Prevention and Intervention With Young Children's Challenging Behavior: Perspectives Regarding Current Knowledge

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ABSTRACT: Challenging behavior exhibited by young children is becoming recognized as a serious impediment to social–emotional development and a harbinger of severe maladjustment in school and adult life. Consequently, professionals and advocates from many disciplines have been seeking to define, elaborate, and improve on existing knowledge related to the prevention and resolution of young children's challenging behaviors. Of particular concern for the field of behavioral disorders is the lack of correspondence between what is known about effective practices and what practices young children with challenging behavior typically receive. To increase the likelihood that children receive the best of evidence-based practices, the current analysis was conducted to provide a concise synthesis and summary of the principal evidence pertaining to the presence and impact, prevention, and intervention of challenging behaviors in young children. A consensus building process involving review and synthesis was used to produce brief summary statements encapsulating core conclusions from the existing evidence. This article presents these statements along with descriptions of the strength of the supporting evidence. The discussion addresses directions and priorities for practice and future research.

In the past 10 years, professionals from various disciplines have expressed alarm regarding the implications of serious challenging behaviors exhibited by young children (e.g., Shonkoff & Phillips, 2000). Increasingly, it is understood that serious and persistent challenging behaviors in early childhood are associated with subsequent problems in socialization, school adjustment, school success, and educational and vocational adaptation in adolescence and adulthood (e.g., Campbell 1995; Dodge, 1993; Kazdin, 1985; Reid, 1993). As a result, numerous authors, as well as official reports (e.g., New Freedom

Commission on Mental Health, 2003), have noted the importance of identifying, preventing, and resolving challenging behaviors in young children as early in their development as possible. Unfortunately, there remains limited understanding across professionals, disciplines, and service systems regarding what is known about early challenging behaviors and what can be done with respect to prevention and intervention.

Part of the professional reticence pertaining to challenging behaviors is that many behavioral topographies (e.g., tantrums) that are considered challenging in elementary school students are developmentally typical in early childhood. Without a clear delineation of the window during which more mature topographies are expected to emerge, it can be difficult to distinguish serious problems from typical developmental progressions. Still, the growing acknowledgment that early challenging behaviors can have serious long-term consequences has led to more concerted efforts to define and resolve early challenging behaviors. Working from existing definitions (e.g., Division for Early Childhood of the Council for Exceptional Children, 1999), Smith and Fox (2003) recently defined challenging behavior as "any repeated pattern of behavior, or perception of behavior, that interferes with or is at risk of interfering with optimal learning or engagement in pro-social interactions with peers and adults" (p. 5).

In addition to the complexities associated with defining and identifying challenging behaviors, there are similar difficulties in understanding what can be done to prevent challenging behaviors from developing in the first place and, once identified, what can be done via intervention to divert the challenging behaviors to more socially adaptive developmental trajectories. Although important research on prevention and intervention has been conducted, a clear message is lacking regarding what is known and what can be done. Moreover, there is a regrettable disparity between what is known about prevention and intervention and the typical service delivery experienced by young children with challenging behavior (Shonkoff & Phillips, 2000). It is our contention that correcting this disparity begins with a concise, coherent, and strong set of messages from the field.

In the past few years, a number of federally funded projects[1] have been established to help guide the process of developing and disseminating effective prevention and intervention practices for young children with challenges in social, emotional, and behavioral development. For instance, the Center for Evidence-based Practice: Young Children with Challenging Behaviors (Dunlap, Fox, Smith, & Strain, 2002) was created as a national consortium of research, training, and dissemination efforts focused on enhancing the knowledge base pertaining to challenging behaviors. The center, via its web site (www.challengingbehavior.org) and journal publications, has disseminated a framework for conceptualizing prevention and intervention efforts (e.g., Fox, Dunlap, Hemmeter, Joseph, & Strain, 2003) as well as a number of articles summarizing portions of the empirical literature (e.g., Conroy, Dunlap, Clarke, & Alter, 2005; Joseph & Strain, 2003; Powell, Dunlap, & Fox, 2006). The center's dissemination agenda has been greatly facilitated by a network of national associations[2] that has functioned to spread a unified message about evidence-based practices and challenging behaviors. In pursuing widespread dissemination, however, it has become increasingly apparent that a need exists for concise, clear, and empirically based statements regarding the current state of knowledge related to challenging behaviors, with an explicit focus on both prevention and intervention concerns. This article describes an effort undertaken by the center to address these issues. The purpose was to establish a concise, data-based summary of the most prominent features of current knowledge as they relate to the presence and impact and, in particular, intervention with and prevention of young children's challenging behaviors. The approach included reviews of the existing literature and a consensus building process intended

[1]Examples of federally funded projects include the Center on the Social and Emotional Foundations of Early Learning, funded by the Department of Health and Human Services, Head Start Bureau and Child Care Bureaus; and the Center for Evidence-based Practices of the Orleana Hawk Puckett Institute, funded by the Office of Special Education Programs, U.S. Department of Education.

[2]Primary dissemination partners of the center include the Division for Early Childhood (DEC) of the Council on Exceptional Children; National Association for Bilingual Education (NABE), National Association for the Education of Young Children (NAEYC), National Association of Child Care Resource and Referral Agencies (NACCRRA), National Black Child Development Institute (NBCDI), and National Head Start Association (NHSA).

to synthesize current knowledge into brief summary statements that could prove useful for promoting increased awareness across multiple audiences, including researchers, advocates, policy makers, and professionals from diverse disciplines.

Approach

General Approach

The current analysis was undertaken to develop summary statements of existing knowledge that are based on empirical research and valid from the perspectives of various consumers (e.g., policy makers, families, researchers) concerned with conceptualizing, organizing, and delivering prevention and intervention services. Therefore, the focus of the information gathering and consensus building procedures was on practical descriptive, experimental, and quasi-experimental research that has undergone peer review. As research findings were reviewed and integrated into a larger picture, the data were examined across the dimensions of replicability, generality, and utility. The strength of support for observed phenomena was weighed in relation to internal validity, external validity, and social and ecological validity. To the greatest extent possible, the statements were considered in relation to cultural, ethnic, geographic, and economic representativeness. The approach involved reviewing the existing, peer-reviewed literature and developing summary statements through a process of consensus building.

The participants in the process included principal faculty, research associates, and training associates of the center. Participants represented primary collaborators with the center from the University of South Florida, University of Colorado at Denver, University of Kansas, Lehigh University, University of Florida, University of Illinois, Tennessee Voices for Children, and Pyramid Parent Training of New Orleans. Before initiating the review and consensus building process, participants agreed on a number of defining parameters.

Focus of concern. The focus of this examination was on the challenging behaviors of young children. Three content areas were identified: presence and impact; prevention; and intervention. The definition of challenging behavior presented earlier in this article (Smith & Fox, 2003) served as a general guide; however, it was recognized that the data sources used to describe the empirical knowledge often relied on different definitions. Similarly, many of the studies considered in the analysis did not focus on challenging behaviors per se, but addressed correlates of challenging behavior such as disruptions and deviances in social-emotional development. "Young children" was defined as children from birth through age 5; however, most of data on challenging behaviors were obtained from studies of prevention and intervention for children 3 years of age and older. The analysis was limited to social, environmental, educational, therapeutic, and interactional variables that have been examined and described in peer-reviewed dissemination outlets. We did not consider medical and biological interventions in the analysis.

Degrees of evidence. In establishing criteria for empirically based knowledge related to prevention and intervention, we relied on the definition of evidence-based practices offered by Dunst, Trivette, and Cutspec (2002): *Practices that are informed by research, in which the characteristics and consequences of environmental variables are empirically established and the relationship directly informs what a practitioner can do to produce a desired outcome.* This definition allows for knowledge to be derived from studies involving a variety of methodologies and research designs. We incorporated data from experimental, other correlational, and descriptive investigations, recognizing that research designs are constrained by the nature of the research questions as well as ethical considerations. Our primary concerns regarding the presence of evidence were the credibility and magnitude of the data sources and the extent to which a preponderance of data clearly and consistently supported a discernable message related to the content areas.

