

33 Early Intervention

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Upon completion of this chapter, the reader will

- Know the rationale for early intervention services
- Understand the principles of early intervention
- Be aware of the services provided

The commitment to provide early intervention services and supports for infants and toddlers with established developmental disabilities and their families is now evident in virtually every community in the United States, as well as many other parts of the world (Guralnick, 2005a). Community programs are now well organized to provide early intervention in the form of comprehensive services and supports to enhance children's development, usually provided in the context of federal early intervention legislation (initially passed as the Education of the Handicapped Act Amendments of 1986, PL 99-457) in which all states participate. Services and supports available through this legislation include various therapies, family counseling and support, and special instruction, among many others. This array of services can be provided at home, at clinics, at child care programs, or at specialized early intervention centers with numerous agencies and professional disciplines involved. As discussed shortly, this legislation defines the many structural components and principles governing state-based early intervention systems for infants and toddlers with disabilities.

CARL

Carl is a 6-month-old who was born at a gestational age of 26 weeks. After a difficult 4-month hospitalization in the neonatal intensive care unit, he was discharged home. Neurodevelopmental assessment just prior to discharge showed that he had cognitive function at a newborn level and markedly increased tone in his legs. Carl was considered to have significant developmental delays

and was referred to the local early intervention program. After a comprehensive, multidisciplinary assessment, he was found to be eligible for services, and a treatment plan (**individualized family service plan**, or IFSP) was developed. Because both of Carl's parents worked outside the home, a physical therapist and early childhood educator came to Carl's child care center once a week to provide early intervention services. Carl's parents arranged their work schedules so that at least one of them could meet with the early intervention professional every other week at the child care center. Together, Carl's parents, educators, and child care workers have come up with creative activities that encourage Carl to develop his motor skills. As a result of these interactions, both parents are feeling increasingly comfortable in caring for Carl and in playing with him at home.

DISABILITY-RELATED DEVELOPMENTAL SCIENCE

Within a larger context of support for early childhood development in general, a corresponding science of disability-related knowledge has emerged. For example, it was found that parents of children with developmental disabilities often experience difficulties in establishing developmentally enhancing interactions with their children due to their children's frequent lack of emotional expressiveness, a general inability to initiate, and an uneven and, in certain instances, highly atypical developmental pattern (Spiker, Boyce, & Boyce, 2002). Joint attention routines between parents and children, a critical activity for promoting many aspects of development, is

a good example of a process easily disrupted (Mundy & Stella, 2000). One consequence of this growing body of knowledge was to create a sense of urgency to apply this information and to encourage intervention approaches to center on families and to consider the value and relevance of a general developmental framework. This was underscored by related research that documented that many families of children with an established disability experienced considerable stress and even disruption during the early childhood period (Orsmond, 2005). The prospects for families becoming isolated were real, making it even more difficult to optimize their children's development. This awareness occurred in parallel with philosophical movements in the disability community intended to maximize the integration and inclusion of individuals with disabilities (Guralnick, 2001b).

AN INVESTMENT IN EFFECTIVENESS

The provision of early intervention programs also came to be seen as an "investment" in the future. The expectation was that a focus on the early years would achieve immediate and sustained child developmental benefits and that many of those benefits would be cost effective as well (Guralnick, 2004). This argument also helped establish a positive political climate for a national agenda for early intervention programs for children with established disabilities, as represented in the Education of the Handicapped Act Amendments of 1986. In point of fact, a large body of scientific knowledge, often involving highly specific forms of intervention, existed suggesting that early intervention programs had the potential to generate important benefits for young children at risk for disability as well as for those with established disabilities (Farran, 2000; Guralnick, 1997). Considerable research also was conducted focusing on intellectual development involving children from heterogeneous etiologic groups, as evidence suggested that the intellectual development of these children declines in the absence of early intervention across the first few years of life (Guralnick, 1998). Numerous studies have now revealed that this decline in development can be prevented or at least mitigated through the provision of comprehensive early intervention programs. For example, consistent evidence for children with Down syndrome from model early intervention programs in many countries demonstrated that although these children still manifested significant intellectual and related

