

Chapter 18

Family-Centered Early Intervention Programming for Infants & Toddlers Who Are Deaf or Hard of Hearing

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Educational, social, and political environments provide a frame of reference for understanding programming for young children who are deaf or hard of hearing (D/HH) and their families.

Background

The development of the young child can be best understood from a broad ecological perspective beginning with the family, the child's immediate environments, and extending outward to include the broader environmental contexts that influence the child's growth and development (Bronfenbrenner, 1979; Bronfenbrenner & Morris, 1998). For a visual graphic of Bronfenbrenner's ecological systems theory, see <https://www.simplypsychology.org/Bronfenbrenner.html>. Educational,

social, and political environments provide a frame of reference for understanding programming for young children who are deaf or hard of hearing (D/HH) and their families. Policies and practice guidelines have evolved from multiple sources and disciplines, and recommendations for early intervention programs and services have been endorsed by professional organizations [e.g., American Speech-Language-Hearing Association (ASHA, 2008a); Division for Exceptional Children of the Council for Exceptional Children (Division for Early Childhood, 2014); and the National Association for the Education of Young Children (NAEYC, 2009)].

Professional organizations with special interests in children who are D/HH from birth to 3 years of age have developed position statements, knowledge and skills documents, and recommendations addressing program quality (e.g., Alexander Graham Bell Association, American Society for Deaf Children, Conference of Educational Administrators of Schools and Programs for the Deaf, the Convention of American Instructors of the Deaf, and the National Association of the Deaf). The Joint Committee on Infant Hearing (JCIH, 2007, 2019), Joint Committee of ASHA and Council on Education of the Deaf (ASHA, 2008b), National Consensus Conference Report (Marge & Marge, 2005), and an international panel of experts (Moeller, Carr, Seaver, Stredler-Brown, & Holzinger, 2013) have identified evidence-based recommendations specific to working with infants and toddlers who are D/HH and their families. In addition, the supplement to the JCIH 2007 Position Statement focused exclusively on recommendations and benchmarks for programs, services, as well as skills for early intervention providers in the United States and territories (JCIH, 2013).

The Individuals with Disabilities Education Act (IDEA, 2004) provides federal guidelines in the United States for the provision of services for children with developmental delays or disabilities from birth to 3 years of age. IDEA (2004) requires states and territories providing early intervention services to refer eligible children to their respective Part C system. Each state or territory has a lead agency that is charged with the responsibility of implementing the requirements of Part C of IDEA in collaboration with their Interagency Coordinating Council. Each state and territory also has an Early Hearing Detection and Intervention (EHDI) system and a coordinator who is responsible for facilitating the provision of appropriate services to all children who are D/HH and their families in a timely fashion. A primary goal of the EHDI system is to ensure all newborns

are screened by 1 month of age, have their hearing levels evaluated by 3 months, and are enrolled in early intervention by 6 months. States and territories that meet these criteria typically have well coordinated Part C and EHDI systems providing smooth transitions from screening to evaluation to early intervention services.

The expansion of newborn hearing screening throughout the United States and many other countries means fewer children now miss the advantages of an early start through early intervention services (Nelson, Bougatsos, & Nygren, 2008). Families and caregivers who discover their child's hearing levels in infancy have the potential to provide them with the same quality of early life experiences as their hearing peers. Families/caregivers who access timely and comprehensive services from professionals knowledgeable about early development, communication, and language are more likely to witness greater progress in many areas of development than those without similar opportunities (Kennedy, McCann, Campbell, Kimm, & Thornton, 2006; Moeller, 2000, 2007; Yoshinaga-Itano, 2003).

Families whose infants receive hearing screenings soon after birth and discover their child's hearing warrants further evaluation are referred to an audiologist—preferably one who has pediatric expertise. If the infant's hearing is not within the range of hearing expected, the family is referred for further evaluation to an ear nose and throat (ENT) specialist. The child's primary physician and healthcare providers are informed of the results, and the family is referred to their state's early intervention system and/or programs that provide services to D/HH infants, toddlers, and their families. For an example of a road map that families must navigate, see <http://cohandsandvoices.org/rmap/roadmap/>.



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When a family whose child has been identified as D/HH is referred to their state's early intervention system, they likely have already received information and advice from a variety of sources. They may or may not have comprehensive information regarding child development milestones, communication opportunities, and/or early intervention services. At this point, some families may have already identified their preferences for assistive listening technology and communication. When an early intervention provider meets the family for the first time, the provider must first focus on building a trusting and collaborative relationship with the family. The provider will then be able to determine what information the family already has and how they can help the family process this information to make the best decisions for their child.

Family-Centered Early Intervention as the Foundation for Programming

This chapter presents a family-centered framework for early intervention professionals, programs, and services for young children who are D/HH and their families/caregivers. A family-centered philosophy provides the foundation for programs and services. Foundational components include:

- 1 Culturally and linguistically responsive services.
- 2 Collaboration and interdisciplinary teamwork.
- 3 Developmentally appropriate practice (DAP).
- 4 Evidence-based research and practices.

All four components are essential to comprehensive and coordinated services for children and their families. These components are aligned with federal legislation and guidelines and