Literature Review and Consensus Building Procedures

Reviews of the literature. The first step in developing summary statements involved reviewing and synthesizing existing knowledge. We conducted exhaustive reviews of certain aspects of the literature and examined existing, authoritative documents that described reviews, positions, and consensus statements related to challenging behaviors of young children. Center faculty prepared three comprehensive syntheses of

knowledge. These are available on the center's website (www.challengingbehavior.org), and portions have been published in books and peer-reviewed journals (Conroy et al., 2005; Joseph & Strain, 2003; Powell et al., 2006). We also incorporated related reviews (e.g., Shonkoff & Phillips, 2000) and pertinent empirically based consensus documents (e.g., Sandall, Hemmeter, Smith, & McLean, 2005).

In general, the procedures for conducting the literature reviews involved the following steps. First, we searched data bases (ERIC, PsycINFO, Medline) using a variety of keywords pertinent to the areas of interest (e.g., prevention, intervention, challenging behavior, maladaptive behavior, discipline, social-emotional development, social skills). We then conducted hand searches using reference sections from source documents and perusing each issue of journals likely to include articles related to challenging behavior and young children (see Conroy et al. [2005] and Smith & Fox [2003] for lists of these journals). As a final check to guard against oversights and omissions, we used internet search engines (e.g., Google) to identify web sites that might include more recent research data and references, and we sent summaries of our findings to authorities in the field with a request that they point out any sources we may have overlooked.

Consensus building. To come to a group consensus on key statements specific to the presence and impact of challenging behavior, prevention of challenging behavior, and intervention with challenging behavior, we followed the following four-part process. Portions of the consensus building process took place during a center retreat in August 2004, with 16 participants in attendance. First, based on their own prior substantive work, their familiarity with literature reviews, and their current research interests and endeavors, center participants were asked to self-select one content area as their primary focus. Three content area teams were formed, consisting of four to six participants per team. Second, teams were asked to generate three to five summary statements for their content area. Specifically, teams were charged with capturing summary statements that could be supported by the most robust data available, by prior seminal review papers (e.g., *From Neurons to Neighborhoods*, Shonkoff & Phillips, 2000) and by prior consensus documents (e.g., Sandall et al., 2005). Third, summary statements were independently reviewed by the other two teams. The instructions to "reviewers" asked that they edit statements for clarity and accuracy, mark statements that were considered to be inadequately supported by peer-reviewed data, and insert recommendations for additional statements that summarize important data-based knowledge. After all teams had reviewed and edited the summary statements, group meetings followed in which edits, additions, and deletions were discussed, and the entire group of participants eventually agreed that the statements accurately and completely represented their understanding of the pertinent literature.

Summary Statements

The statements produced by the three teams, and finalized by the full group, are listed in *Table 1* and discussed in the following pages. The three sections correspond to the main content areas: presence and impact; prevention; and intervention. The statements are accompanied by explanation, citations designed to illustrate evidence and identify a sample of key sources, and some description of the strength of the supporting documentation.

Presence and Impact of Challenging Behaviors

For well over four decades, researchers from a number of disciplines have conducted longitudinal and retrospective studies concerning the impact of challenging behavior on children's behavioral trajectories. It is noteworthy that these studies have been based on a wide variety of theoretical orientations and have used a wide variety of measurement methods and data analytic procedures. By and large, the data linking early appearing problem behavior to later developmental and social adjustment difficulties are correlational in nature. As such, appropriate caution should be taken when interpreting these data. Notwithstanding these differences and cautionary note, consistent findings have emerged, as evidenced by the major consensus statements that follow.

(1) *When children with significant problems are neither identified in a timely way nor given appropriate education and treatment, their problems tend to be long lasting, requiring more intensive services and resources over time. Moreover, when the*

TABLE 1
Demographic Information of Participants

Summary Statement	*Type of Empirical Support*
Presence and Impact of Challenging Behaviors	
1. When children with significant problems are neither identified in a timely way nor given appropriate education and treatment, their problems tend to be long lasting, requiring more intensive services and resources over time. Moreover, when the challenging behavior of young children is not addressed in an appropriate and timely way, the future likelihood increases for poor academic outcomes, peer rejection, adult mental health concerns, and adverse effects on their families, their service providers, and their communities.	This statement is derived from an aggregation of extensive peer-reviewed descriptive and correlational data pertaining to the prevalence of challenging behaviors and longitudinal outcomes.
2. Although some systems and tools for early identification of children with challenging behaviors are available, the actual identification of these children and provision of appropriate services are very low.	Descriptive data from state and federal service programs, and peer-reviewed articles describing service utilization.
Prevention of Challenging Behaviors	
1. Children and their families who access mental and physical care are less likely to have behavioral and social problems.	Peer-reviewed program evaluations and follow-up analyses of early childhood support programs.
2. Nurturing and positive parenting is associated with children who have healthy relationships and reduced challenging behavior.	Program evaluations of large-scale child care and home visiting services
3. High quality early education environments and caregiver interactions are associated with fewer behavior problems and the development of social competence.	Extensive peer-reviewed program evaluation data and longitudinal analyses of social outcomes.
Intervention with Challenging Behaviors	
1. Interventions based on a functional assessment of the relation between the challenging behaviors and the child's environment are effective for reducing challenging behaviors of young children.	Aggregation of descriptive, quasi-experimental, and experimental peer-reviewed studies using single-subject designs.
2. Teaching procedures have been demonstrated to be effective in developing children's skills and reducing challenging behaviors.	Aggregation of descriptive, quasi-experimental, and experimental peer-reviewed studies using single-subject designs.
3. Interventions involving alterations to features of the child's activities and the child's social and physical environment have been demonstrated to reduce challenging behaviors.	Aggregation of descriptive, quasi-experimental, and experimental peer-reviewed studies using single-subject designs.
4. Multicomponent interventions implemented over time and across multiple relevant environments can produce durable, generalized increases in prosocial behavior and reductions in challenging behaviors.	Aggregation of descriptive, quasi-experimental, and experimental peer-reviewed studies using single-subject designs.
5. Family involvement in the planning and implementation of interventions facilitates durable reductions in challenging behaviors of young children.	Quasi-experimental and experimental analyses, including single-subject and randomized control group designs. Numerous qualitative studies have supported this statement as well.

challenging behavior of young children is not addressed in an appropriate and timely way, the future likelihood increases for poor academic outcomes, peer rejection, adult mental health concerns, and adverse effects on their families, their service providers, and their communities.

On a day-to-day basis, it would appear that children who engage in severe challenging behaviors represent the population of youngsters who are of greatest concern to primary caregivers and service providers (Strain & Timm, 1999). Of this larger group, those labeled as disruptive, noncompliant, aggressive, defiant, or oppositional predictably find their way to the top of the service provider's list of referrals, other placements, and "most

troubling." As Hobbs (1975) so aptly put, not everyone may agree that these children are disturbed, but their physical aggression, destruction of property, lying, and defiance indeed make them *disturbing*. That is not to diminish or discount their risk of school failure and, more significant, their risk of marginalized adult lives characterized by violence, abuse, loneliness, and anxiety (Coie & Dodge, 1998; McCord, 1978; Olweus, 1991). Perhaps there may be no other group of children for whom the "nontreated" or "poorly treated" developmental course is so certain and negative (Lipsey & Derzon, 1998; Patterson & Fleishman, 1979). For example, in a longitudinal post high school follow-up of students who had received special education services, the National Longitudinal Transition Study–2 (Wagner, Cameto, & Newman, 2003) reported the following results: (a) When children with the range of disability categories were compared, those with severe behavior disorders had the lowest grade point average. (b) Approximately 50% of the participants with severe behavior disorders in the NLTS study reported that they failed one or more courses in their most recent school year. (c) More than 66% of those participants failed the competency exam for their grade level. (d) Only one third of those participants completed high school. (e) And this subgroup had the highest dropout rate of any disability category. Moreover, abundant data suggest that there may be powerful, cross-generational patterns of severe problem behavior (Trembley, 2000; Wahler & Dumas, 1986).