disabilities, declines in intellectual development could be prevented (Guralnick, 2005b). It should also be pointed out that despite these positive findings for children with disabilities, considerable individual and subgroup variability in responsiveness to early intervention exists and consistent evidence for long-term effectiveness is lacking. Increasing evidence suggests, however, that the intensity of an early intervention program can substantially affect outcome effectiveness, sometimes dramatically increasing effect sizes for children and families participating in the most intensive programs (Hill, Brooks-Gunn, & Waldfogel, 2003).

STRUCTURAL COMPONENTS OF THE EARLY INTERVENTION SYSTEM

The first early intervention (previously referred to as *infant stimulation*) programs focused on improving the function of children with intellectual disability, cerebral palsy, and genetic conditions/syndromes such as Down syndrome (Denhoff, 1981). Subsequently, these programs have evolved into including not only children with established disabilities but also those at high risk for developmental disabilities because of other biological conditions (e.g., prematurity, perinatal asphyxia, certain congenital malformations, abnormal or atypical neuromuscular findings). Certain environmental risk factors, such as parental intellectual disability and psychiatric disorders, child maltreatment, and drug exposure of infants and toddlers, have also been used to define populations at risk (Meisels & Wasik, 1990).

The national agenda for an early intervention system for infants and toddlers with established disabilities culminated with the passage of the Education of the Handicapped Act Amendments of 1986, with continuing refinements over time incorporated into the Individuals with Disabilities Education Act (IDEA), which was reauthorized in 2004 (IDEA 2004, PL 108-446). Part C of that Act makes the national agenda quite clear: "to develop and implement a statewide, comprehensive, coordinated, multidisciplinary, interagency system that provides early intervention services for infants and toddlers with disabilities and their families" (§ 631, [6], [1]). Structural components of the system included establishing eligibility criteria and a process to ensure that all children meeting those criteria in a state were indeed served. To maximize participation in the program, a "Child Find" system and public awareness program

were included in the required structural components designed to promote awareness of children's developmental problems by parents and professionals and to encourage early detection and identification. Once a referral was made, a timely multidisciplinary assessment component was required to evaluate the child's strengths and weaknesses in major developmental domains. A corresponding component was an assessment of needs and priorities of the family, relevant to their child's development. These are further discussed next.

Identification and Referral

Child Find efforts are most effective when coordinated with other early identification programs such as Medicaid's Early and Periodic Screening, Diagnosis, and Treatment (EPSDT) program. Primary care providers (e.g., physicians, nurses, social workers) are in a key position to identify young children who are at risk for or who have developmental delays or disabilities (American Academy of Pediatrics [AAP], Committee on Children with Disabilities, 2001; Sand et al., 2005).

Often the first step in the identification and referral of infants and toddlers who could benefit from early intervention services is developmental screening. When this occurs in the context of a well-child visit, it reinforces the concept that health and development are interrelated. An equally valid approach is to recognize parental concerns about a child's development as an effective method for early identification. Parental concern has, in fact, been shown to be as effective in identifying developmental delay as is professional opinion and/or standardized screening (Glascoe, 2000). Thus, an infant or toddler can be referred to the local early intervention program directly by anyone (including a relative or friend) who suspects that the child has a developmental delay or disability.

Developmental screening is mandated in Part C of IDEA 2004. It should involve the family and other sources of information, using a process that is culturally sensitive. It should be reliable, valid, cost effective, and time efficient. It should be seen not only as a means of early identification but also as a service that helps the family understand the child's developmental progress. Several developmental screening tests are commercially available. The following are some of the commonly used screening tools: 1) the Denver II (Frankenburg et al., 1992), 2) the Ages & Stages Questionnaires® (ASQ; Bricker

& Squires, 1999), and 3) Parents' Evaluations of Developmental Status (PEDS; Glascoe, 1997).

