Portal/Professional-Issues/Telepractice/), the **AQ1** American Telemedicine Association (http://www.americantelemed.org/), and the Telehealth Resource Center (http://www.telehealthresourcecenter.org/) provide up-to-date information on the rapidly changing field of telepractice.

As we look at the growth of telepractice nationally, combined with a shortage of highly qualified providers, training should be an essential part of preparing professionals in communication sciences and disorders. The further development of training resources, such as the courses described here, will be of great value in ensuring that future professionals are able to meet the growing need for serving families.

Acknowledgements

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AQ1: Because nothing from these 3 sites are referenced specifically, I think it's fine to just include the hyperlinks as-is and remove these references. I hope that's ok!

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