What is our current state of the knowledge related to the development and remediation of these severe behavioral problems? First, early appearing behavior problems in a child's preschool career are the single best predictor of delinquency in adolescence, school dropout, gang membership, adult incarceration, and early death (Loeber & Farrington, 1998; Reid, 1993). Consistent with these long-term data, the stability of challenging behavior in young children over a decade is equal to that for intelligence, with cross-year correlations of 0.80 (Kazdin, 1987). If challenging behavior toward others and property is not altered by the end of the third grade, it appears that it should be treated as a chronic condition, hopefully kept somewhat in check by continuing and ever more costly intervention (Dodge, 1993). It is also apparent that children with challenging behaviors who come from families characterized by coercive interactions are the most likely subgroup to grow into a life course of antisocial behavior (Moffitt, 1993; Patterson, 1986).

These outcomes enumerated above clearly speak to the compelling national need for the widespread use of effective and sustainable prevention and intervention tactics. In fact, the national costs of unchecked challenging behavior are nearly impossible to calculate accurately because of its pervasive nature. For the child who engages in persistent challenging behavior and to all those with whom he or she interacts (family, peers, educators), the costs include (a) early and persistent peer rejection (Coie & Dodge, 1998; Strain, 1984), (b) mostly punitive contacts with teachers (Strain, Steele, Ellis, & Timm, 1982; Wehby, Symons, Canale, & Go, 1998), (c) family interaction patterns that *all* participants find to be unpleasant (Patterson, 1986; Patterson & Fleishman, 1979), (d) predictable school failure (Kazdin, 1985; Tremblay, 2000), and (e) lack of community integration (Carr et al., 1999; Lucyshyn, Dunlap, & Albin, 2002; Schalock, Baker, & Croser, 2002).

Although it is tempting to attribute (almost exclusively) the many long-term negative outcomes of challenging behavior to the children themselves, challenging behavior does not occur in a social vacuum. As enumerated earlier, macrolevel variables of poverty, community violence, and maternal depression can all play a large role in the genesis and stability of challenging behavior. For example, at the more micro school level, we know that students with severe challenging behaviors (a) are seldom praised for appropriate behavior (Wehby et al., 1998), (b) are seldom afforded effective academic instruction (Walker, Severson, & Feil, 1995; Wehby, Lane, & Falk, 2003), and (c) are often subject to ineffective, reactive, and punitive interventions from teachers (Shores, Gunter, & Jack, 1993).

(2) *Although some systems and tools for early identification of children with challenging behaviors are available, the actual identification of these children and provision of appropriate services are very low.*

Important progress has been made in the field's ability to identify children with and at risk for challenging behaviors (e.g., Bricker, Shoen Davis, & Squires, 2004; Squires & Nickel, 2003; Walker et al., 1995). There remains, however, very little actual identification and intervention for preschool children with challenging

behaviors. To be sure, a wide variety of factors contribute to the relative underidentification and lack of intervention for young children experiencing challenging behavior. Today, the best estimates indicate that 10% to 20% of the preschool population experiences significant challenging behaviors (Campbell, 1995; Lavigne et al., 1996; Webster-Stratton & Hammond, 1998). In all probability the rather large proportional differences in incidence rates can be attributed to different assessment methods and sample populations.

What is the evidence to support underidentification? Consider the following:

- Although Medicaid screening is mandated for more than 9 million eligible young children, fewer than one third receive a full EPSDT (Early and Periodic Screening, Diagnostic and Treatment), and even fewer receive a screen that includes behavioral health (Powell, Fixsen, & Dunlap, 2003; U.S. General Accounting Office, 2001b).
- More than one half of the states report that few or no behavioral health services are being offered under Medicaid (U.S. General Accounting Office, 2001a).
- Pediatricians, who are the primary and usually the first available point-of-contact for young children with challenging behavior, generally have neither the time nor the expertise to effectively detect and refer for behavioral issues (Holden & Schuman, 1995; Reikert, Stancin, Palermo, & Drotar, 1999).
- A number of studies following Head Start children suggest that there may be a bias against identifying children with behavioral problems (Fantuzzo et al., 1999; Forness et al., 1998; Sinclair, 1993).
- Child mental health utilization data suggest that only 1%–2% of preschoolers access any mental health services in a year (Sturm et al., 2001).
- Longitudinal research on children with special needs age birth through 2 years indicates a wide discrepancy between caregivers' rating of behavioral issues and eligibility based on social/behavioral concerns (Hebbeler et al., 2001).
- Underuse of mental health services is exacerbated by race and ethnicity (Kochanek & Buka, 1998; Sontag & Schacht, 1993; U.S. Department of Education, 2001).

Prevention of Challenging Behaviors

A growing body of evidence supports the contention that a variety of child and family risk factors contribute to early onset conduct disorders which lead to more recalcitrant and intractable problem behavior as the child develops (Campbell, 1995; Huffman, Mehlinger, & Kerivan, 2000; Qi & Kaiser, 2003; Webster-Stratton & Taylor, 2001). Some of those risk factors include lack of prenatal care, low birth weight, maternal depression, early temperament difficulties in infants, developmental disabilities, early behavior and adjustment problems, and inconsistent and harsh parenting (see research summaries in Campbell, 1995; Huffman et al., 2000; Qi & Kaiser, 2003). In response to these findings, researchers have developed and demonstrated that prevention efforts that give families at risk with access to physical and mental health care reduce child social adjustment and behavior problems. The data specific to prevention are decidedly mixed, including some well-designed, randomized trials as well as correlational studies. From this research, we can determine the following:

(1) *Children and their families who access mental and physical care are less likely to have behavioral and social problems.*

For example, data from a randomized study by the Nurse–Family Partnership (also known as the Nurse Home Visitation Program) show that the provision of prenatal and early intervention services until the child turned 2 years had the most impressive results with single, poor mothers who enrolled in the program. In this program, nurses made home visits with mothers, supporting parents in improving their health during pregnancy, providing nurturing care to their infants, and accessing assistance for improving economic self-sufficiency. A follow-up study conducted 15 years after intervention indicated lowered rates of child abuse or neglect and less reliance on public assistance by mothers. Moreover, children at age 15 had fewer instances of running away and fewer arrests and convictions (Olds et al., 1998). These findings have been replicated in the delivery of the program within other communities (Barnard et al., 1988; Kitzman et al., 1997; Larson, 1980). Research from these programs offers strong evidence that early intervention programs that offer early health

care to families at risk are effective in preventing child social maladjustment.

Healthy development for children includes not only the child's physical health status but also his or her emotional and social development. Parenting interactions are the primary and first mechanism for supporting the child's development of social and emotional competence. Thus, prevention programs have focused on supporting families at risk in the development of nurturing parenting skills.

(2) *Children who experience nurturing and positive parenting are more likely to have healthy relationships and reduced problem behavior.*

A rigorous evaluation of Early Head Start offers data that support providing child and family development services to low-income families with infants and toddlers (Love et al., 2005). Data from the national evaluation of Early Head Start have shown that when families participated in the program, their children were more engaged with the parents and showed fewer negative interactions during structured play situations. In addition, children who participated in Early Head Start had less aggressive behavior than comparison children when assessed on the Child Behavior Checklist (Love et al., 2005). Early Head Start parents were observed to be more emotionally supportive of their children (at age 3) and provided more support for children's language development than parents in the control group. Of the three approaches used by Early Head Start, the strongest effects were for a mixed approach that combined both center-based and home-based services. It should be noted, however, that the magnitude of differences seen in the Early Head Start data set may be viewed as modest. Data from the Healthy Families America home visiting program also offer promising results for promoting positive parenting, improving child health, and preventing child abuse and neglect. Research from evaluations of the program provides evidence that families who participate in the program are less likely to be reported for abuse or neglect, show improvements in parenting skills, and have better interactions with their children in addition to receiving all childhood immunizations and well-care check-ups (Daro & Harding, 1999).