Assessment for Early Intervention Services

Assessment is the process used to identify a child's strengths and needs. It often begins when the family first calls the infant and toddler program for assistance and is the link to develop an effective treatment plan. Once a referral is made to the local agency that coordinates early intervention services, assessment, eligibility determination, and the IFSP meeting must be completed within 45 calendar days. After a family is referred, a service coordinator is assigned to help plan and coordinate all of the steps leading to the development of a service plan (provided that the child is found to be eligible for early intervention).

Each assessment must be timely, comprehensive, and multidisciplinary. Pertinent records relating to the child's current health status as well as medical history must be reviewed. The assessment should be comprehensive and include the child's level of functioning in five development domains: physical (including vision/hearing and gross and fine motor development), cognition, communication, social-emotional, and adaptive. The multidisciplinary assessment team must include a family member and two professionals representing different disciplinary expertise (Bagnato & Neisworth, 1999). For example, the professionals might include an early childhood special educator and a speech-language pathologist or perhaps a motor therapist such as an occupational therapist or a physical therapist. The assessment must reflect the unique strengths and needs of the child. In addition, family members provide information about their circumstances, priorities, and resources that may have an impact on their child.

Development of an Individualized Family Service Plan

Following these child and family assessments, an IFSP is developed by a multidisciplinary team including the parents, ensuring that the diverse services identified are coordinated as much as possible. In fact, the array of services available in Part C is quite extraordinary, including speech, physical, and occupational therapies; psychological services; family training; counseling; home visits; medical services for diagnostic or evaluation purposes; social work

services; and assistive technology devices and services. Also stipulated is that services identified in the IFSP be provided in environments that are as natural as possible for the child and family. Clearly, minimizing isolation and maximizing inclusion is important.

The importance of the IFSP can be seen in the law's detailed requirements regarding the plan's contents. These requirements are as follows (IDEA 2004; § 636 [d], [1–8]):

- (1) a statement of the infant's or toddler's present levels of physical development, cognitive development, communication development, social or emotional development, and adaptive development, based on objective criteria;
- (2) a statement of the family's resources, priorities, and concerns relating to enhancing the development of the family's infant or toddler with a disability;
- (3) a statement of the major outcomes expected to be achieved for the infant or toddler and the family, and the criteria, procedures, and timelines used to determine the degree to which progress toward achieving the outcomes is being made and whether modifications or revisions of the outcomes or services are necessary;
- (4) a statement of specific early intervention services necessary to meet the unique needs of the infant or toddler and the family, including the frequency, intensity, and method of delivering services;
- (5) a statement of the natural environments in which early intervention services shall appropriately be provided, including a justification of the extent, if any, to which the services will not be provided in a natural environment;
- (6) the projected dates for initiation of services and the anticipated duration of the services;
- (7) the identification of the service coordinator from the professional most immediately relevant to the infant's or toddler's or family's needs (or who is otherwise qualified to carry out all applicable responsibilities under this part) who will be responsible for the implementation of the plan and coordination with other agencies and persons; and
- (8) the steps to be taken to support the transition of the toddler with a disability to preschool or other appropriate services.

States also are required to ensure that those providing the services are appropriately qualified and that a central directory is available to help identify resources of all kinds relevant to early intervention. Other structural components are administrative in nature, addressing

interagency cooperation, reimbursement, and procedural safeguards, among others. Taken together, Part C defines the critical structural components for an early intervention system required of each state, components that should be found in each local community as well.

Provided Services

The frequency and intensity of early intervention services continue to be controversial topics. Frequent hands-on intervention, similar to a medical rehabilitation model, is often expected by families as well as by some early intervention providers. Yet, choosing services to assist young children and families to achieve specific outcomes is a complex process. It requires that meaningful outcomes be identified and that early intervention professionals provide an array of consultative and direct services. This approach often departs from the traditional frequency and intensity model of "so many times per week." Meaningful outcomes should go beyond specific disciplinary goals (e.g., increasing the mean length of utterance, reducing limb spasticity) to effectively address the child's and family's functioning within the home and/or in a child care setting and during play or while the child is learning in any environment.