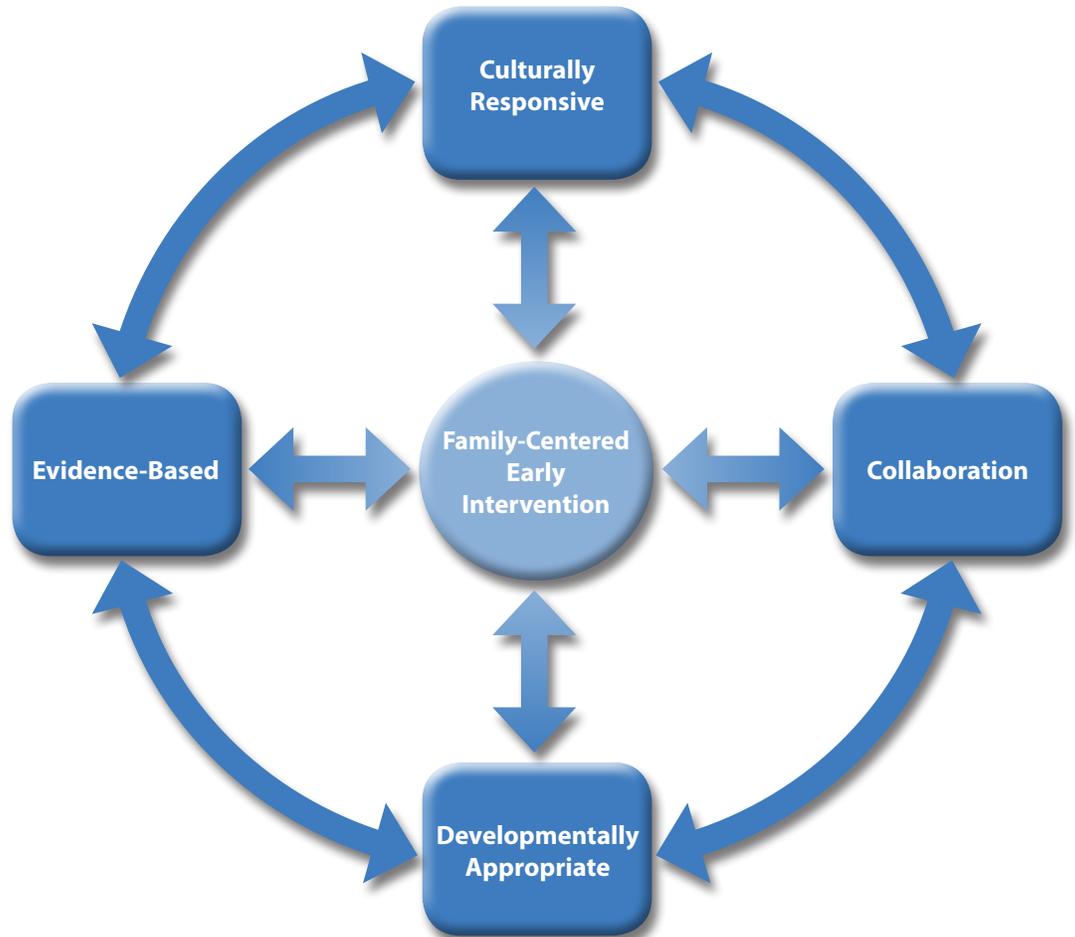
offer a framework for developing and implementing programs for children who are D/HH from birth to age 3 and their families/caregivers (Sass-Lehrer, 2011, 2016). Each of the four components includes underlying features that together provide the elements of effective programming. Importantly, these components are not discrete. Rather, they are interrelated and are transactional. This chapter describes how these components inform the development of early intervention programs and services (see *Figure 1* illustrating these components).

Family-centered programming has replaced the professional-as-expert model in early intervention. A family-centered approach is sensitive to family complexity, responds to family priorities, cultural perspectives, and supports caregiver behaviors that promote the learning and social development of the child (Brotherson, Summers, Bruns, & Sharp, 2008; Shonkoff & Meisels, 2000). Family-professional partnerships encourage collaborations that recognize the expertise of families/caregivers and strive to minimize the potential imbalance of the power professionals may have. Partnerships with families strive to build power *within* the family rather than exert power *over* the family (Sass-Lehrer, Porter, & Wu, 2016). Effective early intervention professionals have invaluable knowledge and share their expertise in ways that also acknowledge families' unique experiences and perspectives. Central to a family-centered approach is understanding that the goal of early intervention is to provide services that support and strengthen families' abilities to nurture and enhance their children's development and overall well-being.

The importance of family involvement in their child's early years cannot be overstated. Earlier enrollment in comprehensive birth-to-3 programs has been linked to better outcomes for children (Yoshinaga-Itano, 2003; Nelson et al., 2008). Moeller (2000) found that children who were enrolled in the Boy's Town Parent Infant Program prior to 11

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Figure 1
Foundational Components of a Family-Centered Philosophy



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months of age and whose mothers were highly involved performed significantly better on vocabulary and verbal reasoning skills than those children who were enrolled early but whose mothers were less involved. Moeller (2001) proposed that early intervention makes a positive difference in the lives of the majority of children, and early intervention should enhance family involvement and caregiver-child communicative interactions. The international consensus statement on best practices in family-centered early intervention (Moeller et al., 2013) endorses the importance of family involvement and partnerships between families and professionals.

Relationship-based partnerships with families involve an understanding and appreciation of the communities in which families live. The family's community is an important resource offering a personal social network and access to a variety of community-based organizations and programs. Relatives and friends, co-workers, religious and civic groups, cultural/ethnic associations, childcare programs, schools, and libraries are all potential resources to the family. Professionals who are knowledgeable about the communities in which families live and work can help identify local resources that are within the family's social and community network.

Hearing families indicate that meaningful interactions with other families who have children who are D/HH and adults who are D/HH are powerful influences in understanding the realities and possibilities for their children.

Culturally & Linguistically Responsive Services

Families and caregivers reflect the rich social, cultural, ethnic, and linguistic diversity of society. Cultural responsiveness is fundamental to establishing meaningful and trusting relationships with families. Families' values and beliefs influence their perspectives regarding their child's abilities, child-rearing practices, relationships with professionals, and involvement in their child's overall development (Christensen, 2000; Meadow-Orlans, Mertens, & Sass-Lehrer, 2003; Steinberg, Davila, Collaza, Loew, & Fischgrund, 1997). Families' backgrounds and experiences, such as their home language, hearing status, educational backgrounds, and personal and economic resources, require services that are relevant and accessible to meet diverse needs (Meadow-Orlans et al., 2003).

