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Contemporary systems of early intervention are designed to provide a comprehensive and integrated array of resources and supports to families whose children are experiencing or are at risk for a wide range of delays in development during the early childhood period. The overarching objective of these systems is to help create an environment that fosters children's development as optimally as possible and to establish a trajectory that will ultimately enable them to carry out their goals within family, community, and cultural contexts. Ideally this would be accomplished in conjunction with necessary supports. As expected, such community-based early intervention systems are complex and diverse. Although often including preventive intervention programs for children at risk for delays, early intervention systems focus primarily on a heterogeneous group of children for whom a range of communication, motor, socio-emotional, sensory-perceptual, or adaptive concerns and behaviors are evident. But also central to early intervention systems are children experiencing substantial

delays in cognitive development, although these children demonstrate delays in many of the domains noted above as well. Children with a diagnosed condition that is highly likely to result in cognitive delays are also eligible to receive early intervention services. The vast majority of young children with substantial cognitive delays will meet criteria for intellectual disability by the time they reach school age, and it is these children and their families that are the focus of this chapter.

During the early childhood period in particular, promoting children's development is realized through systems consisting of a network of early intervention professionals who develop collaborative relationships with families to generate as optimal a developmentally supportive environment for the child as possible. Among other features, this family-centered approach is designed to assist families to become advocates for their child, to ensure that family priorities are respected and supported, and to provide sufficient information to enable families to understand the complex influences on and features of their child's development. Together, it is anticipated that families participating in this process will be able to confidently and competently adjust to their child's ever-changing characteristics and develop relationships that will support their child's development as optimally as possible over time (Bailey Jr. et al., 2006; Bruder, 2010; Dunst, 2017; Guralnick, 2011, 2019a).

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Principles

Centering early intervention on families constitutes an important principle for the field that has achieved international consensus (Guralnick, 2008). A corollary to that principle is the role developmental science plays in informing specific family-centered early intervention practices. For example, abundant evidence reveals that early intervention's focus on supporting parent-child relationships in numerous contexts, particularly relationships that constitute a discourse framework, an instructional partnership, and socioemotional connectedness, is a fundamental developmental mechanism that promotes a child's social and cognitive competence (Guralnick, 2011, 2019a). Other influential developmental processes consist of child experiences that are orchestrated by families. These include participation in community activities, diverse social networks, child care, preschool, and individual or group therapies, all of which constitute developmental pathways of considerable importance with respect to children's emerging competencies (Bruder, 2010; Dunst, Hamby, Trivette, Raab, & Bruder, 2000). Of course, family efforts to ensure a child's health and safety constitute mechanisms that can produce widespread effects on child development as well. In the context of developmental science, guidance to early intervention systems derived from these mechanisms of influence is provided with respect to assessment, intervention goals, corresponding intervention strategies, and their implementation and evaluation. In so doing comprehensive and integrated early intervention systems take advantage of the unusual levels of plasticity and sensitivity to environmental input characteristic of children during this developmental period (Bick & Nelson, 2017; Fox, Levitt, & Nelson III, 2010).

Early intervention principles that have also achieved international consensus address structural issues and values that can guide the system itself as well as related practices. Structural principles especially relevant include designing systems to ensure that early detection, surveillance, monitoring, and transition processes are in place; that evaluation procedures are embedded in all

critical intervention goals, objectives, and activities; that the system can accommodate and attend to the complex and highly individualized needs of children and families; and that the system contains mechanisms for leadership capable of carrying out the overarching early intervention vision. Essential leadership functions must include the ability to achieve integration and coordination among components and service sectors at all levels to enable an early intervention system to function effectively. Principles related to values focus on the importance of providing intervention within a framework that maximizes full inclusion of children and families in community activities and programs and ensures that a meaningful partnership with families is established that includes an understanding of cultural differences and a recognition of their developmental implications and the importance of recommending intervention practices and strategies that have a firm evidence base embedded in a conceptually sound framework (Guralnick, 2008).

Vulnerable Children

These principles are incorporated to varying degrees into systems of early intervention in many countries throughout the world. In the United States, the systems of services for vulnerable children and their families are organized in the context of the Individuals with Disabilities Education Improvement Act (IDEA, 2004). This legislation, carried out through Part B of IDEA (Sect. 619), mandates services for preschool-age children in each state emphasizing educational interventions and is the responsibility of local school districts. In contrast, services for infants and toddlers (Part C of IDEA) center more directly on enhancing the capacity of families and providing individualized help-giving practices to meet children's needs (Bruder, 2005; Dunst, 2017; Hebbler, Greer, & Hutton, 2011). This program is administered by state designated agencies, and, although Part C programs are optional, all states continue to participate.

Eligibility to participate in the early intervention system for vulnerable children established

by IDEA for Part C consists of three general categories. As suggested earlier, the first focuses on children demonstrating a substantial delay in one or more fundamental developmental domains (including cognitive development). Establishing the precise extent of the delay or delays required for eligibility varies from state-to-state and generally involves formal assessments, clinical opinion, and parental input. As expected, state eligibility definitions and assessment strategies have a major impact on the number and characteristics of the population that is served (Elbaum & Celimi-Aksoy, 2017; Rosenberg, Ellison, Fast, Robinson, & Lazar, 2013). Second, children are eligible if they have an established condition which indicates a high probability of exhibiting significant developmental delays during the early childhood period. This allows early intervention to commence prior to the appearance of those delays. Diagnosed conditions such as Down syndrome or fragile X syndrome are primary examples of children eligible in this category. Finally, although optional, states allow children to be eligible on the basis of biological risk factors. Extreme preterm birth, problems occurring during the perinatal period, or infectious diseases are among the most prominent biological risk factors that allow children with these risks to receive what is best conceptualized as preventive intervention; as they are provided services prior to the appearance of substantial delays should they emerge (see Guralnick, 2012). Children at risk due primarily to environmental factors, especially poverty and related concerns (see Evans & Kim, 2013), may also be included, but only a few states utilize this option as part of their eligibility criteria. Of course, many children in other delay categories are also at high risk due to environmental factors (Scarborough et al., 2004). Indeed, categories of environmental risk and delay overlap extensively (Halfon, Houtrow, Larson, & Newacheck, 2012). For children reaching preschool age (3–5 years), eligibility to participate in Part B can continue to be based on criteria related to developmental delay. Later-identified children, in particular, can also qualify for services by meeting categorical criteria including intellectual disability. Accordingly, early intervention systems, even those with relatively nar-

row eligibility requirements, must be prepared to address the complex and heterogeneous needs of children and families.