Different services as well as service levels may be needed depending on the number of caregivers and the number of locations of care. On the one hand, a biweekly visit with a parent and child who spend the day together at home may be sufficient to accomplish the desired outcome. On the other hand, a multiple caregiver situation often requires more frequent contacts to demonstrate strategies and allow for more collaboration with key adults. It should be noted that not all goals can be worked on at the same time. A flexible model might emphasize sequential rather than simultaneous services; for example, once one goal is accomplished, a new one can be introduced. Each goal should have distinct services, frequency, intensity, and location identified prior to its implementation. Frequency and intensity of services are not as important as what providers do with their time in guiding the child and family. Shifting to a flexible, outcomes-guided model that is family directed increases the likelihood that the recommendations for services will emerge from a thorough analysis of child and family priorities. This contrasts with the traditional medical model of providing a predetermined group of

services by specific disciplines that are driven by a particular disability rather than by the specific goals of the family (Hanft & Feinberg, 1997).

TRANSITION FROM EARLY INTERVENTION TO PRESCHOOL SERVICES

Transition is a process that children and families go through as they move from one program or setting to another. Families of young children with developmental delays and disabilities may need to move between home and hospital or from one community-based program to another. At about 3 years of age, the child will need to make the transition from early intervention to early childhood special education services, such as an inclusive preschool or child care program or to other appropriate services. Some children may be exiting the early intervention program. Careful planning and preparation for each transition can ensure that change occurs in a timely and effective manner. Transition planning may also help to alleviate parental stress and may be an opportunity for family growth as new skills are developed that can be applied to new settings. To ensure a seamless move from early intervention to preschool services, the IFSP must include a transition plan.

STATUS OF EARLY INTERVENTION SERVICES

It has now been approximately 20 years since the establishment of a formal early intervention system in the United States. Judged by the usual standards, this program has been highly successful. All 50 states are participating in Part C, providing evidence that each of the required structural components is in place. Moreover, the number of children served continues to grow on an annual basis. Including those at risk, approximately 250,000 children received services in 2001 (U.S. Department of Education, 2002). This constitutes approximately 2% of the U.S. population in this age group. An analysis utilizing a nationally representative sample ($N = 3,338$) from the National Early Intervention Longitudinal Study (NEILS) also suggested that Part C was achieving its intended effects. Overall, approximately 62% of children became eligible because of a developmental delay, 22% as a result of a diagnosed medical condition, and 17% were enrolled due to biomedical and/or environmental risk factors (Scarborough et al., 2004). It was also clear that the

early intervention system was reaching disadvantaged groups, as 26% of families served received welfare payments around the time of services, and 32% were at or below the poverty level. Given the well-established association between disadvantaged status and disability (Park, Turnbull, & Turnbull, 2002), the ability of the system to enroll large numbers of these families is consistent with a national pattern. Previous research has also suggested that service utilization patterns are generally not constrained by sociodemographic factors (Kochanek & Buka, 1998). Yet, it is reasonable to expect that, conservatively, 5% of children in this age group in the general population would experience a developmental problem that could benefit from early intervention services. Whether this discrepancy with the actual number of children receiving services (2%) is due to children receiving services outside of Part C, to parent decisions to delay services, or to difficulties in early detection and identification awaits further study.