Professionals need to know how to connect with families whose home or preferred language is not English and how to work with interpreters and sometimes cultural mediators (Batamula, Kite Herbold, & Mitchiner, 2020). The cadre of professionals working with families and their young children, however, are overwhelmingly monolingual English speakers, white, well-educated, and female. Professionals often lack an understanding of the experiences and perspectives of the families with whom they work. With this in mind, there is an urgent need for more professionals whose backgrounds and experiences enable them to relate to these families through their personal life experiences, e.g., professionals who are Black, biracial, indigenous, and people of color (Sandy, 2016). In addition to increasing the number of professionals who are culturally and linguistically diverse, there is also a demand for professionals who are D/HH, including adults who are D/HH who are prepared to be role models and mentors. These adults who are D/HH are essential to young children's development of identity and self-esteem, as well as to their families'

understanding of what it means to be D/HH in a majority hearing world.

Children who are D/HH benefit from an understanding that they are part of a larger community who share similarities in ways they acquire information, communicate, and socialize with others. Professionals must recognize that opportunities for families and their children to interact with adult role models and other children who are also D/HH are an essential part of enhancing the child's self-awareness and self-esteem (Leigh, 2009). Hearing families indicate that meaningful interactions with other families who have children who are D/HH and adults who are D/HH are powerful influences in understanding the realities and possibilities for their children (Hintermair, 2000; Hintermair, 2006). Families who have had regular interactions with adults who are D/HH demonstrate better communication with their children and have a more realistic understanding of what it means to be D/HH than those who have not (Watkins, Pittman, & Walden, 1998). While the vast majority of professionals are hearing, professionals who are D/HH are essential members of the interdisciplinary birth-to-3 team (Benedict & Sass-Lehrer, 2007a). Adults who are D/HH not only provide young children and their families with knowledge and support (Hintermair, 2000) but also can be effective models for language learning (Watkins et al., 1998). For more information about adults who are D/HH, see *Chapter 19* in the *NCHAM EHDI eBook* (Crace, Rems-Smario, & Nathanson, 2020).

Collaboration & Interdisciplinary Teams

In addition to professionals who are D/HH, teachers of the deaf are also essential members of the early intervention team. The team may also include developmental specialists, educators with expertise in working with young children who are visually impaired or have other developmental concerns, speech and language pathologists, educational audiologists, occupational and

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physical therapists, and social workers. The composition of the team will vary according to the child's abilities and the families' priorities and concerns. The team should be designed to meet each child and family's individual needs and should collaborate in ways that support families' abilities to enhance their child's development.

The interdisciplinary team, including the family, collaborate from the very beginning of early intervention programming—beginning with the initial child assessments, the development and implementation of the Individualized Family Service Plan (IFSP), through transition to preschool. The IFSP is a process through which families and professionals identify a child's strengths and needs, as well as the family's priorities, resources, and concerns, to develop an integrated plan for services. One section of the IFSP requires a description of the child's present level of functioning across developmental domains and establishes goals based on 6-month intervals. Another section of the IFSP is a language and communication plan that identifies supports essential to achieve the expected communication and language outcomes (DeConde Johnson, Beams, & Stredler-Brown, 2005; Gallegos, Halus, & Crace, 2016). The IFSP process requires a commitment from professionals to work

collaboratively with families and community members toward common goals for the child and family. For more information about the IFSP process for children who are D/HH and their families, see <https://deafchildren.org/2014/06/family-support-what-is-the-ifsp/>.

Developmentally Appropriate Practice

According to the National Association for the Education of Young Children (NAEYC), DAP is a framework of principles and guidelines designed to help young children reach their full potential across all developmental domains. DAP guidelines are based on nine principles supported by extensive research that inform early childhood education and professional practice (NAEYC, 2020). For information on the various guidelines, see [Developmentally Appropriate Practice](#).

Early intervention services are informed by what is known about child development and learning, the child's individual characteristics, the child's social and cultural contexts, professionals providing services, and the program as a whole (NAEYC, 2020). DAP relies on professionals' knowledge of best practices as well as their understanding of each child and family, their culture, and community. DAP also acknowledges each professionals' commitment to equity, including the recognition of the negative impact of systemic bias or discrimination on development and differences in families' access to resources.

Adherence to a DAP framework requires professionals to focus on the development of the whole child. An integrated approach to programming strengthens development in all domains and facilitates meaningful connections among all areas of development. Effective professionals embrace a strength-based perspective and understand how to promote development by emphasizing children's individual skills and abilities. Young children may be short-changed by programs that focus



Photo courtesy of Centers for Disease Control and Prevention

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narrowly on one developmental area, such as communication, at the expense of other developmental domains, e.g., cognition, social and emotional development, and motor skills development. Young children who are D/HH have unique abilities and benefit when professionals recognize that differences in hearing levels do not in any way limit the potential for learning or the ability to achieve the same goals as their hearing peers. For an extensive discussion of development in children who are D/HH from birth through 3 years of age, see Spencer & Koester (2016).

At least one in three children in early intervention has a developmental concern in addition to a difference in hearing level (Chapman et al., 2011; Meadow-Orlans et al., 2003). The addition of a disability adds a level of complexity to the learning process that requires skilled practitioners and services to adopt a holistic approach rather than focus on discrete developmental challenges (Jones & Jones, 2003; Meadow-Orlans, Smith-Gray, & Dyssegaard, 1995). While some developmental differences are identified at birth or shortly thereafter, other developmental concerns may not emerge until later. Families and caregivers are often first to report behaviors that may warrant further assessment by a team of specialists. Professionals with expertise in related areas, along with family members, should assess the child's interactions in different environments, daily routines, and with a variety of individuals to identify areas of development that require specialized support.

Evidence-Based Research & Practices

The Early Childhood Technical Assistance (ECTA) Center defines evidence-based practice in early childhood education as: "...the process that pulls together the best available research, knowledge from professional experts, and data and input from children and their caregivers to identify and provide services evaluated and proven to achieve positive outcomes

for children and families" (<https://ectacenter.org/topics/evbased/evbased.asp>). Educators have long struggled with the challenge of closing the gap between research and practice (Buysse & Wesley, 2006; IDEA, 2006; Spencer & Marschark, 2010). Early intervention position statements and documents for young children who are D/HH outline guidelines for best practices by applying what we know from research and practice (e.g., JCIH, 2013, 2019; Moeller et al., 2013). Best practices emphasize the importance of focusing on outcomes for children and families (<https://ectacenter.org/eco/pages/childoutcomes.asp>). Professionals working with young children who are D/HH and their families have reason to expect that participation in early intervention programs will lead to enhanced developmental outcomes for children. Outcome-based goals should be established that are based on principles of DAPs, as well as research and recommendations developed by professionals with expertise in this area. Monitoring development through frequent assessment is essential to ensuring that the identified outcomes are achieved within the expected timeframe.