In this chapter, we focus on young children with substantial delays in cognitive development. For the most part, comparable delays in other developmental domains will also be apparent producing an overall pattern of general developmental delay despite characteristic unevenness of development (Shapiro & Batshaw, 2013; Shevell, Majnemer, Rosenbaum, & Abrahamowicz, 2001). Autism spectrum disorder, sensory and motor disorders, and especially clinically significant behavior problems (see Cheng, Palta, Kotelchuck, Poehlmann, & Witt, 2014; Crnic, Hoffman, Gaze, & Edelbrock, 2004) are among the conditions associated with substantial cognitive delay but will not be addressed directly in this chapter. We fully recognize the dynamic and changing nature of early development and corresponding difficulties achieving valid assessments and classifications specific to cognitive development at such young ages (Lobo, Paul, Mackley, Maher, & Galloway, 2014; Yang, Jong, Hsu, & Lung, 2011). Nevertheless, longitudinal studies indicate that, particularly during the preschool period, cognitive delays are highly likely to continue during the school years, qualifying children for services that meet criteria for intellectual disability (e.g., Keogh, Bernheimer, & Guthrie, 1997; Mangin, Horwood, & Woodward, 2017).

Information is provided in the next section with respect to the adjustments required to address the challenges encountered by families in their efforts to promote the development of their young child with a cognitive delay. As will be seen, challenges to development-promoting family patterns of interaction are considerable, and adjustments that are needed constitute an important framework to guide the design, implementation, and evaluation of early intervention systems.

Family Challenges and Adaptations

The extraordinary abilities of families with a child with a cognitive delay to modify their daily routines and to organize their home and community activities to accommodate to the developmental

and behavioral patterns of their child, and to do so in a manner that supports their child's development, have been well documented (e.g., Bernheimer & Weisner, 2007). Many families, especially those with sufficient resources in terms of their own personal characteristics (e.g., mental and physical health, problem-solving abilities, coping style) and material resources (financial, social support network), have been able to display well-organized and integrated levels of sensitive responsiveness, affective warmth, and engagement in numerous situations with their child similar to that which occurs when parents interact with children without cognitive delays. For example, in the domain of parent-child interactions, compared to matched groups of typically developing children, studies have shown that parents of children with delays are able to appropriately scaffold and support their child in instructional and social play contexts, closely attune and adjust interaction strategies to children's changing ability levels over time, refrain from being highly directive, and find ways to support the autonomy of their child (de Falco, Venuti, Esposito, & Bornstein, 2009; Gilmore, Cuskelly, Jobling, & Hayes, 2009; Guralnick, Neville, Hammond, & Connor, 2008; Sterling, Barnum, Skinner, Warren, & Fleming, 2012; Venuti, de Falco, Esposito, & Bornstein, 2009). As in the case for children developing typically as well as those with other delays or risk factors, these and other adaptations of families are associated with advances in children's development (Guralnick, 2019a). Consistent evidence supports associations for these parent-child interactions with respect to cognition, social development, and various aspects of language and communication for heterogeneous groups of children with delays as well as those with specific etiologies (Feniger-Schaal & Joels, 2018; Fenning & Baker, 2012; Green, Caplan, & Baker, 2014; Hauser-Cram et al., 2001; Trivette, 2003; Warren & Brady, 2007; Warren, Brady, Sterling, Fleming, & Marquis, 2010; Zampini, Salvi, & D'Odorico, 2015). Moreover, these interaction patterns constitute the building blocks of parent-child and other relationships that are certain to support children's development throughout the early childhood period and beyond.

Child-Specific Challenges

The resilience of families of children with cognitive delays noted above can be appreciated further upon a close examination of the challenges posed to a family's ability to adjust to children's characteristics. To varying degrees, constraints imposed on children's developmental resources (cognitive, language, motor, social-emotional, and sensory-perceptual) and the processes that organize those resources (executive function, metacognition, social cognition, motivation, emotion regulation) result in a complex profile of social and cognitive competencies displayed in everyday goal-oriented activities (Guralnick, 2019a). General problems affecting a range of competencies, for example, with respect to seeking and organizing information about the physical and social world, or communicating needs and interests in an unambiguous manner, are common concerns (see Spiker, Boyce, & Boyce, 2002). Information obtained from cross-sectional and longitudinal studies of various etiologic-specific subgroups highlights many of the child characteristics that families must adjust to, find ways to organize the environment in a supportive and stimulating manner, and develop relationships that best facilitate their child's development. For example, for children with Williams syndrome, eye movement planning problems can create developmental consequences that adversely affect independent visual exploration and various aspects of attention (Brown et al., 2003; Landau, 2012). Similarly, developmental patterns affecting both developmental resources and organizational processes associated with children with Down syndrome have been well characterized and include special concerns with respect to executive function, task persistence and motivation, expressive language, and social cognition, among other developmental areas (e.g., Adamson, Bakeman, Deckner, & Romski, 2009; Cebula, Moore, & Wishart, 2010; Chapman & Bird, 2012; Daunhauer et al., 2014; Gilmore et al., 2009; Wishart, 1996). Constraints on competencies common to children with fragile X syndrome pose numerous problems for families due to their child's difficulties with respect to

emotion regulation, social anxiety, working memory, gaze aversion, and effortful control; and many of these competencies are reflected in assessments of children's adaptive behavior (Abbeduto, Brady, & Kover, 2007; Kover, McCary, Ingram, Hatton, & Roberts, 2015; Roberts, Hatton, & Bailey, 2001; Robinson, Klusek, Poe, Hatton, & Roberts, 2018). Despite the higher probability that most of these child characteristics will be evident during the early childhood period, it is certainly the case that considerable variability (including minimal difficulties) in the developmental patterns of etiologic-specific and heterogeneous subgroups exists as a consequence of biological and environmental factors. Nevertheless, despite this variability in children's characteristics as well as a family's resources and their corresponding ability to adapt, considerable challenges to needed adjustments remain for many families. This circumstance may well require intensive and extensive involvement of an early intervention team.