In many respects, the early intervention system has proven to be highly responsive. In the NEILS study, for example, the average time intervals (indicated within parentheses) for critical points in the process were as follows: first concern about child's health or development (7.4 months), first diagnosis or identification (8.8 months), first looked for early intervention (11.9 months), first referred for early intervention (14.0 months), and age at which IFSP was developed (15.7 months) (Bailey, Hebbeler, Scarborough, et al., 2004). Moreover, most families found an early intervention program easily, with 79% of children receiving an IFSP within 10 weeks of referral (Bailey et al., 2004). The NEILS data also revealed that families received numerous services offered in Part C, with more than three quarters receiving two to six different services and 10% receiving eight or more services (U.S. Department of Education, 2001). Of note, the vast majority (80%) utilized the service coordination component of Part C. As might be expected, the most frequently utilized specific services were special instruction, speech and language therapy, and physical and occupational therapy (Perry, Greer, Goldhammer, et al., 2001). An interesting finding was that the array of family support services available was not usually provided to more than 20% of families. Despite these impressive service utilization rates, it is important to note that the number of actual service hours turns out to be actually quite small. Although considerable variability can be found, the average intensity of services is ap-

proximately 7 hours per month (e.g., Feinberg & Beyer, 1998; Perry et al., 2001).

From the perspective of parents, the services received have been consistently highly rated in terms of satisfaction (see Harbin, McWilliam, & Gallagher, 2000). The NEILS study addressed this issue in depth as well, finding that the overwhelming majority of families (approximately 80%) noted that their child received sufficient therapies and other early intervention services, considered them to be individualized with adequate parent input into the plan, indicated that the services were of high quality, and said that the professionals they interacted with were positively perceived (Bailey et al., 2004). Approximately 14% of families thought that additional needed services were not being provided.

Taken together, it is evident that a comprehensive early intervention system composed of well-defined structural components can be found in states and communities in the United States, providing services and supports to increasing numbers of infants and toddlers with established disabilities and their families. There is, however, also a recognition that such complex and evolving systems can be substantially improved to more effectively and efficiently meet the needs of children and families (Guralnick, 2000a). The next section discusses some directions for the future. This discussion is organized by considering each of the 10 principles that represent the Developmental Systems Model of Early Intervention (Guralnick, 2005c), an approach that integrates the developmental science of normative development, the developmental science of risk and disability, and intervention science (Guralnick, 2006).

DIRECTIONS FOR THE FUTURE: PRINCIPLES OF EARLY INTERVENTION

1. *A developmental framework informs all components of the early intervention system and centers on families.* Based on research from the developmental science of normative development, three family patterns of interaction have been shown to be critical for optimal child development: 1) parent-child transactions—including relationship patterns such as sensitivity, responsiveness, reciprocity, scaffolding, affective warmth, and nonintrusive interactions; 2) family-orchestrated child experiences—including providing developmentally appropriate toys and materials, identifying high-quality child care, establishing family routines and related

activities involving all members, and arranging play dates; and 3) ensuring the child's health and safety—including proper nutrition, organizing the environment to protect the child from harm, and maintaining immunization schedules (see Guralnick, 1998).

Correspondingly, when a child with an established disability becomes part of a family, the developmental science of risk and disability has demonstrated how children's characteristics can perturb or exert stress on one or more of these three family patterns of interaction leading to nonoptimal child development. Stressors to these family patterns of interaction come in many forms but can be categorized into four domains. First, a child with a disability creates an extraordinary need for information. Details regarding a child's diagnosis, prognosis, responding to uneven or atypical developmental patterns, or emerging behavioral issues are among the seemingly never-ending series of issues that arise, especially over the first 3 years of the child's life (see Bailey & Powell, 2005; Guralnick, 2001a). Second, interpersonal and family distress is often created by a child with an established disability (Orsmond, 2005). Among other issues, families need to rethink their aspirations for their child and standard family routines frequently must be modified, often substantially. Social isolation can easily follow, including families feeling stigmatized by their child with a disability. Third, even with resources provided by Part C, a considerable resource burden falls to families. In particular, financial costs mount and respite care is always a concern (Shannon, Grinde, & Cox, 2003; Spiker, Hebbeler, & Mallik, 2005). Finally, optimal family patterns of interaction are frequently stressed by parents' self-doubts with respect to their ability to properly parent their child. Moreover, all of these stressors can easily be exacerbated by families who are stressed by poverty, mental health problems, a lack of social support from spouse or other family members, or the absence of helpful social networks, among others (Guralnick, 1998).