(3) *Children who experience high quality early education environments and caregiver interactions are more likely to have better social competence outcomes and fewer behavior problems.*

About 61% of young children (birth to age 6) spend part of their day in some kind of out of home care or early education environment (Federal Interagency Forum on Child and Family Statistics, 2002). When these programs meet the definition of high quality (i.e., quality environments, caregiving interactions, and child/adult ratios), the child's social and behavioral development is supported (Howes, Phillips, & Whitebrook, 1992; Love, Meckstroth, & Sprachman, 1997; Peisner-Feinberg et al., 1999). High quality classroom environments are related to greater child interest and participation and lower levels of behavior problems (Hausfather, Tohari, LaRoche, and Engelsmann, 1997; Howes, 1988; Peisner-Feinberg & Burchinal, 1997; Phillips, McCartney, and Scarr, 1987). The Cost, Quality, and Child Outcomes in Child Care Study produced data on the longitudinal effects of child care quality. This research began in 1992–1993 and followed 862 preschoolers. The outcomes analysis revealed evidence for a modest, continued influence on child skills and abilities into second grade. For problem behavior, they found that teacher–child closeness in the early childhood years had a predictive relationship to problem behavior and sociability in the second grade, with children who experienced higher teacher–child closeness demonstrating higher levels of social and behavioral competence (Peisner-Feinberg et al., 2000). The importance of caregiver relationships is demonstrated in multiple studies where researchers have found a relationship between positive caregiver interactions and prosocial skills and positive peer interactions (Holloway & Reichert-Erickson, 1988; Howes et al., 1992; Kontos & Wilcox-Herzog, 1997).

Intervention With Challenging Behaviors

In this article, intervention refers to procedures that caregivers can use to reduce the challenging behaviors of individual young children. The statements presented are general summations derived from considerable research, primarily though not exclusively in the form of single-subject experimental analyses. Although the data from these studies show large, functional effects of intervention

components, the number of participants and the process by which they are selected raise some concerns about the generality of findings. The summaries do not address specific manualized programs, though some of these have clearly documented effectiveness (cf. Joseph & Strain, 2003). Furthermore, it is important to acknowledge that almost all of the studies cited involve preschool-age children as participants (and some include somewhat older children as well), and almost no direct research has involved the intervention needs of infants and toddlers.

(1) *Interventions based on a functional assessment of the relation between the challenging behaviors and the child's environment are effective for reducing challenging behaviors of young children.*

Challenging behaviors in young children most often are predictable responses to specific antecedent and consequent events occurring in their environment. Functional assessment is the process of gathering information on the antecedent and consequent events that are associated with the occurrence of challenging behavior, as well as the motivational purpose, or function, of the behavior (O'Neill et al., 1997). When these environmental variables are identified, it is possible to develop interventions that are individualized on the basis of the assessment information. For instance, interventions may be developed to modify antecedent events (e.g., the delivery of requests, the presence of materials, the presence of particular peers or adults), modify consequences (e.g., a teacher's attention, a break from an activity), or provide instruction on specific communication or social interaction skills (e.g., teaching the child to make requests). Evidence suggests that interventions that address the function of the children's challenging behaviors are more durable and effective than nonfunction-based interventions (Newcomer & Lewis, 2004).

Considerable research exists supporting the use of functional assessment with young children who engage in challenging behaviors. Typically, research investigating the use of the functional assessment process includes a combination of descriptive and experimental analyses that identify specific antecedents or consequences in the child's environment. Once these environmental variables are identified, an intervention that addresses these variables is implemented to reduce the challenging behavior and increase appropriate behaviors (e.g., Andorfer, Miltenberger, Woster, & Rortvedt, 1994; Blair, Umbreit, & Eck, 2000; Galensky, Miltenberger, Stricker, & Garlinghouse, 2001; Harding et al., 1999; Kern, Ringdahl, Hilt, & Sterling-Turner, 2001; Koegel, Stiebel, & Koegel, 1998; Lawry, Storey, & Danko 1993; Lohrmann-O'Rourke & Yurman, 2001; McGoey, DuPaul, Eckert, Volpe, & Van Brakle, 2005).

(2) *Teaching procedures have been demonstrated to be effective in developing children's skills and reducing challenging behaviors.*

One of the reasons young children engage in challenging behaviors is that they lack necessary language or social skills. For instance, a young child who has communication deficits may lack the appropriate language skills to request attention from an adult. Rather than asking for attention, the child "acts out" to solicit the adult's attention. Teaching young children skills that can be used to *replace* challenging behaviors is one of the most effective, scientifically based interventions available for these behaviors (for a review see Conroy et al., 2005). Not only is teaching replacement behaviors one of the most effective ways to reduce the occurrence of challenging behaviors, it is also an essential part of a comprehensive behavioral intervention plan.

Approaches that include teaching children appropriate replacement skills or alternative skills, often referred to as functional communication training, have been investigated by a number of researchers (e.g., Andorfer et al., 1994; Dunlap, Ester, Langhans, & Fox, 2006; Durand & Carr, 1992; Reeve & Carr, 2000). Additionally, other teaching strategies that increase the use of appropriate behaviors have also been effective in decreasing challenging behaviors, such as teaching self-management skills (e.g., Grandy & Peck, 1997; Kern et al., 2001; Storey, Lawry, Ashworth, Danko, & Strain, 1994) and peer-related social skills (Chandler, Dahlquist, Repp, & Feltz, 1999).

(3) *Interventions involving alterations to features of the child's activities and the child's social and physical environment have been demonstrated to reduce challenging behaviors.*

One scientifically based strategy for preventing the occurrence of challenging behaviors is to alter the features of children's social and physical environments. Rather than directly intervening on the challenging behavior, antecedent-based interventions *increase the probability* that appropriate behaviors will occur and *reduce the probability* that challenging behaviors will occur. As a result, there are more opportunities to reinforce appropriate behaviors. As appropriate behaviors are reinforced, indirectly, these interventions may lead to a decrease in the challenging behavior.

There is a strong literature base investigating the use of antecedent-based interventions that alter young children's social or physical environments. A number of research studies have investigated the use of *choice* as an intervention strategy (e.g., Dunlap et al., 1994; Dyer, Dunlap, & Winterling, 1990; Kern et al., 1998, 2001). Additionally, researchers have found embedding *preference* into difficult activities to be an effective intervention strategy (e.g., Lohrmann-O'Rourke & Yurman, 2001; Umbreit & Blair, 1997). Finally, changes in classroom environmental arrangement and instructional variables, such as rearranging furniture, implementing activity schedules, and altering instructions, have been found to effectively decrease the probability of challenging behaviors and increase the probability of appropriate behaviors (Chandler et al., 1999; Dooley, Wilczenski, & Torem, 2001; Martens, Eckert, Bradley, & Ardoin, 1999).

(4) *Multicomponent interventions implemented over time and across multiple relevant environments can produce durable, generalized increases in prosocial behavior and reductions in challenging behaviors*.

Many scientifically based intervention strategies for decreasing challenging behaviors in young children incorporate multicomponent interventions. Most often, these multicomponent interventions include both antecedent interventions that decrease the likelihood of the challenging behaviors, such as the use of choice or preference, and consequence-based strategies that directly decrease the occurrence of the challenging behavior itself.

Ample evidence validates the effectiveness of multicomponent interventions for use with young children engaging in challenging behaviors. One of the most comprehensive studies was conducted by Chandler and her colleagues (1999) and involved multicomponent interventions, including environmental classroom arrangement, implementation of classroom schedules, and modification of teacher instructions across 15 classrooms serving preschool age children. Other researchers have developed individualized, multicomponent interventions that have included the manipulation of both antecedent and consequent events (Conroy et al., 2005).

(5) *Family involvement in the planning and implementation of interventions facilitates durable reductions in challenging behaviors of young children*.

One of the primary axioms of early childhood intervention is that family members, as principal caregivers, have a significant role in the social, emotional, and behavioral development of children; and therefore, family involvement is a major ingredient in the success of intervention and support programs. This position has been manifested in numerous ways over the past decades. For instance, great emphasis has been placed on parent training and family support as mechanisms for resolving challenging behaviors (Dangel & Polster, 1984; Lucyshyn et al., 2002), and parent involvement and family support have been mandated as necessary ingredients of service delivery for infants and toddlers with disabilities under Part C of the Individuals with Disabilities Education Act (IDEA).