Identifying Subgroups and Stressors

These constraints and others operate in the context of many child strengths, all contributing to the varying levels of children's social and cognitive competence evident at various points throughout the early childhood period and beyond (Burack, Russo, Flores, Iarocci, & Zigler, 2012). As a consequence, challenges to families to make adjustments to promote their child's development will differ in nature, scope, intensity, and timing as a result of current and changing child characteristics. Moreover, family resilience to meet these challenges varies as well, often linked to the availability of family resources (e.g., financial stability, social support, coping skills, or mental health status). These family resources are discussed later in a larger context. Taken together, as described below, subgroups of families emerge at various points in time in which challenges to adjust to specific child characteristics now constitute stressors that adversely affect the quality of various components of family patterns of interaction, particularly sensitive respon-

siveness. Similarly, child characteristics can create substantial challenges to a family's resources, with the resulting stressors also exerting an adverse effect on a family's pattern of interaction. The end result is a non-optimal environment that can potentially further constrain a child's development (Guralnick, 2001a, 2017a, 2017b).

Subgroups of families of children with cognitive delays susceptible to child-specific stressors can be identified through careful screening and assessment. As suggested, the consequences of these child-specific stressors take many forms. These include adverse effects on family patterns of interaction such as a lower quality of mother-child interactions, especially behaviors that are more negative and interfering, and providing language input not properly adjusted to children's ability levels (Blacher, Baker, & Kaladjian, 2013; Hauser-Cram et al., 2001; Thiemann-Bourque, Warren, Brady, Gilkerson, & Richards, 2014). More generally, these stressors can create circumstances that restrict relationships from forming between parents and children by adversely affecting processes related to establishing a framework in which extensive discourse can occur, by constraining the ability of children and parents to engage in mutual problem-solving actions (i.e., to form an instructional partnership), and by limiting activities that support the development of connectedness at the socioemotional level. Among other concerns, the limits imposed on socioemotional connectedness can affect the formation of a secure attachment and a cooperative pattern of relating (see Feniger-Schaal & Joels, 2018; Feniger-Schaal, Oppenheim, Koren-Karie, & Yirmiya, 2012). Addressing these relationship difficulties between parents and children (transactional processes) that result from a child's specific stressors that may emerge constitutes a critical task for the early intervention team.

Admittedly, it is not easy to predict or even identify those subgroups of families who are likely to have extensive difficulties successfully adjusting to their child's characteristics. Certain factors such as child behavior problems are predictive, but uncertainty remains, nevertheless,

posing problems for an early intervention system from clinical, educational, and resource perspectives. Moreover, family resilience as reflected in the components of a family's resources also operates at a systems level, and it is often difficult to determine how the various components of a family's resources interact and work with one another in different situations to affect parent-child interactions as well as other family patterns of interaction. Consequently, a related but critical task for early intervention systems is to develop a process that is capable of identifying families most in need of support and then enabling them to access a family-centered intervention program that recognizes the interrelationships among children's characteristics, the various components of family patterns of interaction, and the resources available to families to support those interaction patterns. Ideally, such programs would operate in accord with the structural and values principles discussed earlier. Systems would also focus on the importance of relationships at all levels, ensure continuity of the program over time, and contain resources sufficient to comprehensively address the many stressors that may emerge capable of limiting optimal child development.

Community Involvement

In addition to child-specific effects on parent-child transactions noted above, it is also important to consider those community-based issues that often challenge a family's ability to maximize their child's development. Identifying high-quality and inclusive child care and school programs, assisting their child to form meaningful peer networks, finding a medical home with professionals knowledgeable and experienced in the care of children with cognitive delays, and engaging service providers with appropriate credentials and skills are among the community activities that parents must orchestrate to support their child's development and well-being (Dunst & Trivette, 2009). Combined with frequent negative societal attitudes and limited community resources, it is quite understandable how child characteristics can produce stressors restricting

these development-enhancing community activities (Guralnick, 2019a).

Of considerable importance is the ability of families to maximize full participation in all community activities. This is especially the case for inclusive child care and preschool programs, as consistent evidence of developmental benefits has been found for those children participating in quality inclusive settings (Guralnick & Bruder, 2016; Justice, Logan, Lin, & Kaderavek, 2014). Once again, these issues highlight the importance of adopting a broader systems perspective in the context of early intervention and recognizing the importance of a comprehensive approach.

Family Resources

It is also the case that constant efforts to adapt to changing and challenging child characteristics create unusual problems that can affect many of the components of a family's resources throughout the early childhood period (Gallimore, Weisner, Bernheimer, Guthrie, & Nihira, 1993). For example, even at early stages, the emotional features of the diagnostic process can lead to many unresolved issues for parents which can adversely influence the quality of parent-child interactions over the long term (Barnett et al., 2006). Stress, often reaching clinical cutoff points, experienced by parents of children with delays directly related to child characteristics, is common and can be traced to child temperament, variations in mood, and especially behavior problems, with the latter elevating parent depressive symptoms (Gerstein, Crnic, Blacher, & Baker, 2009; Most, Fidler, Booth-LaForce, & Kelly, 2006; Neece, Green, & Baker, 2012; Woodman, Mawdsley, & Hauser-Cram, 2015; Zeedyk & Blacher, 2017). Periodic episodes of parent distress, including depression, can not only adversely affect parent-child interactions (Zeedyk & Blacher, 2017) but overall life satisfaction as well (see Nes et al., 2014).

Of importance, subgroup identification with respect to a family's resources for the purpose of early intervention remains critical, as most families demonstrate a remarkable degree of

resilience. Indeed, ongoing adaptations rely extensively upon the personal characteristics of families, especially a positive coping style and the ability to engage their social support network (Minnes, Perry, & Weiss, 2015; Peer & Hillman, 2014). Social support can influence many components of a family's resources including parent mental health and the extent to which families feel competent and confident in their ability to parent a young child with a cognitive delay (Bailey, Nelson, Hebbeler, & Spiker, 2007; Guralnick, Hammond, Neville, & Connor, 2008; Kersh, Hedvat, Hauser-Cram, & Warfield, 2006).

Accordingly, a major task for early intervention systems with respect to supporting family adaptations is to accurately and sensitively monitor the various components of a family's resources, especially social support networks and levels of parent distress. The potential for these resources to be depleted at various points in time is considerable, especially for the many families with a child with a delay who also have extensive pre-existing environmental risk factors, particularly limited financial resources (Olsson & Hwang, 2008). These initial vulnerabilities in the form of higher environmental risk create a circumstance which can be exacerbated further such as by additional expenses related to child care responsibilities or lost income as a result of employment changes (Emerson & Hatton, 2009; Emerson, Hatton, Llewellyn, Blacher, & Graham, 2006). In view of the influence of these family resources on the quality of parent-child transactions, the extent of the child's involvement and participation in home, community, and educational activities as organized by parents, and on a child's health and safety, it is evident that the quality of the components of family resources has important consequences for a child's development (Guralnick, 2011, 2017a, 2017b).