Evidence that children who are D/HH can perform at similar levels as their hearing peers when provided early, comprehensive, and effective programming (Calderon, 2000; Moeller, 2001; Yoshinaga-Itano, 2003) has put increased pressure on programs to document outcomes. Systematic assessment guides the child's development and learning, including their participation in daily routines and community activities (Meisels & Atkins-Burnett, 2000). Ongoing assessments inform the effectiveness of services and provide evidence of the need for possible revisions in the IFSP or communication plan. Insufficient progress, for example, should lead to consideration of different approaches, services, or frequency of services. Families and professionals should regularly revisit outcomes for the child and family based on the results of the assessment process. The Division for Early Childhood (2014) recommends that

assessment of young children involves families, is developmentally appropriate, and is a team-based approach. In addition to the family, adults who are D/HH have a vital role in the assessment process and provide invaluable perspectives on the environment, assessment activities, and the child's performance (Hafer, Charlifue-Smith, & Rooke, 2008a, 2008b; Szarkowski & Hutchinson, 2016).

Communication & Language Opportunities

For the majority of children who are D/HH, the acquisition of language and communication skills is the central focus of early learning and development. Establishing effective communication between families and their young children has long been recognized as the key to early language acquisition, family functioning, and the overall development of the child (Calderon, 2000; Calderon & Greenberg, 1997; Meadow-Orlans, Spencer, & Koester, 2004; Moeller, 2000; Rosenbaum, 2000).

Increased opportunities for children to acquire language during the early years and develop a range of communication skills means that families no longer need to choose one language or one approach over another. Advances in the quality and availability of auditory and visual technologies for infants and toddlers have significantly changed the possibilities for children who are D/HH. Early identification of hearing levels means that more children are using hearing aids or other assistive technologies, such as cochlear implants, during the early months of life when the brain is most receptive to auditory stimuli. Early identification and intervention also provide families with the opportunity to establish effective communication visually through signs and gestures—laying the foundation for language (monolingual or bilingual) and literacy development (Chamberlain, Morford, & Mayberry, 2000; Schick, Marschark, & Spencer, 2006; Spencer & Koester, 2016; Wilbur, 2000).

Professionals need to ensure that families maintain realistic expectations regarding the range and variability of outcomes associated with different technologies so that the focus remains on the child's acquisition of age-appropriate language and other developmental milestones (Gárate & Lenihan, 2016).

Bilingualism—the acquisition of both a natural sign language (e.g., ASL) and a spoken and/or written form of the majority language (e.g., English)—has gained support from researchers who have found that children who acquire language early can more easily acquire a second or third language, whether that language is visually or auditory based (Cummins, 2000; Grosjean, 2008). Children who are D/HH live in a world that is predominately hearing where the use of spoken language and written expression of the majority language are expected. The goal of bilingualism is to develop and maintain proficiency in both sign language and a spoken or written form of the hearing majority language (Benedict & Sass-Lehrer, 2007b). The potential benefits of bilingualism to cognitive and literacy development have been well established (Cummins, 2000; Grosjean, 2008), and research evidence has shown that sign language can spur, rather than impede, the development of spoken language. Other researchers have found that sign language can have a positive effect on the development of spoken language skills, provided appropriate models, access, and opportunities to use the languages are available (Hassanzadeh, 2012; Preisler, Tvingstedt, & Ahlström, 2002; Yoshinaga-Itano, 2003).

High expectations for acquiring language for those children who have benefited from early identification have changed the “wait and see” mentality to one of “assess, support, and monitor” to ensure age-appropriate language acquisition. The importance of early language acquisition (in any modality) and the consequences of a language delay (Spencer & Koester, 2016; Yoshinaga-Itano & Sedey, 2000) impact the advice and support services knowledgeable professionals provide families.

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Many birth-to-3 programs recognize that it is often unrealistic to expect families (even with the help of professionals) to make decisions about a communication approach or language [spoken language or a natural sign language, such as American Sign Language (ASL)] in the first few months of their child's life. Expecting families to choose one language or communication approach with limited information and understanding of their child's abilities may be detrimental to the child's overall development. Families often lament that professionals pressure them to choose one approach over another (Meadows-Orlans et al., 2003). Many families are pragmatic—focusing on what approaches appear to work best in specific situations (Meadow-Orlans et al., 2003; Wilkens & Hehir, 2008).

Discovering which modalities offer a young child the best opportunities for acquiring language is a collaborative undertaking (Sass-Lehrer, Porter, & Wu, 2016; Stredler-Brown, 2010). Comprehensive assessment of language milestones in listening and spoken and/or sign language, as well as cognitive and social development, provides families and professionals with benchmarks to monitor the effectiveness of the

approach(es) utilized. For a description of different communication and language approaches, see Marschark, 2007; Pittman, Sass-Lehrer, & Abrams, 2016; Schwartz, 2007; Stredler-Brown, 2010; and the following websites: www.raisingdeafkids.org, www.ncbegin.org, www.handsandvoices.org.

The concept of collaborative, informed decision making reflects the fundamental belief that families need comprehensive, meaningful, relevant, and evidence-based information to make decisions that are most appropriate for their child (Porter, Creed, Hood & Ching, 2018; Young et al., 2006). Families indicate that the choice of communication approaches is one of the most stressful decisions they make, and they value information from professionals that is accurate, impartial, and respects their views (Meadow-Orlans et al., 2003). Families play an active role in determining not only the communication and language pathways but also appropriate technologies and programming opportunities. Together, families and professionals can explore the best paths forward and monitor how well the decisions they have made are working to achieve their children's goals.