Interventions that have provided families with behavioral techniques for teaching young children behavior expectations and social skills, using positive reinforcement, teaching compliance, and addressing challenging behavior have resulted in impressive outcomes (Brestan & Eyberg, 1998; Eyberg, Boggs, & Algina, 1995; Sanders & McFarland, 2000; Webster-Stratton, 1992; Webster-Stratton & Hammond, 1997; Webster-Stratton & Reid, 1999; Webster-Stratton & Taylor, 2001). Randomized experimental evaluations of these efforts have demonstrated that systematic parent training efforts can result in changes in parent skill development and their child's challenging behavior.

In addition to the literature that illustrates the feasibility and effectiveness of training parents to implement behavioral interventions

(see Dangel & Polster, 1984; Singer, Goldberg-Hamblin, Peckham-Hardin, Barry, & Santorelli, 2002), there are qualitative studies that strongly convey the value and effectiveness of parent involvement (e.g., Turnbull & Ruef, 1996), long-term follow-up studies showing the potential for durable benefits following early family-centered intervention (e.g., Strain & Timm, 2001), and several comprehensive reviews that argue persuasively for involving families in the early intervention process (e.g., Christenson, Rounds, & Franklin, 1992; Lucyshyn et al., 2002; Shonkoff & Phillips, 2000; Webster-Stratton, 1997).

Discussion

Status of Research and Future Directions

Considered as a whole, the empirical evidence related to the presence and impact of challenging behavior, prevention of challenging behavior, and interventions for addressing challenging behavior is fairly extensive, consistent in findings, and clearly directive of programmatic and public policy initiatives. Having said that, a number of knowledge gaps also are evident. Some of the most obvious are the following:

(1) There is little empirical work related to intervention strategies for infants and toddlers. The complexities of intervention research with this age group are many. Most notably, one can point to the following concerns related to the field's needs to improve practices in early identification: (a) discrimination between typical behavior and legitimately challenging behavior is difficult; (b) in many cases the real-life context is the home and the logical intervention agent is the primary caregiver; and (c) measurement methods for assessing challenging behavior for this age group are lacking.
(2) Although evidence for the negative behavioral trajectory associated with early-onset challenging behavior is very convincing, there is also a subpopulation of children who have good behavioral outcomes in the absence of obvious intervention. We know little about this subgroup and what protective factors help divert them from the unfortunate path described earlier in this article.
(3) Much of what we know is based on relatively small-scale studies that include relatively few settings, intervention agents, and child/family participants. Real concerns remain about the generality of their findings to diverse populations within natural settings, and the intricacies of interventions implemented at scale.
(4) Like much of the research in the field of early intervention, relatively little is known about the influence of culture, language, and ethnicity on challenging behavior and its sequelae, prevention, and intervention. Here again, the concerns over generality are very real.
(5) With few exceptions, relatively little research has been conducted that examines the long-term outcomes of intervention on challenging behaviors.
(6) Although a large fraction of research has used directly observed challenging behavior in real-world, ecologically valid contexts, a reasonable fraction of empirically based studies has relied on ratings of child behavior by caregivers and other indirect indices.
(7) Most intervention research has focused on variables affecting individual children, with little research on program procedures, systems components, and public policies that support the use of evidence-based practices with this population. Very few data address larger units of analysis, yet there is no doubt that policies and procedures at a program level can have a tremendous influence on the development and occurrence of challenging behavior (Fox et al., 2003; Knitzer, 2002; Smith & Fox, 2003; Stormont, Lewis, & Smith, 2005).

Proceeding with a vigorous research agenda on the challenging behavior of young children will require both considerable resources and a well-planned approach. The issue of resources cannot be overemphasized. If we wish to take interventions to scale, if we wish to install prevention programs across communities, if we wish to gather longitudinal outcome data, the costs will be considerable. In fact, based on our collective intervention experience, we believe that studies at scale are roughly 5 to 10 times more costly than typical, small-scale evaluations of intervention impact.

It is tempting to suggest that the seven identified research gaps constitute the logical research agenda going forward. Indeed, filling these gaps would represent profound

contributions. We believe, however, that it is equally important to specify the characteristics or features of a future agenda as well. We describe five features (cf. Dunlap, 2006) that we believe will result in research findings which will help solve the serious problems affecting persons who engage in challenging behavior, their families, peers, and service providers.

(1) *A quest for meaningful impact, so that solutions identified in the research will benefit large portions of society or single individuals in life-altering ways*. Meaningful impact, we believe, is best ensured by the use of measurement methods characterized by (a) direct observation of challenging behavior in real-world settings; (b) assessment of the social validity of intervention goals, practices, and outcomes; and (c) assessment of positive life style changes (e.g., more friendships, more access to typical settings) associated with reductions in challenging behaviors.

(2) *A commitment to placing solutions above the strictures of science, and obliging research designs to conform to the situation*. Our notion here is that methodological arrogance in all forms is counterproductive. The nature, impact, and developmental trajectory of challenging behavior are such that many different methodological approaches are needed. Relatedly, the nature, impact, and developmental trajectory of challenging behavior place ethical and practical restraints on the choice of designs. A healthy and complete portfolio of future research will surely require qualitative methods, correlational studies, replicated single case designs, and randomized control trials. Thoughtfully matching the questions, the contexts, and the designs to be used will be the key to ensuring the most meaningful results.

(3) *An emphasis on ecological validity, with a recognition that solutions in analog contexts are not solutions to real human problems*. Most often one thinks of analog contexts as having setting parameters only. That is, we might consider an experimenter-created therapeutic play group as an analog to a free-play period in a preschool. In the analog, the grouping of children is controlled (size, gender, age, etc.), the "agenda" is controlled, and the frequency of sessions is controlled. We would also argue that the analog context may involve the agent or agents of intervention. That is, if the intervention can be delivered only by a small number of people with highly specialized skills, the use of that intervention is limited. This is not to say that analog studies have no role. Studying new, novel, or perhaps controversial intervention approaches may call for an analog experiment. Such interventions, however, must ultimately be made deliverable in real-world contexts.

(4) *A commitment to collaborate with colleagues, students, the community, and particularly research participants, reflecting an understanding that ideas and solutions are social, communal phenomena*. Sometimes referred to as participatory or action research, this feature would be best represented by studies in which child, family, and service provider consumers helped articulate the challenging behaviors of concern, the interventions to be used, and the means for determining success.

(5) *An assertion that ideas and data are more important than ideologies—implying an openness to all potentially useful perspectives, conceptualizations, and the knowledge from divergent disciplines*. If past is prologue, then certainly a future research agenda should encourage and differentially support multidisciplinary efforts. The knowledge base to date represents the important yet isolated contributions of researchers in, for example, the fields of clinical psychology, epidemiology, developmental psychology, special education, early childhood, applied behavior analysis, positive behavior support, psychiatry, infant mental health, and social work. Integration of these disciplines, where relevant and promising, should be a clear priority.

Summary

In this article we have attempted to generate broadly articulated and agreed on findings in the area of young children's challenging behavior via a consensus building and literature review process. As predicted earlier in *Table 1*, summary statements specific to evidence and impact, prevention, and intervention were generated. The statements are not intended to summarize all that is known, but rather to capture the findings from each area for which there is compelling and,

in most cases, noncontroverted data.

Additionally, we have attempted to point out the more glaring holes in the available data on children's challenging behavior. In answering these questions and others, we have also provided some guidance for the conduct of future research.

Viewed from the present historical perspective, it is clear that much is known regarding principles about young children with challenging behavior. If left untreated, challenging behavior almost always gets worse. If preventive and early intervention is available, challenging behavior need not occur or need not escalate. Intervention agents have a wide variety of evidence-based practices from which to choose. This foundation, we believe, sets the occasion to tackle more complex empirical questions as the field attempts to provide and sustain evidence-based practices for all children who may benefit from targeted preventive and early intervention efforts.

REFERENCES

Andorfer, R. E., Miltenberger, R. G., Woster, S. H., & Rortvedt, A. K. (1994). Home-based descriptive and experimental analysis of problem behaviors in children. *Topics in Early Childhood Special Education, 14*, 64–87.