As discussed more fully later, in view of the challenges and stressors to a family's resources and to a family's pattern of interacting with their child, effective systems of early intervention must be designed not only to address relationships but also to be organized in a manner that is comprehensive with an emphasis on continuity of services across the early childhood period. Taken

together, the ability of the system to screen and then assess components relevant to children's characteristics, to family patterns of interaction that are linked to children's development, and to family resources that support those family interaction patterns are core elements of effective early intervention systems.

Systems and Effectiveness

Community-based systems of early intervention in the United States and many other countries have indeed been organized within a framework that reflects both a recognition of the diverse and complex needs of vulnerable children and the challenges facing families discussed above. Many of these community-based systems have also adopted the consensus principles governing the organization and operation of the system. This emergence and commitment to community-based early intervention systems as established by and modified through legislation and policy initiatives also reflect the expectation that both children and families will benefit substantially from a sophisticated array of well-organized and evidence-based interventions. Indeed, results from decades of intervention science involving diverse groups of families and children provided sufficient confidence to generate the political will to establish community-based early intervention systems and to continue to expand and refine the components of those systems. The relevant intervention science was summarized in 1997, during the period of rapid growth of early intervention programs just prior to and following the passage of P.L. 99-457 (Guralnick, 1997). This "first-generation" research included investigations involving children with cognitive delays and their families, demonstrating the ability of early intervention programs to reduce the decline in development that typically occurs over time in the absence of intervention and generate many other benefits (Guralnick, 2005, 2017a; Spiker & Hopmann, 1997). First-generation research also provided the foundation for subsequent "second-generation" studies that were designed to determine associations between well-defined family

and child characteristics, emerging and innovative program features, and outcomes of relevance for both children and families. Findings from studies designed in this manner could form a database specifically organized to advance practice applications, with the potential for widespread implementation in community practice.

In the following section of this chapter, a brief history and description of the organization and practices of the early intervention system in the United States within the framework of the Individuals with Disabilities Education Act are discussed. This will be followed by a description of selected recent second-generation research designed to refine and enhance early intervention programs for children with cognitive delays and their families. In the final section, future directions intended to improve early intervention program quality and program effectiveness are discussed within a systems framework that is applicable to all young vulnerable children and their families.

Early Intervention: History, Organization, and Practices

In the United States, children under the age of 5 were not included in the federal mandate for special education under the Education of the Handicapped Act (EHA), passed in 1975 (“Education for All Handicapped Children Act of 1975, P.L. 94-142, 1977”). This law mandated that all school-age children with disabilities receive a free appropriate public education in the least restrictive environment under the direction of an Individualized Education Plan (IEP). States did receive incentive funds to enroll preschool-age children in public school programs and to provide training to preschool teachers under this Act. It was not until 1986, however, that Congress added several significant components to the EHA that specifically addressed the needs of eligible children under the age of 5. First, services for young children (ages 3–5) eligible for special education were mandated under the provisions of free, appropriate public education (Part B of P.L. 94–142). Second, these amendments created

incentives for states to develop an early intervention program for children ages birth to three. This birth to three program was designed to establish a statewide system of interagency, multidisciplinary services available to eligible infants and toddlers and their families (as defined by each state through an agency also determined by each state). The name of the EHA was changed to the Individuals with Disabilities Education Act (IDEA) by the EHA amendments of 1991 (P.L. 102–119), and services for eligible infants and toddlers were made available in all states through IDEA amendments in 1997 (PL 105–17) under Part C of IDEA. This allowed states to receive funding for this age group if they implemented all assurances required under the subtitle. Part B, Section 619, addressed the preschool programmatic requirements of IDEA. Further, the IDEA amendments of 2004 required that services for infants and toddlers as well as preschool children be based on scientifically sound research findings, research that involves the application of rigorous, systematic, and objective procedures to obtain reliable and valid knowledge relevant to educational activities and programs. An added emphasis on the transition process between Part C and Part B (619) was also included in these amendments.

IDEA provides the guidance and structure for statewide systems of early childhood intervention for eligible infants, toddlers, and preschoolers and their families. While these two programs differ as a function of the age of the child and have different statutory requirements, both focus on structural and values components of early intervention to support children’s development and family well-being. Some key elements of these two programs are described next.

Family Participation

Both Part C and Part B (619) address the civil rights of children and their parents through a system of procedural safeguards that are in place throughout the early intervention process. Part C, however, strengthens the role of the family by identifying it as a target of early intervention

services. The preamble of the statute explicitly states a need for early intervention to enhance the capacity of families to meet the special needs of their infants and toddlers with disabilities. As a consequence, early intervention services for infants and toddlers are delivered in accordance with an Individual Family Service Plan (IFSP). Additionally, the IFSP outcomes must be based on a multidisciplinary assessment of the unique strengths and needs of the infant or toddler and the identification of services appropriate to meet such needs. Also required is a family-directed assessment of the resources, priorities, and concerns of the family and the identification of the supports and services necessary to enhance the family's capacity to meet the developmental needs of their infant or toddler.

Part B of IDEA also addresses parents in the preamble of the preschool and school age provisions of the statute by stating that IDEA Part B includes the protection of child and parent rights through the special education process and the assurance that teachers and parents have the necessary tools to improve educational results for children. Though not as explicit as Part C, the law does allow services that target parents under the related service of parent counseling and training. Likewise, parents may participate in the eligibility assessment for their child by providing information about their child in the context of assessment tools and strategies used to gather relevant functional, developmental, and educational information to determine whether the child has a delay or disability and to develop the content of a child's Individualized Education Plan (IEP).

Screening and Identification for Further Assessment

Both Part C and Part B (619) require a Child Find system that includes public awareness of the special needs of infants, toddlers, and preschoolers who may qualify for services under IDEA and the training of primary referral sources (e.g., medical and community program personnel) in screening and referral procedures. Specifically, IDEA requires that states ensure that all children

with delays or disabilities are identified, located, and evaluated, and referral sources must be kept informed about early intervention supports, service models, and data on effectiveness.

There are multiple models for developmental and medical screening programs available (Gilliam, Meisels, & Mayes, 2005; McConnell & Rahn, 2016; McLean, Wolery, & Bailey, 2003; Yockelson, Linder, & Asman, 2015). One method used in many states is a developmental screening questionnaire completed by a parent or healthcare provider (Bricker, Macy, Squires, & Marks, 2013). A questionnaire serves several functions, ranging from identifying children who may not be meeting developmental milestones (and therefore need additional evaluation) to providing child development information and education to parents.