Service Delivery Models

A variety of service delivery models exist among programs for the birth-to-3 population with little evidence that one model is superior to another (Calderon & Greenberg, 1997; Spencer & Marschark, 2010). The key to effective programming is a cohesive and integrated approach that includes a wide range of services to children and families in a variety of settings (Astuto & Allen, 2009). The delivery of services should reflect the needs of the child and family and be provided in settings that are most appropriate, e.g., home, school/agency, community. Services may be provided by a team of specialists or by one specialist in consultation with others. The frequency and intensity of the services must be directly related to the needs of



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The legislation encourages families and professionals to consider the child's "natural environments" when identifying settings in which services are provided.

the child and priorities of the family. Families can access services directly or benefit indirectly through professional consultation (Stredler-Brown & Arehart, 2000; Gallegos, Halus, & Crace, 2016).

A traditional approach to services involves a professional visiting with a family in their home—or in another setting that works for the family—once a week for approximately one hour. In addition to this weekly home visit, the family may meet with other specialists (e.g., auditory-verbal, occupational, or physical therapists; sign language specialists; and speech-language pathologists). Meeting separately with different specialists creates challenges for families if professionals provide conflicting information. Collaboration among professionals streamlines services and minimizes the possibility of overlapping services or different messaging. Professionals may provide more effective and collaborative interdisciplinary services by asking families what works best for them and how to enhance services and communication among the team. Flexibility in scheduling and effective team collaboration are creative ways to reach families and achieve higher family involvement.

Telepractice has become increasingly available to families with young children who are D/HH. Telepractice has several advantages for families (and professionals) who may have difficulty meeting in person. For families who live far from specialized services or whose availability is limited by work or other responsibilities, remote visits via the Internet can enhance the frequency and regularity of services (Cole, Pickard, & Stredler-Brown, 2019; Houston & Stredler-Brown, 2012). During the COVID-19 pandemic, services have been provided exclusively through Internet platforms. Telepractice has prevented a disruption of services for many families and opportunities for more family members to participate in early intervention services. Sign language instruction and listening and spoken language skills training are available via distance learning and provide

families with increased opportunities to connect with specialists, including deaf adults, regardless of where they live. Although high-speed Internet service and specialized training on the part of the professional is needed, researchers agree that telepractice provides enhanced opportunities for family involvement. For more detail about telepractice in early intervention for infants and toddlers who are D/HH and their families, see Chapter 20 in the NCHAM EHDI book (Houston, 2020).

Ensuring access to community-based services and programs is one of several goals of IDEA. The legislation encourages families and professionals to consider the child's "natural environments" when identifying settings in which services are provided. According to IDEA, "to the maximum extent appropriate, [early intervention services] are provided in natural environments, including the home, and community settings in which children without disabilities participate [IDEA, 2004, Section 632(4)(G)(H)]. This provision of the law has sometimes been interpreted as a prohibition against center-based services for young children and their families. However, services may be provided in a variety of different settings, provided that a justification is included in the IFSP [IDEA, 2004, Section 636(d)(5)]. Consideration of special language and communication needs and opportunities for direct communication with peers and adults in the child's language and communication modality(ies) are appropriate rationale for providing center-based services (ASHA, 2008b). The Joint Committee of ASHA and CED have developed a fact sheet on natural environments that describes the need to consider a range of settings, including center-based programs, to meet the individual needs of children who are D/HH and their families (see <http://www.asha.org/aud/Natural-Environments-for-Infants-and-Toddlers/>).

Families often prefer to go to the school or center for services rather than, or in addition to, receiving services in their

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home or community. School- or center-based programming provides families with the opportunity to meet other children and families and interact with specialists and adults who are D/HH. Playgroups with D/HH and hearing siblings and peers provide a context for young children to develop communication and social skills. To support the involvement of all family members and caregivers, programs must offer services during times when siblings, extended family members, and others may participate.

Knowledge & Skills of Providers

The quality of early education and developmental services hinges on the skills of the providers. Researchers suggest that outcomes for young children and their families are better when providers have specialized training in early intervention for children who are D/HH (Calderon, 2000; Kennedy, McCann, Campbell, Kimm, & Thornton, 2005; Nittrouer & Burton, 2001; Yoshinaga-Itano, 2003). However, many birth-to-3 providers lack the specialized knowledge and

skills they need to work with children who are D/HH and their families. Providers may have a wide range of disciplinary backgrounds (Stredler-Brown & Arehart, 2000) and rarely have sufficient preservice coursework and practicum experiences to address the needs of this unique population (Jones & Ewing, 2002; Proctor, Niemeier, & Compton, 2005; Rice & Lenihan, 2005; Roush et al., 2004). This lack of adequate training has put an increased burden on states and related agencies to identify training needs and provide professional development experiences. Opportunities for professional learning and development are available through webinars, individual courses, and a few online programs (Sass-Lehrer, M., Crace, J., & Neild, R., 2020). Sass-Lehrer, Moeller and Stredler-Brown (2016) reviewed the literature and recommendations of professional organizations and initiatives regarding the knowledge and skills needed by early intervention providers. For a list of these documents and a complete listing of the knowledge and skills statements for each of the competency areas, see *Appendix 1* of the Supplement to the 2007 JCIH Position Statement (JCIH, 2013). The nine major knowledge and skills areas are listed in *Table 1*.

The success of early identification and early provision of services has created a challenge for professionals and families to ensure that developmental gains are maintained as children transition to preschool and beyond. Children transitioning to preschool may no longer qualify for specialized services if they do not demonstrate a significant developmental delay and may be at risk for academic and/or social difficulties ahead without appropriate support (Seaver, 2000). Individualized language and communication plans, as well as preschool program guidelines, can help families advocate for appropriate preschool placements and services as they transition from early intervention to preschool (DeConde Johnson, Beams, & Stredler-Brown, 2005; Gallegos, Halus, & Crace, 2016).