Barnard, K. E., Magyary, D., Sumner, G., et al. (1988). Prevention of parenting alterations for women with low social support. *Psychiatry, 51*, 248–253.

Blair, K. C., Umbreit, J., & Eck, S. (2000). Analysis of multiple variables related to a young child's aggressive behavior. *Journal of Positive Behavioral Interventions, 2*, 33–39.

Brestan, E. V., & Eyberg, S. M. (1998). Effective psychosocial treatments of conduct-disordered children and adolescents: 29 years, 82 studies, and 5272 kids. *Journal of Clinical Child Psychology, 27*, 180–189.

Bricker, D., Schoen Davis, M., & Squires, J. (2004). Mental health screening in young children. *Infants and Young Children, 17*(2), 129–144.

Campbell, S. B. (1995). Behavior problems in preschool children: A review of recent research. *Journal of Child Psychology and Psychiatry, 36*, 113–149.

Carr, E. G., L. Levin, G. McConnachie, J. I. Carlson, D. C. Kemp, C. E. Smith, & D. M. McLaughlin (1999). Comprehensive multisituational intervention for problem behavior in the community: Long-term maintenance and social validation. *Journal of Positive Behavior Interventions, 1*, 5–25.

Chandler, L. K., Dahlquist, C. M., Repp, A. C., & Feltz, C. (1999). The effects of team-based functional assessment on the behavior of students in classroom settings. *Exceptional Children, 66*, 101–122.

Christenson, S. L., Rounds, T., & Franklin, M. J. (1992). Home-school collaboration: Effects, issues, and opportunities. In S. L. Christenson & J. C. Conoley (Eds.), *Home-school collaboration: Enhancing children's academic and social competence*. (pp. 19–51). Washington, DC: NASP.

Coie, J. D., & Dodge, K. A. (1998). Aggression and antisocial behavior. In W. Damon (Editor-in-Chief) and N. Eisenberg (Vol. Ed.), *Handbook of child psychology* (5th ed.), Volume 3. *Social, emotional, and personality development* (pp. 103–145). New York: John Wiley & Sons.

Conroy, M. A., Dunlap, G., Clarke, S., & Alter, P. J. (2005). A descriptive analysis of behavioral intervention research with young children with challenging behavior. *Topics in Early Childhood Special Education, 25*, 157–166.

Dangel, R. F., & Polster, R. A. (Eds.) (1984). *Parent training: Foundations of research and practice*. New York: Guilford Press.

Daro, D. A., & Harding, K. A. (1999). Healthy Families America: Using research to enhance practice. *The Future of Children, 9*, 152–176.

Division for Early Childhood of the Council for Exceptional Children (1999). *DEC concept paper on the identification of and intervention with challenging behavior.* Available: www.dec-sped.org.

Dodge, K. (1993). The future of research on conduct disorder. *Development and Psychopathology, 5*, 311–320.

Dooley, P., Wilczenski, F. L., & Torem, C. (2001). Using an activity schedule to smooth school transitions. *Journal of Positive Behavior Interventions, 3*, 57–61.

Dunlap, G. (2006). The applied behavior analytic heritage of PBS: A dynamic model of action-oriented research. *Journal of Positive Behavior Interventions, 8*, 58–60.

Dunlap, G., DePerczel, M., Clarke, S., Wilson, D., Wright, S., White, R., et al. (1994). Choice making to promote adaptive behavior for students with emotional and behavioral challenges. *Journal of Applied Behavior Analysis, 27*, 505–518.

Dunlap, G., Ester, T., Langhans, S., & Fox, L. (2006). Functional communication training with toddlers in home environments. *Journal of Early Intervention, 28*, 81–96.

Dunlap, G., Fox, L., Smith, B., & Strain, P. (2002). *Center for Evidence-based Practice: Young Children with Challenging Behaviors*. University of South Florida, Tampa, FL: Proposal submitted to the Office of Special Education Programs, U.S. Department of Education (Grant No. H324Z010001).

Dunst, C. J., Trivette, C. M., & Cutspec, P. A. (2002). Toward an operational definition of evidence-based practice. *Centerscope, 1*, 1–10.

Durand, V. M., & Carr, E. G. (1992). An analysis

of maintenance following functional communication training. *Journal of Applied Behavior Analysis, 25*, 777–794.

Dyer, K., Dunlap, G., & Winterling, V. (1990). Effects of choice making on the serious problem behaviors of students with severe handicaps. *Journal of Applied Behavior Analysis, 23*, 515–524.

Eyberg, S. M., Boggs, S. R., & Algina, J. (1995). Parent-child interaction therapy: A psychosocial model for the treatment of young children with conduct problem behavior and their families. *Psychopharmacology Bulletin, 31*, 83–91.

Fantuzzo, J., Stoltzfus, J., Lutz, M .N., Hamlet, H., Balraj, V., Turner, C., et al. (1999). An evaluation of the special needs referral process for low-income preschool children with emotional and behavioral problems. *Early Childhood Research Quarterly, 14*, 465–482.

Federal Interagency Forum on Child and Family Statistics (2002). *America's children: Key national indicators of well-being*. Washington, DC: U.S. Government Printing Office.

Forness, S. R., Ramey, S. L., Ramey, C. T., Hsu, C., Brezausek, C. M., MacMillan, D. L., Kavale, K. A., & Zima, B. T. (1998). Head Start children finishing first grade: Preliminary data on school identification of children at risk for special education. *Behavioral Disorders, 23*, 111–124.

Fox, L., Dunlap, G., Hemmeter, M. L., Joseph, G. E., & Strain, P. S. (2003). The teaching pyramid: A model for supporting social competence and preventing challenging behavior in young children. *Young Children* (July), 48–52.

Galensky, T. L., Miltenberger, R. G., Stricker, J. M., & Garlinghouse, M. A. (2001). Functional assessment and treatment of mealtime behavior problems. *Journal of Positive Behavior Interventions, 3*, 211–224.

Grandy, S. E., & Peck, S. M. (1997). The use of functional assessment and self-management with a first grader. *Child & Family Behavior Therapy, 19*(2), 29–43.

Harding, J. W., Wacker, D. P., Berg, W. K., Cooper, L., Asmus, J., Mela, K., et al. (1999). An analysis of choice making in the assessment of young children with severe behavior problems. *Journal of Applied Behavior Analysis, 32*, 63–82.

Hausfather, A., Toharia, A., LaRoche, C., & Engelsmann, F. (1997). Effects of age of entry, day-care quality, and family characteristics on preschool behavior. *Journal of Child Psychology and Psychiatry and Allied Disciplines, 38*, 441–448.

Hebbeler, K., Wagner, M., Spiker, D., Scarborough, A., Simeonsson, R., & Collier, M. (2001). *A first look at the characteristics of children and families entering early intervention services*. Menlo Park, CA: SRI International.

Hobbs, N. (1975). *The troubled and troubling child*. San Francisco: Jossey-Bass.

Holden, E. W., & Schuman, W. B. (1995). The detection and management of mental health disorders in pediatric primary care. *Journal of Clinical Psychology in Medical Settings, 2*, 71–87.

Holloway, S. D., & Reichert-Erickson, M. (1988). The relationship of day care quality to children's free play behavior and social problem-solving skills. *Early Childhood Research Quarterly, 3*, 39–53.

Howes, C. (1988). Relations between early child care and schooling. *Developmental Psychology, 24*, 53–57.

Howes, C., Phillips, D. A., & Whitebrook. M. (1992). Thresholds of quality: Implications for the social development of children in center-based child care. *Child Development, 63*, 449–460.

Huffman, L. C., Mehlinger, S. L., & Kerivan, A. S. (2000). *Risk factors for academic and behavioral problems at the beginning of school*. Bethesda, MD: National Institute of Mental Health.

Joseph, G. E., & Strain, P. S. (2003). Comprehensive evidence-based social-emotional curricula for young children: An analysis of efficacious adoption potential. *Topics in Early Childhood Special Education, 23*, 65–76.

Kazdin, A. (1985). *Treatment of antisocial behavior*. Homewood, IL: Dorsey.