Assessment

An infant, toddler, or preschooler who is identified as needing more documentation to qualify for IDEA services undergoes a multidisciplinary assessment to generate a profile of their unique strengths and needs. In Part C the assessment is to be used for eligibility purposes and to identify services appropriate to meet an infant's or toddler's needs. The law states that the assessment must be a timely, comprehensive, and multidisciplinary evaluation of the development of each infant or toddler. To qualify for early intervention services, most children will require an assessment involving various disciplines. This assessment can serve a diagnostic function and create a valuable portrayal of the child's needs from medical, educational, and social systems perspectives. Part B (619) requires that assessments for children over 3 do not discriminate on race or have a cultural basis, are administered in the child's primary language, are used for purposes for which the assessments or measures are valid and reliable, and are administered by trained and knowledgeable personnel. As with screening, assessment tools should be standardized and result in an accurate representation of a child's skills (Gilliam et al., 2005; McConnell & Rahn, 2016; McLean et al., 2003).

After a child is determined to be eligible for Part C or Part B (619) services, further assessment may be carried out in conjunction with intervention (IFSP or IEP) planning. Assessment protocols are intended to focus on a child's application of their social and cognitive competencies in the context of home, community, and classroom-based activities and routines. It is important that these assessments are linked to intervention (Bagnato, McLean, Macy, & Neisworth, 2011), include the family (Macy, Thorndike-Christ, & Lin, 2010), and focus on the child's ability to participate in and use skills related to their adaptive functioning (communicating, walking, self-care, etc.) (Campbell & Sawyer, 2007; Fleming, Sawyer, & Campbell, 2011). Additionally, assessments for eligibility, program planning, and evaluation should share the same conceptual perspective and be linked for a seamless process.

Curriculum

Curricula for infants, toddlers, and preschoolers under IDEA are described as part of the IFSP or IEP process. As proposed by Dunst (1981), a curriculum consists of a series of carefully planned and designed activities, events, and experiences intentionally organized and implemented to reach specified objectives and goals and align with a particular philosophical and theoretical position. Both IFSPs and IEPs document a child's developmental and learning status, outline the day-to-day provision of services and supports designed to promote their development, identify those who will work with the family to deliver the services and interventions, and specify the evaluation procedures to monitor the effectiveness of the program. The IFSP, in particular, requires the inclusion of measurable outcomes expected to be achieved for the infant or toddler and the family, the assignment of a service coordinator to aid the family, and a formal transition process to preschool services when the eligible child turns 3 years of age.

The curricular content used in early childhood intervention derives primarily from developmental

theory and the developmental trajectories common to most children. Most curricula in use in Part C and Part B (619) emphasize the unique patterns of individual children: their age, their strengths, their needs, their family preferences, and their outcomes and goals as developed by the intervention team, including the family. For children with cognitive delays in particular, a focus has been on the enhancement and facilitation of a child's competencies needed to participate in everyday activities and routines (Campbell & Sawyer, 2007; Dunst et al., 2000, 2001; McWilliam, 2010a, 2016; Woods, Kashinath, & Goldstein, 2004). This focus emphasizes accommodations, modifications, and adaptations needed by young children to learn within the context of routines and activities in the home, community, and classroom (Bruder, 2010). Examples of approaches, curricula, or combined strategies include embedded instruction, routine-based intervention, milieu teaching, naturalistic teaching, and activity-based instruction (see Snyder, Hemmeter, McLean, Sandall, & McLaughlin, 2013; Snyder, Rakap, Hemmeter, & McLaughlin, 2015). Of note, many of these interventions have their roots in curriculum development using incidental teaching (Hart & Risley, 1975) and teaching matrixes for children with cognitive delays (Williams & Gotts, 1977). These interventions were designed to be functional and efficient and to lead to generalized learning.

Many of the instructional methods that guide the orchestration of such development-enhancing learning opportunities across routines and activities continue to be based on applied behavioral analysis techniques. For almost 50 years, this instructional paradigm has been utilized in early childhood intervention (see Wolery, 2000) and has evolved from the isolated delivery of interventions to include a variety of expanded and naturalistic antecedents and logical consequences (e.g., environmental arrangements, group settings). Expanding and building new skills based on a child's demonstrated abilities or assets seem particularly effective (Raab, Dunst, & Hamby, 2016, 2017).

A more recent approach to the identification of instructional targets for young children with

delays or disabilities is response to intervention or multi-tiered systems of instruction (Buisse & Peisner-Feinberg, 2013; Carta, McElhattan, & Guerrero, 2016). The features of this framework include ongoing assessment to provide information about how a child is responding to a general curriculum that is provided to all children (i.e., in inclusive settings). Interventions are then provided in progressive levels of intensity depending on the child's progress in the curriculum and instructional targets.

Services

Part C is designed to provide a coordinated array of services, all designed in a manner intended to center on families. These services include special instruction, coordinated family training, counseling, home visits, speech-language pathology and audiology, sign language and cued language, occupational therapy, physical therapy, psychological services, medical services only for diagnostic or evaluation purposes, health services necessary to enable the infant or toddler to benefit from the other early intervention services, social work services, vision services, assistive technology devices and assistive technology services, and transportation and related costs that are necessary to enable an infant or toddler and the infant's or toddler's family to receive other services, and service coordination. In contrast, Part B (619) provides special education and related services with instruction provided in the classroom and the home as well as in hospitals and institutions if needed. Services are also provided in other settings such as community early childhood or child care programs. A wide range of related services similar to Part C is also provided in these contexts.

Inclusion

IDEA also requires that services be delivered in environments with typical children. Preschool-age children receiving Part B (619) services must receive services in the least restrictive educa-

tional environment (LRE) to the maximum extent possible. LRE further mandates that special classes, separate schooling, or other removal of children with disabilities from the regular educational environment could occur only if the severity of their disability prohibited education in regular classes, when using supplementary aids and services. This principle of inclusion has not been easy to accomplish in practice, although IDEA data suggest that as many as two-thirds of eligible children participate in regular preschool settings for some amount of time (US Department of Education, 2017). As most of these children receive Part B (619) services in preschools, the challenge has been to combine well-integrated service delivery within typically occurring classroom routines with the general population of children. Inclusive practices are often constrained by schools where policy is to provide related services by multiple personnel from different disciplines, many of whom provide their services in one-to-one sessions outside of the classroom. While a team approach is still regarded as the preferred method to provide Part B (619) services, time constraints and high caseloads for related service personnel impact the time available to design and implement integrated service delivery for individual children and classrooms (Guralnick & Bruder, 2016).