It is apparent that for early intervention programs to be consistent with this developmental framework it requires that programs center on families, seeking to strengthen them and help them address the many stressors that may be adversely affecting family patterns of interaction. Yet, available evidence suggests that a developmental approach centering on families has not yet been well integrated into the early intervention system (e.g., Bruder, 2000; Harbin

et al., 2000). Even family-directed assessments, especially guided by a developmental framework, are difficult to accomplish (McWilliam, Snyder, Harbin, et al., 2000), and many intervention efforts remain in the professional comfort zone of being primarily child focused (e.g., McBride & Peterson, 1997). Clearly, encouraging the early intervention system to more fully understand and effectively implement this critical principle remains a major task for the field.

2. *Integration and coordination at all levels are apparent. This includes interdisciplinary assessments, assessments for program planning, developing and implementing comprehensive intervention plans, and systems level integration.* Numerous problems regarding team processes factors and collaborative problem-solving difficulties, among others, have been identified and provide clear directions for improvement (Guralnick, 2000b). From an implementation perspective, the importance of service coordination was clearly recognized in Part C, and it was identified as a separate and required service in the law. However, for this to be most effective, simply coordinating independent services, with the potential for duplication and redundancy, may not be optimal. Rather, new approaches, such as collaborative consultation models (McWilliam, 1996) that attempt to truly integrate services, will achieve outcomes that are more likely to be of functional value for the child and family (Dunst, Trivette, Humphries, et al., 2001; Hanft & Pilkington, 2000).

Moreover, similar difficulties are apparent at the systems level, where only limited leadership is being displayed by states and communities to address these issues (Spiker, Hebbeler, Wagner, et al., 2000). The leadership issue is clearly urgent in view of the increasingly diverse and complex array of services and supports required by children and families. Integrating and coordinating services from agencies not commonly part of the early intervention system, such as those related to the mental health of children and families, pose special challenges (National Research Council & Institute of Medicine, 2000).

3. *The inclusion and participation of children and families in typical community programs and activities is maximized.* For infants and toddlers, Part C requires that children and families receive services in "natural environments" to the extent possible. Although this has been a very difficult principle to implement due to barriers

related to financing, finding the proper service setting, definitional issues, and parent preferences, among others (see Bruder, 2001; Rabb & Dunst, 2004), much has been accomplished. Focusing intervention on activity routines in the home and plans to take advantage of natural learning activities in community environments have been important directions for early intervention, prompted in part by the principle of inclusion, and will continue as a major future direction (see Bruder, 2001; Dunst, 2001).

4. *Early detection and identification procedures are in place.* This principle is based on the assumption that the sooner children and families receive intervention the better. Yet, the relatively low percentage of infants and toddlers served by Part C compared with expected prevalence rates of children with disabilities, even correcting for later acquired or emerging disability, suggests that early detection and identification processes may be inadequate (see Gilliam, Meisels, & Mayes, 2005). Despite dramatic improvements in the reliability and validity of screening instruments for infants and the existence of explicit guidance from critical professional groups such as pediatricians (AAP, Committee on Children with Disabilities, 2001), a comprehensive early detection and identification system is not yet in place. Hospital personnel, primary care physicians, child care staff, and parents are all essential partners. Important technical, cost, and coordination problems remain to be addressed. Problems are further compounded by the fact that states can and do establish different eligibility requirements for services. Nevertheless, models of community-based screening are emerging, birth defect registry models can be effective (see Farel, Meyer, Hicken, et al., 2003), and the validity and reliability of instruments continues to increase, suggesting important future directions (Gilliam et al., 2005).

5. *Surveillance and monitoring are integral parts of the system.* This principle is intended to maximize the possibility that a child who 1) exhibits some developmental concerns but does not meet state eligibility requirements for service, 2) does not meet criteria for standard diagnostic categories, or 3) is at risk for a disability (e.g., has a sibling with an autism spectrum disorder) will receive special attention by the system. Methods of developmental surveillance can be of value (Dworkin, 2000) but require substantial, continuous, and knowledgeable partic-

ipation of a pediatrician or other health professional.