Kazdin, A. (1987). *Conduct disorders in childhood*. Newbury Park, CA: Sage.

Kern, L., Ringdahl, J. E., Hilt, A., & Sterling-Turner, H. E. (2001). Linking self-management procedures to functional analysis results. *Behavioral Disorders, 26*, 214–226.

Kern, L., Vorndran, C. M., Hilt, A., Ringdahl, J. E., Adelman, B. E., & Dunlap, G. (1998). Choice as an intervention to improve behavior: A review of the literature. *Journal of Behavioral Education, 8*, 151–170.

Kitzman, H., Olds, D. L., Henderson, C. R., Jr., Hanks, C., Cole, R., Tatelbaum, R., et al. (1997). Effect of prenatal and infancy home visitation by nurses on pregnancy outcomes, childhood injuries, and repeated childbearing. A randomized controlled trial. *Journal of the American Medical Association, 278*, 637–643.

Knitzer, J. (2002). Promoting social and emotional readiness for school: Toward a policy agenda. In *Set For success: Building a strong foundation for school readiness based on the social-emotional development of young children* (pp. 100–122). Kansas City, MO: The Ewing Marion Kaufman Foundation.

Kochanek, T. T., & Buka, S. L. (1998). Influential factors in the utilization of early intervention services by infants, toddlers, and their families. *Journal of Early Intervention, 21*, 217–238.

Koegel, L. K., Stiebel, D., & Koegel, R. L. (1998). Reducing aggression in children with autism toward infant or toddler siblings. *Journal of the Association for Persons with Severe Handicaps, 23*, 111–118.

Kontos, S., & Wilcox-Herzog, A. (1997). Influences on children's competence in early childhood

classrooms. *Early Childhood Research Quarterly, 12*, 247–262.

Larson, C. P. (1980). Efficacy of prenatal and postpartum home visits on child health and development. *Pediatrics, 66*, 191–197.

Lavigne, J. V., Gibbons, R. D., Christoffel, K. K., Arend, R., Rosenbaum, D., Binns, H., et al. (1996). Prevalence rates and correlates of psychiatric disorders among preschool children. *Journal of the American Academy of Child & Adolescent Psychiatry, 35*, 889–897.

Lawry, J. R., Storey, K., & Danko, C. D. (1993). Analyzing behavior problems in the classroom: A case study of functional analysis. *Intervention in School and Clinic, 29*, 96–100.

Lipsey, M. W., & Derzon, J. H. (1998). Predictors of violent or serious delinquency in adolescence and early adulthood: A synthesis of longitudinal research. In R. Loeber & D. P. Farrington (Eds.), *Serious and violent juvenile offenders: Risk factors and successful interventions* (pp. 86–105). Thousand Oaks, CA: Sage.

Loeber, R., & Farrington, D. P. (1998). *Serious and violent juvenile offenders: Risk factors and successful interventions*. Thousand Oaks, CA: Sage.

Lohrmann-O'Rourke, S., & Yurman, B. (2001). Naturalistic assessment of and intervention for mouthing behaviors influenced by establishing operations. *Journal of Positive Behavior Interventions, 3*, 19–27.

Love, J. M., Kisker, E. E., Ross, C., Raikes, H., Constantine, J., Boller, K., et al. (2005). The effectiveness of Early Head Start for 3 year old children and their parents: Lessons for policy and programs. *Developmental Psychology, 41*, 885–901.

Love, J. M., Meckstroth, A., & Sprachman, S. (1997). *Measuring the quality of program environments in Head Start and other early childhood programs: A review and recommendations for future research*. Working Paper No. 97-36. Washington, DC: U.S. Department of Education, National Center for Education Statistics.

Lucyshyn, J. M., Dunlap, G., & Albin, R. W. (Eds.) (2002). *Families and positive behavior support: Addressing problem behavior in family contexts*. Baltimore, MD: Paul H. Brookes.

Martens, B. K., Eckert, T. L., Bradley, T. A., & Ardoin, S. P. (1999). Identifying effective treatments from a brief experimental analysis: Using single-case design elements to aid decision making. *School Psychology Quarterly, 14*, 163–181.

McCord, J. (1978). A thirty year follow-up of treatment effects. *American Psychologist, 33*, 284–289.

McGoey, K. E., DuPaul, G. J., Eckert, T. L., Volpe, R. J., & Van Brakle, J. (2005). Outcomes of a multi-component intervention for preschool children at-risk for attention-deficit/hyperactivity disorder. *Child & Family Behavior Therapy, 27*, 33–56.

Moffitt, T. E. (1993). Adolescence-limited and life-course-persistent antisocial behavior. *Psychological Review, 100*, 674–701.

Newcomer, L. L., & Lewis, T. (2004). Functional behavioral assessment: An investigation of assessment reliability and effectiveness of function-based interventions. *Journal of Emotional Behavioral Disorders, 12*(3), 168–181.

New Freedom Commission on Mental Health (2003). *Achieving the promise: Transforming mental health care in America*. Final report. DHHS Pub. No. SMA-03-3832. Rockville, MD: U.S. Department of Health and Human Services.

Olds, D., Henderson, C., Cole, R., Eckenrode, J., Kitzman, H., & Luckey, D. (1998). Long-term effects of nurse home visitation on children's criminal and antisocial behavior: 15-year follow up of a randomized trial. *Journal of the American Medical Association, 280*(14), 1238–1244.

Olweus, D. (1991). Bully/victim problems among school children: Basic facts and effects of a school-based intervention program. In D. Pepler & K. Rubin (Eds.), *The development and treatment of childhood aggression* (pp. 411–446). London: Lawrence Erlbaum.

O'Neill, R. E., Horner, R. H., Albin, R. W., Sprague, J. R., Storey, K., et al. (1997). *Functional assessment and program development for problem behavior: A practical handbook* (2nd ed.). Pacific Grove, CA: Brooks/Cole.

Patterson, G. R. (1986). Performance models for antisocial boys. *American Psychologist, 41*, 432–444.

Patterson, G. R., & Fleishman, M. J. (1979). Maintenance of treatment effects: Some considerations concerning family systems and follow-up data. *Behavior Therapy, 10*, 168–185.

Peisner-Feinberg, E., & Burchinal, M. (1997). Concurrent relations between child care quality and child outcomes: The study of cost, quality, and outcomes in child care centers. *Merrill-Palmer Quarterly, 43*, 451-477.

Peisner-Feinberg, E. S., Burchinal, M. R., Clifford, R. M., Culkin, M. L., Howes, C., Kagan, S. L., et al. (2000). *The children of the cost, quality, and outcomes go to school: Technical report.* Chapel Hill: University of North Carolina at Chapel Hill, Frank Porter Graham Child Development Center.

Peisner-Feinberg, E. S., Burchinal, M. R., Clifford, R. M., Yazejian, N., et al. (1999). *The children of the cost, quality, and outcomes study go to school: Executive summary.* Chapel Hill: University of North Carolina at Chapel Hill, Frank Porter Graham Child Development Center.

Phillips, D. A., McCartney, K., & Scarr, S. (1987). Child-care quality and children's social development. *Developmental Psychology, 23*, 537–544.

Powell, D., Dunlap, G., & Fox, L. (2006). Prevention and intervention for the challenging behaviors

of toddlers and preschoolers. *Infants and Young Children, 19*, 25–35.

Powell, D., Fixsen, D., & Dunlap, G. (2003). *Pathways to service utilization: A synthesis of evidence relevant to young children with challenging behavior.* Center for Evidence-based Practice: Young Children with Challenging Behavior. Available: www.challengingbehavior.org.

Qi, C. H., & Kaiser, A. P. (2003). Behavior problems of preschool children from low-income families: Review of the literature. *Topics in Early Childhood Special Education, 23*, 188–216.

Reeve, C. E., & Carr, E. G. (2000). Prevention of severe behavior problems in children with developmental disorders. *Journal of Positive Behavior Interventions, 2*, 144–160.

Reid, J. (1993). Prevention of conduct disorder before and after school entry: Relating interventions to developmental findings. *Development and Psychopathology, 5*, 243–262.