Early intervention services under Part C of IDEA are to be delivered in natural environments in accordance with the IFSP. Natural environments include the home or places in which same age children who do not have disabilities participate (e.g., child care, community programs). In 2015, nearly 90 percent of infants and toddlers served under Part C received early intervention services primarily in the home (US Department of Education, 2017). Less frequently used were community-based settings as the primary early intervention environment for those served under Part C (Bruder, 2001; Bruder & Dunst, 2011; Guralnick & Bruder, 2016). It has been reported that home visits are delivered once a week on average, and data collected on the content and processes of early intervention home visits suggests that the majority of time is spent by the service provider teaching the infant or toddler,

with less time collaborating and working with caregivers (Campbell & Sawyer, 2007; Kemp & Turnbull, 2014; Peterson, Luze, Eshbaugh, Jeon, & Ross Kantz, 2007).

A primary provider service model is common in these circumstances (Vail, Lieberman-Betz, & McCorkle, 2018). In this approach, one home visitor delivers services to families using a coaching method (Shelden & Rush, 2010). This service delivery model is not new and has its roots in the transdisciplinary model of teaming in early intervention which was designed to minimize the number of adults who visited a family and child while maximizing the efficiency of intervention (United Cerebral Palsy National Collaborative Infant Project, 1976). A central feature of the transdisciplinary model is the availability of a full complement of team members representing different disciplines and services and who meet and consult with the home visitor (usually representing the discipline and service most relevant to the needs and priorities of the child and family) to provide input on the delivery and integration of interventions (Bruder & Bologna, 1993). It is clearly essential that service providers understand and support their role in connection with the other service providers and to the family (King et al., 2009).

Guidance and reviews of successful practices for inclusive early childhood service delivery have been published over the years (see Barton & Smith, 2015; Bruder, 1993; Guralnick, 1978, 2001b; Odom, Buysse, & Soukakou, 2011; Sandall, Schwartz, & Gauvreau, 2016; Winton, 2016). Most provide examples of adaptations, supports, and modifications to facilitate a child's inclusion and learning within a general early childhood classroom in the context of activities and routines incorporating adapted materials and instructional practices (Campbell, Milbourne, & Kennedy, 2012). Universal design for learning (UDL) is also a framework being applied to modify and adapt classroom activities for young children with delays and disabilities (Butera, Horn, & Palmer, 2016). UDL has most often been used with older children, though the concepts of providing multiple means of representation of materials and learning activities, multiple means of

engagement for children to be involved in learning or teaching routines, and multiple forms of expression for children with varying communication modes and abilities can enhance the development of all young children attending an inclusive classroom. Lastly, assistive technology devices and services may be especially valuable for children with substantial cognitive delays (see Campbell, Milbourne, Dugan, & Wilcox, 2006). These range from low-tech materials such as special seating or utensils to enhance a child's participation in everyday routines and activities to the use of high-tech communication devices with voice synthesizers to enable a child to communicate in the home, community, and classroom environments.

Summary

Taken together it is evident that, in the United States, the importance and benefits of a system of early intervention has been recognized through the implementation of IDEA. The main components of this system have been outlined above, all intended to enhance the development of children with cognitive and other delays and to support families. As is the case for any complex system, it must continue to develop by incorporating new information and adapting and refining its methods, conceptual framework, and structural features to achieve further progress. Recent studies advancing our knowledge base in critical areas focusing on children with cognitive delays are discussed next. In the final section of this chapter, some general suggestions for future directions are presented.

Current Research Directions

With early intervention systems firmly in place in the United States and elsewhere, smaller scale or focused studies involving children with cognitive delays have been conducted with the expectation that advances that result can be incorporated into the existing system of early intervention practices. For example, some of the more recent early inter-

vention research studies focusing on children with cognitive delays have continued to organize intervention activities within a structured, behavioral framework. These techniques, primarily based on applied behavior analysis interventions that have demonstrated their effectiveness in increasing the cognitive development of children with autism spectrum disorder (Eldevik et al., 2010), have been drawn upon to provide comprehensive programs for children with cognitive delays. Preliminary findings suggest that increases in cognitive development occur for a heterogeneous group of children with delays receiving behavioral intervention while attending inclusive preschool programs (e.g., Eldevik, Jahr, Eikeseth, Hastings, & Hughes, 2010). These techniques have also been successfully applied in more specific developmental areas such as motor behaviors, verbal imitation, and requesting strategies for children with delays (Bauer & Jones, 2014, 2015). Clearly, as demonstrated in these and previous studies, structure to promote specific child skills at various points in time can be of considerable benefit. Further work to determine how these skills are integrated and utilized over time in the service of children's goals will provide valuable information for subsequent intervention approaches especially if organized within a broader developmental context.

Parent-Child Interactions

Indeed, given the numerous challenges posed by children with cognitive delays to a family's pattern of interactions throughout the early childhood period discussed earlier, it may be best for early intervention programs to adopt a long-term developmental perspective. This can be accomplished by recognizing at the earliest possible stages the components and significance of a family's pattern of interactions as the primary experiential pathways of influence on a child's development (Guralnick, 2011, 2019a). To be sure, numerous intervention strategies, including focused and structured approaches, can be of value in this regard, many of which can be embedded within a more comprehensive framework that

addresses developmental pathways associated with children's social and cognitive competence. Critical to this more developmentally oriented comprehensive approach are strategies that promote relationship formation between parents and children. This often occurs in the context of a discourse framework, an instructional partnership, or socioemotional connectedness discussed earlier, thereby providing the longer-term developmental context essential for establishing high-quality parent-child transactions. Efforts to support these types of relationships can be readily incorporated into well-established family routines (see McWilliam, 2010b).

The building blocks of parent-child relationships noted earlier in this chapter consist of sensitive responsiveness, affective warmth, and engagement. Sensitive responsiveness in particular, in all its various forms, has continued to demonstrate its value with respect to promoting the social and cognitive competence of children with delays (Trivette, 2003). Sensitive responsiveness in the context of a discourse framework has been a special interest to investigators emphasizing, among other strategies, contingent responding to child initiatives, ensuring balanced exchanges, minimizing directives, focusing on the child's attention and interests, and narrating activities (Karaaslan, Diken, & Mahoney, 2013; Kim & Mahoney, 2005; Mahoney, Perales, Wiggers, & Herman, 2006). Through demonstrations, coaching, feedback, reflection, and practice in various contexts and family routines, parents participating in these investigations were able to become proficient in organizing and applying strategies that promote parent-child relationships. Although further evidence with respect to child-specific outcomes is needed, from a developmental and evidence-based perspective, promoting relationships in this manner can be seen as an essential element of contemporary early intervention programs.