6. *All parts of the system are individualized.* Even children sharing a similar etiology, such as Down syndrome, often vary substantially in their individual characteristics, developmental trajectories, and responsiveness to intervention (Spiker & Hopmann, 1997). The IFSP process of Part C is the major structural component of the system within which this principle is realized. Its success, however, hinges on the ability of the system to comprehensively and accurately assess stressors that can affect optimal child development, a problem noted in the previous section. Similarly, although Part C has been successful in obtaining resources for families, the NEILS data suggest that the scope of these services and supports needs to be expanded (Spiker et al., 2005).

7. *A strong evaluation and feedback system is evident.* Research on the effectiveness of early intervention indicates that a structured program with explicit goals and objectives and regular feedback are essential to achieve positive outcomes (Shonkoff & Houser-Cram, 1987). Consequently, careful attention to ensure that evaluation and feedback occur at every level and for every component of the system is vital. A multitiered evaluation system will likely be required. Leaders in the field have suggested such an evaluation must encompass needs assessments, monitoring and accountability of services and supports, quality reviews and program clarifications, and evaluating specific outcomes (Warfield & Hauser-Cram, 2005).

8. *It is recognized that true partnerships with families cannot occur without sensitivity to cultural differences and an understanding of their developmental implications.* Valuable guidelines for addressing these issues have been published (Lynch & Hanson, 2004), and professionals' ability to display cultural competence is essential to Part C. Available evidence suggests, however, that more work needs to be carried out for this principle to be fully implemented. For example, data from the NEILS analysis and related studies on parent satisfaction with early intervention services suggest that minority families are less likely to have positive experiences with the early intervention system (Bailey et al., 2004; Bailey et al., 1999).

9. *Recommendations to families and practices should be evidence based.* The increase in scientific knowledge based on evidence from numerous

sources has been able to identify best practices and weed out those practices that have little validity. The early intervention field has been subject to many claims of dramatic success, often demanding enormous resources from families and communities, that have failed to be supported by the evidence (Nickel, 1996; Starrett, 1996). Part C notes that interventions should be based on peer-reviewed, scientifically based findings. Accomplishing this continues to remain a major challenge for the early intervention field, as the research-to-practice gap is considerable (National Research Council & Institute of Medicine, 2000; Rule et al., 1998). The recent publication of clinical guidelines and best practice manuals based on careful reviews of the available scientific literature for screening, diagnosis, and intervention in the field of early intervention has been a welcome addition (e.g., Filipek et al., 2000; Sandall, McLean, & Smith, 2000; National Research Council, 2001).

10. *A systems perspective is maintained, recognizing interrelationships among all components.* A major issue for the future is to determine whether the ultimate aspiration of the early intervention system should be to retain its mainly specialized focus on children with disabilities or be embedded in a larger early childhood system (Harbin et al., 2000). As Harbin (2005) pointed out, such a systems perspective is relevant to the many concerns associated with the various principles that have been previously discussed. The early intervention system must have the visionary leadership to be responsive to the changing needs of children and families and to develop strategies and organizational structures that advance the field.

SUMMARY

Infants and toddlers with disabilities and their families now have access to a well-designed early intervention system with all important structural components effectively in place. Increasing numbers of children and families continue gaining access to the system, experiencing high levels of parental satisfaction while receiving an extensive array of services and supports. Research on the effectiveness of early intervention has demonstrated the potential for achieving important benefits for children and families. Nevertheless, the full implementation of the principles that guide early intervention within a developmental systems framework that maximize intervention effectiveness has not

been achieved. As noted, this circumstance is to be expected in complex, evolving systems. Fortunately, there now exists a better understanding of the meaning of those critical principles and a recognition of the interconnections among the principles, providing clear directions to ensure that the system will continue to evolve to meet the needs of young vulnerable children and their families.

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