Reikert, K. A., Stancin, T., Palermo, T. M., & Drotar, D. (1999). A psychological behavioral screening service: Use, feasibility, and impact in a primary care setting. *Journal of Pediatric Psychology, 24*, 405–414.

Sandall, S., Hemmeter, M., Smith, B., & McLean, M. (Eds.) (2005). *DEC recommended practices: A comprehensive guide for practical application.* Longmont, CO: Sopris West Educational Services.

Sanders, M. R., & McFarland, M. L. (2000). The treatment of depressed mothers with disruptive children: A controlled evaluation of cognitive behavioral family intervention. *Behaviour Therapy, 31*, 89–112.

Schalock, R.L., Baker, P., & Croser, D. (2002). *Embarking on a new century: Mental retardation at the end of the 20th century.* Washington, DC: American Association on Mental Retardation.

Shonkoff, J. P., & Phillips, D. A. (Eds.) (2000). *From neurons to neighborhoods: The science of early development.* Washington, DC: National Academy Press.

Shores, R. E., Gunter, P. L., & Jack, S. L. (1993). Classroom management strategies: Are they setting events for coercion? *Behavioral Disorders, 18*, 92–102.

Sinclair, E. (1993). Early identification of preschoolers with special needs in Head Start. *Topics in Early Childhood Special Education, 13*, 184–201.

Singer, G. H. S., Goldberg-Hamblin, S. E., Peckham-Hardin, K. D., Barry, L., & Santorelli, G. E. (2002). In J. Lucyshyn, G. Dunlap, & R. W. Albin (Eds.), *Families and positive behavior support: Addressing problem behavior in family contexts* (pp. 155–183). Baltimore, MD: Paul H. Brookes.

Smith, B. J., & Fox, L. (2003). *Systems of service delivery: A synthesis of evidence relevant to young children at risk of or who have challenging behavior.* Center for Evidence-based Practice: Young Children with Challenging Behavior. Available: www.challengingbehavior.org.

Sontag, J. C., & Schacht, R. (1993). Family diversity and patterns of service utilization in early intervention. *Journal of Early Intervention, 17*(4), 431–444.

Squires, J., & Nickel, R. (2003). Never too soon: Identification of social-emotional problems in infants and toddlers. *Contemporary Pediatrics, 20* (3), 117–125.

Storey, K., Lawry, J. R., Ashworth, R., Danko, C. D., & Strain, P. S. (1994). Functional analysis and intervention for disruptive behaviors of a kindergarten student. *Journal of Educational Research, 87*, 361–370.

Stormont, M., Lewis, T. J., & Smith, S. C. (2005). Behavior support strategies in early childhood settings: Teachers' importance and feasibility ratings. *Journal of Positive Behavior Interventions, 7*, 131–139.

Strain, P. S. (1984). Social behavior patterns of nonhandicapped and nonhandicapped–developmentally disabled friend pairs in mainstream preschools. *Analysis and Intervention in Developmental Disabilities, 4*, 15–28.

Strain, P. S., Steele, P., Ellis, T., & Timm, M. A. (1982). Long-term effects of oppositional child treatment with mothers as therapists and therapists trainers. *Journal of Applied Behavior Analysis, 15*, 163–169.

Strain, P. S., & Timm, M. A. (1999). *Remediation and prevention of aggression in young children with severe emotional disturbance.* Research Symposium presented at 15th Annual International Conference, Division for Early Childhood, Council for Exceptional Children, Washington, D.C.

Strain, P. S., & Timm, M. A. (2001). Remediation and prevention of aggression: A 25-year follow-up of RIP graduates. *Behavioral Disorders, 26*, 297–313.

Sturm, R., Ringel, J., Bao, C., Stein, B. Kapur, K., Zhang, W., & Zeng, F. (2001). National estimates of mental health utilization and expenditures for children in 1998. In *Blueprint for change: Research on child and adolescent mental health,* Vol. VI, Appendices. (pp. 91–117). Washington, DC: National Advisory Mental Health Council Workgroup on Child and Adolescent Mental Health Intervention, Development, and Deployment.

Tremblay, R. E. (2000). The development of aggressive behavior during childhood: What have we learned in the past century? *International Journal of Behavioral Development, 24*, 129–141.

Turnbull, A. P., & Ruef, M. B. (1996). Family perspectives on problem behavior. *Mental Retardation, 34*, 280–293.

Umbreit, J., & Blair, K. (1997). Using structure analysis to facilitate treatment of aggression and noncompliance in a young child at risk for behavioral disorders. *Behavioral Disorders, 22*,

75–86.
U.S. Department of Education. (2001). To assure the free appropriate public education of all children with disabilities. Individuals with Disabilities Act, Section 618. *Twenty-third Annual Report to Congress on the Implementation of the Individuals with Disabilities Education Act*. Washington, DC: Author
U.S. General Accounting Office (2001a). *Medicaid: Stronger efforts needed to ensure children's access to health screening services*. GAO Pub. No. GAO-01-749. Washington DC: Author.
U.S. General Accounting Office (2001b). *Student discipline: Individuals with Disabilities in Education Act*. GAO Report No. GAO-01-210. Washington, DC: Author.
Wagner, M., Cameto, R., & Newman, L. (2003). *Youth with disabilities: A changing population. a report of findings from the National Longitudinal Transition Study (NLTS) and the National Longitudinal Transition Study-2 (NLTS2)*. Menlo Park, CA: SRI International. Available at www.nlts2.org/reports/2003_04-1/nlts2_report_2003_04-1_complete.pdf.
Wahler, R., & Dumas, J. E. (1986). "A chip off the old block": Some interpersonal characteristics of coercive children across generations. In P. Strain, M. Guralnick, & H.M Walker (Eds.), *Children's social behavior: Development, assessment, and modification* (pp. 49–91). Orlando, FL: Academic Press.
Walker, H. M., Severson, H. H., & Feil, E. G. (1995). *Early screening project: A proven child-find process*. Longmont, CO: Sopris West Educational Services.
Webster-Stratton, C. (1992). Individually administered videotape parent training: Who benefits? *Cognitive Therapy and Research, 16*, 31–52.
Webster-Stratton, C. (1997). Early intervention for families of preschool children with conduct problems. In M. J. Guralnick (Ed.), *The effectiveness of early intervention: Second generation research* (pp. 429–454). Baltimore, MD: Paul H. Brookes.
Webster-Stratton, C., & Hammond, M. (1997). Treating children with early-onset conduct problems: A comparison of child and parent training interventions. *Journal of Consulting and Clinical Psychology, 65*, 93–109.
Webster-Stratton, C., and Hammond, M. (1998). Conduct problems and level of social competence in Head Start children: Prevalence, pervasiveness, and associated risk factors. *Clinical Child and Family Psychology Review, 1*(2), 101–123.
Webster-Stratton, C., & Reid, M. J. (2004). Strengthening social and emotional competence in young children: The foundation for early school readiness and success. *Infants and Young Children, 17*, 96–113.
Webster-Stratton, C., & Taylor, T. (2001). Nipping early risk factors in the bud: Preventing substance abuse, delinquency, and violence in adolescence through interventions targeted at young children (0–8 years). *Prevention Science, 2*, 165–192.
Wehby, J. H., Lane, K. L., & Falk, K. B. (2003). Academic instruction for students with emotional and behavioral disorders. *Journal of Emotional and Behavioral Disorders, 11*, 194–197.
Wehby, J. H., Symons, F. M., Canale, J., & Go, F. (1998). Teaching practices in classrooms for students with emotional and behavioral disorders: Discrepancies between recommendations and observations. *Behavioral Disorders, 24*, 52–57.

AUTHORS' NOTES

The reviews and consensus building process described herein, and the preparation of the manuscript, were supported by Grant No. H324Z010001, the Center for Evidence-based Practice: Young Children with Challenging Behavior, funded by the Office of Special Education Programs (OSEP) of the U.S. Department of Education. However, the opinions and positions are those of the authors and no endorsement by the U.S. Department of Education should be inferred.

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Initial Acceptance: 7/1/06
Final Acceptance: 8/19/06