Highly focused applications that incorporated sensitive responsiveness strategies in early intervention programs can also be found in studies designed to promote the language and social communication abilities of prelinguistic children with cognitive delays. A detailed review of findings for this extensive group of studies can be

found elsewhere (Guralnick, 2019a). However, a common objective of these studies was to promote children's intentional communication and to expand their expressive language. The ultimate goal was intended to further a discourse relationship between parents and children. Interestingly, evidence suggests that even clinician-implemented interventions can produce the most benefits for children specifically from that subgroup of parents who demonstrate a higher initial level of responsiveness to their child at home (Yoder & Warren, 2001). Moreover, maternal responsiveness at home may also increase due to increased intentional communications by children participating in clinician-implemented interventions (Yoder & Warren, 1999). Subsequent work involving alternative and augmentative communication strategies for prelinguistic children has also been carried out, engaging both parents and clinicians to varying degrees in the intervention process. Results have been promising in this very complex area suggesting the value of evidence-based refinements to early intervention practices for prelinguistic children (Romski et al., 2010; Wright, Kaiser, Reikowsky, & Roberts, 2013). However, the existence of inconsistent findings or small effects for a range of parent and clinician strategies must be recognized as well, with an ongoing concern with respect to effects fading over time following the end of the intervention. To be most effective, early intervention systems must be designed to provide a sufficient degree of continuity to ensure optimum outcomes. Perhaps cost-effective techniques utilizing distance learning approaches (video conferencing) that are showing promise with regard to supporting a discourse framework will be of value as they are further refined (McDuffie et al., 2016).

From a larger perspective, this pattern further suggests the importance of adopting a systems approach to early intervention. This is especially the case when considering how family-orchestrated child experiences, such as clinician intervention and parent sensitive responsiveness, interact to produce a cumulative effect. Indeed, evidence for heterogeneous groups of preschool children with varying language abilities has indi-

cated that strategies used as part of an enhanced milieu intervention that included both parents and clinicians produced greater benefits than a clinician only group (Kaiser & Roberts, 2013). Benefits included increases in parents' use of sensitive responsive strategies in a naturalistic manner and children's expressive vocabulary. Clearly, early intervention is most effectively accomplished by following a coordinated, comprehensive approach to strengthen children's social and cognitive competence.

It is also important to recognize that progress has been achieved in these and other investigations with respect to identifying subgroups of children and families most likely to be responsive to the types of interventions described above. Moreover, by adjusting to child-specific characteristics, increasingly informed by etiologic-specific studies, the early intervention team may be in a position to more effectively problem-solve over an extensive time period to establish a much needed discourse framework for children with limited communication skills. Ongoing work utilizing adult learning techniques, such as incorporating the sequence of teach-model-coach-review, may be of particular value to the early intervention team in this context (Wright & Kaiser, 2017).

Inclusive Preschools

It is clearly recognized that inclusion is a value well-grounded in philosophical, legal, legislative, as well as international human rights principles. Yet the implementation of inclusive practices in group settings such as preschool programs brings with it the obligation to ensure that children's developmental progress reflected in the many aspects of their social and cognitive competence will, at minimum, be equivalent to progress that would occur within highly resourced yet specialized programs (Guralnick, 2001b). Numerous smaller-scale studies, often evaluated within a resource-rich context implemented by well-trained staff, have indicated that through thoughtful program accommodations to children, this is indeed the case (Buyse, 2011; Guralnick, 2001c). Clearly, these earlier studies provided

our field with a level of confidence that inclusive practices, especially in preschool settings, can be both feasible and effective for a wide range of children with delays and disabilities.

As the movement toward universal preschool education continues to gain momentum and the promise that more communities will actually promote full inclusion programs in the future, a key question concerns the progress of children with cognitive delays occurring in inclusive preschool environments organized within large-scale public systems. This is especially critical as preschool programs today are educationally oriented with a substantial number of goals designed to prepare children to be ready to achieve academically. Two studies focusing on high-quality public school programs have addressed this issue (Phillips & Meloy, 2012; Weiland, 2016). Employing regression discontinuity designs that take advantage of cutoff dates for children's enrollment in public preschool programs, evidence from this work revealed that greater progress over the course of 1 year was achieved by children with developmental delays on most academically oriented measures in comparison to children who participated in other programs or community activities. Measures of early literacy, receptive language, and early numeracy were central to these studies. Despite some inconsistency in terms of program effectiveness or rates of change between children who participated in the preschool program and comparison children across outcomes, these studies nevertheless provided strong evidence of the ability of high-quality large-scale public inclusive educational programs to meaningfully and effectively promote the pre-academic skills of children with delays.

Of interest, in the Weiland (2016) study in the Boston public preschool program, the rate of progress of children with special needs, including the subsample of children with developmental delays, even exceeded those of typically developing children on some measures. Certainly curriculum factors, teachers well trained to meet the educational needs of a developmentally diverse child population, and the organizational skills required to create a universal publicly funded pre-kindergarten program are among the factors

that contributed to these positive outcomes. Also likely contributing were the daily interactions of children with delays with their typically developing peers. Experiencing more complex language, observing advanced social and problem-solving skills, and receiving informative feedback by more advanced peers can have a substantial developmental impact (Justice et al., 2014). Future research will help identify critical program elements and confirm the ability of these larger-scale publicly funded inclusive programs to meet the needs of children with substantial cognitive delays. Implementation science will likely play a prominent role as well in moving comprehensive early intervention programs to scale and incorporating mechanisms capable of refining and enhancing programs further to accommodate new findings (Halle, Metz, & Martinez-Beck, 2013).

Peer Relationships

Early work also demonstrated that social interactions between young children with delays and their peers occurred at a far higher level in inclusive settings in comparison to specialized settings (Buisse & Bailey, 1993; Guralnick, Connor, Hammond, Gottman, & Kinnish, 1996). However, related work revealed that more in-depth peer relationships such as those characterized as friendships seemed unaffected (Guralnick, Gottman, & Hammond, 1996). This suggested that, despite the social interaction benefits associated with inclusive settings, a closer look into the development and characteristics of the peer relationships of children with delays was in order. Of special interest was an examination of the fundamental features of children's peer-related social competence that underlie children's peer relationships. When research in this area was carried out, numerous problems became apparent (Guralnick, 1999, 2010). In general, compared to appropriately matched groups, preschool age children with cognitive delays displayed peer-related social competence abilities that were not commensurate with their level of cognitive development, likely adversely affecting friendships as

well as other important aspects of their peer relationships. Critical aspects of peer-related social competence including the social tasks of peer group entry, maintaining play under rapidly changing circumstances, and resolving conflicts were clearly affected. Problems were also evident with respect to both the appropriateness and effectiveness of social strategies when engaging in social tasks with peers.