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Table 1 Areas of Knowledge and Skill

1	Family-centered practices
2	Socially, culturally, and linguistically responsive practices
3	Language acquisition and communication development
4	Infant and toddler development
5	Screening, evaluation, and assessment
6	Auditory, visual, and tactile technologies
7	Planning and implementation of services
8	Collaboration and interdisciplinary practices
9	Professional and ethical behavior, legislation, policies, and research

The challenge to the EHDI system is to ensure the full realization of every child’s potential and ability to sustain the benefits of early intervention into and beyond the school-age years.

Summary

Principles and policies for birth-to-3 programs have emerged from research, legislative guidelines, and professional recommendations. Comprehensive birth-to-3 programs should embrace a family-centered and developmental perspective, providing support to children and families through interdisciplinary and community-based collaboration that is evidence-based. Professionals, including those who are D/HH, should develop partnerships with families and implement culturally and linguistically responsive practices that reflect the family’s strengths and values. It is vital that everyone involved recognize the family as the most significant resource for the child.

Earlier enrollment and longer stays in early intervention programs than ever before provide increased opportunities for families to gain greater understanding of their child’s needs and potential. The challenge to the EHDI system is to ensure the full realization of every child’s potential and ability to sustain the benefits of early intervention into and beyond the school-age years. To do this requires the availability of skilled and knowledgeable professionals from the time families are first informed that their child may be D/HH through early intervention and transition to school-age educational programs and services.

References

- American Speech-Language-Hearing Association. (2008a). *Roles and responsibilities of speech-language pathologists in early intervention: Technical report*. Available from www.asha.org/policy.
- American Speech-Language-Hearing Association. (2008b). Service provision to children who are deaf and hard of hearing, birth to 36 months. [Technical Report]. *Joint Committee of the American Speech-Language-Hearing Association and Council on Education of the Deaf*. Available from www.asha.org/policy.
- Astuto, J., & Allen, L. (2009). Home visitation and young children: An approach worth investing in? *Social Policy Report. Society for Research in Child Development*, 23(9), 3 -21.
- Batamula, C., Kite Herbold, B. J., & Mitchiner, J. (2020). Family language planning with deaf and hard of hearing children: Fostering multilingual development. *Odyssey: New Directions in Deaf Education*, 21, 8-13.
- Benedict, B., & Sass-Lehrer, M. (2007). Deaf and hearing partnerships: Ethical and communication considerations. *American Annals of the Deaf*. 152(3), 275-282.
- Bronfenbrenner, U. (1979). *The ecology of human development: Experiments by nature and design*. Cambridge, MA: Harvard University Press.
- Bronfenbrenner, U., & Morris, P. (1998). The ecology of developmental processes. In R. M. Lerner (Ed.), *Theoretical models of human development* (5th ed.). *Handbook of Child Psychology*, 1, 1993-1028.
- Brotherson, M. J., Summers, J., Bruns, D., & Sharp, L. (2008). Family-centered practices: Working in partnership with families. In P. Winton, J. McCullom, & C. Catlett (Eds.), *Practical approaches to early childhood professional development: Evidence, strategies, and resources* (pp. 53-80). Washington, DC: Zero to Three.
- Busse, V., & Wesley, P. (2006). *Evidence-based practice in the early childhood field*. Washington, DC: Zero to Three.
- Calderon, R. (2000). Parent involvement in deaf children's education programs as a predictor of child's language, early reading, and social-emotional development. *Journal of Deaf Studies and Deaf Education*, 5, 140-155.
- Calderon, R., & Greenberg, M. (1997). The effectiveness of early intervention for deaf children and children with hearing loss. In M. J. Guralnick (Ed.), *The effectiveness of early intervention* (pp. 455-482). Baltimore, MD: Paul H. Brookes.
- Chamberlain, C., Morford, J., & Mayberry, R. (Eds.). (2000). *Language acquisition by eye*. Mahwah, NJ: Lawrence Erlbaum Associates.
- Chapman, D., Stampfel, C., Bodurtha, J., Dodson, K., Pandva, A., Lynch, K., & Kirby, R. (2011). Impact of co-occurring birth defects on the timing of newborn hearing screening and diagnosis. *American Journal of Audiology*, 20(2), 132-139.
- Christensen, K. (2000). *Deaf plus: A multicultural perspective*. San Diego, CA: Dawn Sign Press.
- Cole, B., Pickard, K., & Stredler-Brown, A. (2019). Report on the use of telehealth in early intervention in Colorado: Strengths and challenges with telehealth as a service delivery. *International Journal of Telerehabilitation*, 11(1), 33-40.
- Cummins, J. (2000). *Language, power, and pedagogy. Bilingual children in the crossfire*. Cleveland, England: Multilingual Matters.
- DeConde Johnson, C., Beams, D., & Stredler-Brown, A. (2005). *Preschool/kindergarten placement checklist for children who are deaf and hard of hearing*. Available at handsandvoices.org/pdf/PlacementChecklistR6-06.pdf
- Division for Early Childhood. (2014). DEC recommended practices in early intervention/early childhood special education 2014. Retrieved from <http://www.dec-sped.org/recommendedpractices>.
- Gallegos, R., Halus, K., & Crace, J. (2016). Individualized family service plans and programming. In M. Sass-Lehrer (Ed.). *Early intervention for deaf and hard-of-hearing infants, toddlers, and their families: Interdisciplinary perspectives*. New York: Oxford University Press.

- Gárate, M., & Lenihan, S. (2016). Collaboration for communication, language, and cognitive development. In M. Sass-Lehrer (Ed.), *Early intervention for deaf and hard-of-hearing infants, toddlers, and their families*. New York: Oxford University Press.
- Grosjean, F. (2008). *Studying bilinguals*. New York: Oxford University Press.
- Hafer, J., Charlifue-Smith, R., & Rooke, C. (2008a). Hearing development and modifications. In T. Linder (Ed.), *Transdisciplinary play-based assessment* (2nd ed., pp. 279-312). Baltimore, MD: Brookes Publishing.
- Hafer, J., Charlifue-Smith, R., & Rooke, C. (2008b). Working with children with hearing impairments. In T. Linder (Ed.), *Transdisciplinary play-based intervention* (2nd ed., pp. 451-480). Baltimore, MD: Brookes Publishing.
- Hassanzadeh, S. (2012). Outcomes of cochlear implantation in deaf children of deaf parents: Comparative study. *The Journal of Laryngology & Ontology*, 126, 989-994.
- Hintermair, M. (2000). Hearing impairment, social networks, and coping: The need for families with hearing-impaired children to relate to other parents and to hearing-impaired adults. *American Annals of the Deaf*, 145, 41-51.
- Hintermair, M. (2006). Parental resources, parental stress, and socio-emotional development of deaf and hard-of-hearing children. *Journal of Deaf Studies*, 11(4), 493-513.
- Houston, T., & Stredler-Brown, A. (2012). A model of early intervention for children with hearing loss provided through telepractice. *Volta Review*, 112(3), 283-296.
- Individuals with Disabilities Education Act. (2004). *PL 108-446, 20 USC 1400 note. 118. Stat. 2647*. Available at www.ed.gov/policy.
- Individuals with Disabilities Education Act. (2006). *Section 1435(a)*. Available at <https://sites.ed.gov/idea/statute-chapter-33/subchapter-iii/1435/a>.
- Joint Committee on Infant Hearing. (2007). Year 2007 position statement: Principles and guidelines for Early Hearing Detection and Intervention programs. *American Academy of Pediatrics*, 120(4), 898-921.
- Joint Committee on Infant Hearing. (2013). Supplement to the JCIH 2007 position statement: Principles and guidelines for intervention after confirmation that a child is deaf or hard of hearing. *American Academy of Pediatrics*, 131, 1324-1349.
- Joint Committee on Infant Hearing. (2019). Year 2019 position statement: Principles and guidelines for early hearing detection and intervention programs. *The Journal of Early Hearing Detection and Intervention*, 4(2), 1-44.
- Jones, T., & Ewing, K. (2002). An analysis of teacher preparation in deaf education programs approved by the Council on Education of the Deaf. *American Annals of the Deaf*. 148(3), 267-271.
- Jones, T., & Jones, J. K. (2003). Educating young deaf children with multiple disabilities. In B. Bodner-Johnson & M. Sass-Lehrer (Eds.), *The young deaf or hard-of-hearing child: A family-centered approach to early education* (pp. 297-329). Baltimore, MD: Paul H. Brookes.
- Kennedy, C. R., McCann, D. C., Campbell, M. J., Kimm, L., & Thornton, R. (2005). Universal newborn screening for permanent childhood hearing impairment: An 8-year follow-up of a controlled trial. *Lancet*, 366(9486), 660-662.
- Kennedy, C. R., McCann, D. C., Campbell, M. J., Kimm, L., & Thornton, R., (2006). Language ability after early detection of permanent childhood hearing impairment. *New England Journal of Medicine*, 354(20), 2131-141.
- Leigh, I. (2009). *A lens on deaf identity*. New York: Oxford University Press.
- Marge, D. K., & Marge, M. (2005). *Beyond newborn hearing screening: Meeting the educational and healthcare needs of infants and young children with hearing loss in America*. Report of the National Consensus Conference on Effective Educational and Healthcare Interventions for Infants and Young Children with Hearing Loss, September 10-12, 2004. Syracuse, NY: Department of Physical Medicine and Rehabilitation, SUNY Upstate Medical University.
- Marschark, M. (2007). (2nd ed.). *Raising and educating a deaf child: A comprehensive guide to the choices, controversies, and decisions faced by parents and educators*. New York: Oxford University Press.

- Meadow-Orlans, K. P., Mertens, D. M., & Sass-Lehrer, M. A. (2003). *Parents and their deaf children: The early years*. Washington, DC: Gallaudet University Press.
- Meadow-Orlans, K. P., Smith-Gray, S., & Dyssegaard, B. (1995). Infants who are deaf or hard of hearing, with and without physical/cognitive disabilities. *American Annals of the Deaf*, 140, 279-286.
- Meadow-Orlans, K. P., Spencer, P., & Koester, L. (2004). *The world of deaf infants: A longitudinal study*. New York: Oxford University Press.
- Meisels, S. J., & Atkins-Burnett, S. (2000). The elements of early childhood assessment. In J. P. Shonkoff & S. J. Meisels (Eds.), *Handbook of early childhood intervention* (pp. 231-257). New York: Cambridge University Press.
- Moeller, M. P. (2000). Early intervention and language development in children who are deaf and hard of hearing. *Pediatrics*, 106(3), E43.
- Moeller, M. P. (2001). Intervention and outcomes for young children who are deaf and hard of hearing and their families. In E. Kutzer-White & D. Luterman (Eds.), *Early childhood deafness* (pp. 109-138). Baltimore, MD: York Press.
- Moeller, M. P. (2007). Case studies: Children. In R. L. Schow & M. A. Nerbonne (Eds.), *Introduction to audiologic rehabilitation* (5th ed., pp. 437-466). Boston, MA: Allyn & Bacon.
- Moeller, M. P., Carr, G., Seaver, L., Stredler-Brown, A., & Holzinger, D. (2013). Best practices in family-centered early intervention for children who are deaf or hard of hearing: An international consensus statement. *Journal of Deaf Studies and Deaf Education*, 18(4), 429-445.
- National Association for the Education of Young Children. (2009). *Developmentally appropriate practice in early childhood programs*. Washington, DC: National Association for the Education of Young Children.
- National Association for the Education of Young Children. (2009). *NAEYC standards for early childhood professional preparation. A position statement of the National Association for the Education of Young Children*. Available at <https://www.naeyc.org/resources/position-statements/standards-professional-preparation>.
- National Association for the Education of Young Children. (2020). *Developmentally appropriate practice in early childhood programs*. Available at https://www.naeyc.org/sites/default/files/globally-shared/downloads/PDFs/resources/position-statements/dap-statement_0.pdf.
- Nelson, H., Bougatsos, C., & Nygren, P. (2008). Universal newborn hearing screening: Systematic review to update the 2001 U.S. Preventive Services Task Force Recommendation. *Pediatrics*, 122, E266-E276.
- Nittrouer, S., & Burton, L. (2001). The role of early language experience in the development of speech perception and language processing abilities in children with hearing loss. *Volta Review*, 103, 5-37.
- Pittman, P., Sass-Lehrer, M., & Abrams, S. (2016). Sign language, sign systems, and other modalities. In M. P. Moeller, D. Ertmer, & C. Stoel-Gammon (Eds.), *Promoting language & literacy in children who are deaf or hard of hearing*. Baltimore: Brookes Publishing Co.
- Porter, A., Creed, P., Hood, M., & Ching, T. Y. C. (2018). Parent decision-making and deaf children: A systematic literature review. *The Journal of Deaf Studies and Deaf Education*, 23(4), 295-306.
- Preisler, G., Tvingstedt, A., & Ahlström, M. (2002). A psychosocial follow-up study of deaf preschool children using cochlear implants. *Child: Care, Health, and Development*, 28(5), 403-418.
- Proctor, R., Neimeyer, S., & Compton, M. V. (2005). Training needs of early intervention personnel working with infants and toddlers who are deaf or hard of hearing. *Volta Review*, 105(2), 113-128.
- Rice, G., & Lenihan, S. (2005). Early intervention in auditory/oral deaf education: Parent and professional perspectives. *Volta Review*, 105(1), 73-96.