To address this issue, a 2-year comprehensive intervention based on a developmental framework was carried out to improve the peer-related social competence of children with delays (Guralnick, Connor, Neville, & Hammond, 2006). Both teachers and parents were involved in the intervention which was individualized to the characteristics of children with delays discussed earlier in this chapter. For example, strategies were devised to address problems related to executive function, social cognition, and emotion regulation in the context of social tasks. Results based on measures derived from observations of interactions in inclusive playgroups revealed that, compared to children randomized to usual community services, important features of the peer interactions of children in the intervention group benefitted, especially for those children with IQs below 70. Minimizing negative exchanges with peers as a consequence of the intervention was perhaps most notable. Yet other measures that reflected more in-depth changes in peer-related social competence, such as social strategies likely to foster friendships and promote core aspects of social competence, were unaffected.

Since the quality of interpersonal relationships becomes more closely linked to an individual's overall well-being over time, it is clear that future work is essential in order to alter this peer-related social competence trajectory. Fortunately, we now have a much better understanding of the underlying developmental processes likely to influence young children's social competence with their peers that can serve as a guide to intervention approaches. The effectiveness and appropriateness of children's relationships with their peers certainly depend upon their developmental resources (e.g., cognition, language) and organizational processes (e.g., executive function,

social cognition) as is the case for all competencies displayed as children carry out their interpersonal goals. Designing innovative interventions for children with cognitive delays that can influence these child characteristics in the context of social tasks encountered during peer-peer interactions is essential whether they occur in home, school, or other settings. Of importance, peer relationships are best conceptualized as being embedded within the larger construct of social competence. As such, social competence, including competence displayed in peer contexts by children with delays, is associated with the way in which family members and children interact with one another and model the more balanced and responsive social interactions common to peer relationships (Guralnick, Connor, Neville, & Hammond, 2008; Guralnick, Neville, Hammond, & Connor, 2007). Accordingly, this highlights once again the importance of adopting a comprehensive developmental approach when considering interventions involving complex behavior patterns, including those related to peer interactions.

Future Directions

The consensus principles described earlier provide important guidance for the ongoing development and refinement of early intervention systems. Developmental science provides a well-established framework governing family-centered practices and contributes to our understanding of the mechanisms influencing a child's development. Intervention science consistent with developmental science continues to inform practice, seeking to ensure that only evidence-based practices are selected when IFSPs and IEPs are developed and implemented. Recent refinements, based on intervention science in the early intervention field discussed in this chapter focusing on children with cognitive delays, emphasized strategies to enhance parent-child interactions, studies of the effectiveness of community-based inclusive preschools, and outcomes of comprehensive curricula to promote children's peer-related social competence.

Close examination of current early intervention systems also reveals that numerous opportunities exist to substantially improve virtually all system components. Limits on the comprehensiveness of services are perhaps most evident. As discussed, we now have a firm understanding of the mechanisms that influence child development, including the various components of the quality of parent-child interactions, family-orchestrated child experiences, and a child's health and safety. Yet, many of these components are not incorporated and integrated within current systems or are carried out with such limited intensity to suggest that only minimal effects can be expected. Early intervention problem-solving that incorporates children's characteristics and a family's resources is not as well developed as our knowledge base. In addition to concerns about the comprehensiveness of the system are concerns about its continuity. The evolution of Part B (619) and Part C, with its differing administrative structures and emphases, does not easily allow for continuity of services that maintain a developmental perspective. Unquestionably, a more expansive transition plan would be of value. An emphasis on promoting the well-being of families and enhancing all aspects of a family's resources is especially critical for families of children with cognitive delays (Crnic, Neece, McIntyre, Blacher, & Baker, 2017).

Our dramatically increasing knowledge of the developmental trajectories and corresponding risk and protective factors for children with cognitive delays with confirmed genetic etiologies is certain to generate new intervention strategies responsive to these profiles (Dykens, Hodapp, & Finucane, 2000; Fidler, Daunhauer, Will, Gerlach-McDonald, & Schworer, 2016). The era of personalized interventions will allow early intervention teams to adapt strategies to known developmental mechanisms of influence as reflected in children's developmental profiles in order to maximize the impact of those intervention strategies. A major challenge for early intervention inclusive community-based systems is their ability to utilize this child-specific developmental information as well as second-generation research findings and incorporate this knowledge

into practice. Close associations with the early intervention research community and a knowledgeable workforce are critical. Fortunately, an implementation science is also emerging with components that bring a conceptual framework and intervention science into better alignment as programs become established or add new approaches to their service system (Fixsen, Blase, Metz, & Van Dyke, 2013; Guralnick, 2019b; Metz, Halle, Bartley, & Blasberg, 2013).

Perhaps the most crucial element in this regard, and one critical for successful implementation of all conceptually sound and empirically supported interventions, is to ensure that the early intervention workforce operates within the well-established principles that guide early intervention described earlier. Unfortunately, recent examinations of the status of the early childhood intervention workforce have identified a number of issues of concern with respect to the quality and effectiveness of Part C and Part B (619) practices, services, and programs (Bruder, 2010, 2016; Bruder, Mogro-Wilson, Stayton, & Dietrich, 2009; Vail et al., 2018; Woods & Snyder, 2009; Zaslow, 2009). These issues include shortages of personnel; inequities in wages and compensation for personnel across programs; shortages of preservice programs of study, coursework, and practicum opportunities; limited funding for continuing education; the absence of integrated and comprehensive personnel development systems that meet national personnel standards and adult learning guidelines; and limited experimental evidence about the effects of preservice and continuing education on child and family learning. Clearly, outcomes for early intervention systems will be constrained unless this crucial issue is addressed.

These and other issues may ultimately be best addressed within the context of large-scale, comprehensive systems of early childhood development, one inclusive of all children. Although we are a long way from such inclusive, community-based early childhood systems, guidelines and specific recommendations suggest the feasibility and benefits of this framework from both administrative and conceptual perspectives (Bruder, 2010). Should such a system emerge, the successful

implementation of agreed-upon early intervention principles and corresponding services and supports for young children with cognitive and other delays becomes more likely, especially in view of the increasing compatibility of systems with a developmental framework relevant to all children (Guralnick, 2019a).

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