- Rosenbaum, J. (2000). *Family functioning and child behavior: Impacts of communication in hearing families with a deaf child*. Unpublished doctoral dissertation, Gallaudet University, Washington, DC.
- Roush, J., Bess, F., Gravel, J., Harrison, M., Lenihan, S., & Marvelli, A. (2004). Preparation of personnel to serve children with hearing loss and their families: Current status and future needs. In *Spoken Language Options in the 21st Century: Predicting Future Trends in Deafness. 2004 Summit on Deafness Proceedings*, 18-21. Washington, DC: Alexander Graham Bell Association.
- Sandy, K. B. (2016). Early intervention: A multicultural perspective on deaf and hard-of-hearing multilingual learners. *American Annals of the Deaf*, 161(1), 33-40.
- Sass-Lehrer, M. (2011). Early intervention: Birth to Three. In M. Marschark & P. E. Spencer (Eds.), *Vol. 2. Deaf studies, language, and education* (pp. 63-81). New York: Oxford University Press.
- Sass-Lehrer, M., Porter, A., & Wu, C. (2016). Families: Partnerships in practice. In M. Sass-Lehrer (Ed.), *Deaf and hard-of-hearing infants, toddlers, and their families: Interdisciplinary perspectives*. New York: Oxford University Press.
- Schick, B., Marschark, M., & Spencer, P. (2006). *Advances in the sign language development of deaf children*. New York: Oxford University Press.
- Schwartz, S. (Ed.). (2007). *Choices in deafness: A parents' guide to communication options*. Bethesda, MD: Woodbine Press.
- Seaver, L. (2000). A question of automatic eligibility: Does my deaf/hh child need an IEP? Available at http://www.handsandvoices.org/articles/education/law/auto_elig.html.
- Shonkoff, J. P., & Meisels, S. J. (2000). Preface. In J. P. Shonkoff & S. J. Meisels (Eds.), *Handbook of early childhood intervention* (pp. xvii-xviii). New York: Cambridge University Press.
- Spencer, P., & Koester, L. (2016). *Nurturing language and learning: Development of deaf and hard-of-hearing infants and toddlers*.
- Spencer, P. E., & Marschark, M. (Eds.). (2006). *Advances in the spoken language development of deaf and hard-of-hearing children*. New York: Oxford University Press.
- Steinberg, A., Davila, J., Collazo, J., Loew, R., & Fischgrund, J. (1997). A little sign and a lot of love . . . Attitudes, perceptions, and beliefs of Hispanic families with deaf children. *Qualitative Health Research* 7(2), 202-222.
- Stredler-Brown, A. (2010). Communication choices and outcomes during the early years: An assessment and evidence-based approach. In M. Marschark & P. Spencer (Eds.), *Vol. 2, Deaf studies, language, and education* (pp. 292-315). New York: Oxford University Press.
- Stredler-Brown, A., & Arehart, K. (2000). Universal newborn hearing screening: Impact on early intervention services. In C. Yoshinaga & A. Sedey (Eds.), *Language, speech, and social-emotional development of children who are deaf or hard of hearing: The early years* [Monograph]. *Volta Review*, 100(5), 85-117.
- Stredler-Brown, A., Moeller, M. P., & Sass-Lehrer, M. (2009). *Competencies for early interventionists: Finding consensus*. Presentation at the Early Hearing Detection and Intervention Conference, Dallas, TX.
- Szarkowski, A., & Hutchinson, N. (2016). Developmental assessment. In M. Sass-Lehrer (Ed.), *Deaf and hard-of-hearing infants, toddlers, and their families: Interdisciplinary perspectives*. New York: Oxford University Press.
- Watkins, S., Pittman, P., & Walden, B. (1998). The deaf mentor experimental project for young children who are deaf and their families. *American Annals of the Deaf*, 143(1), 29-34.
- Wilbur, R. (2000). The use of ASL to support the development of English and literacy. *Journal of Deaf Studies and Deaf Education*, 5(1), 81-104.
- Wilkens, C., & Hehir, T. (2008). Deaf education and bridging social capital: A theoretical approach. *American Annals of the Deaf*, 153(3), 275-284.
- Yoshinaga-Itano, C. (2003). From screening to early identification and intervention: Discovering predictors to successful outcomes for children with significant hearing loss. *Journal of Deaf Studies and Deaf Education*, 8(1), 11-30.

- Yoshinaga-Itano, C., & Sedey, A. (Eds.). (2000). Language, speech, and social-emotional development of children who are deaf or hard of hearing: The early years [Monograph]. *Volta Review*, 100(5).
- Young, A., Carr, G., Hunt, R., McCracken, W., Skipp, A., & Tattersall, H. (2006). Informed choice and deaf children: Underpinning concepts and enduring challenges. *Journal of Deaf Studies and Deaf Education*, 11(3), 322-336.

