

## A Randomized Controlled Trial of Child FIRST: A Comprehensive Home-Based Intervention Translating Research Into Early Childhood Practice

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This randomized, controlled trial was designed to document the effectiveness of Child FIRST (Child and Family Interagency, Resource, Support, and Training), a home-based, psychotherapeutic, parent-child intervention embedded in a system of care. Multirisk urban mothers and children, ages 6–36 months ( $N = 157$ ) participated. At the 12-month follow-up, Child FIRST children had improved language (odds ratio [OR] = 4.4) and externalizing symptoms (OR = 4.7) compared to Usual Care children. Child FIRST mothers had less parenting stress at the 6-month follow-up (OR = 3.0), lower psychopathology symptoms at 12-month follow-up (OR = 4.0), and less protective service involvement at 3 years postbaseline (OR = 2.1) relative to Usual Care mothers. Intervention families accessed 91% of wanted services relative to 33% among Usual Care. Thus, Child FIRST is effective with multirisk families raising young children across multiple child and parent outcomes.

Until recently, mental health problems in infants and young children were largely unrecognized (The President's New Freedom Commission on Mental Health, 2003; Zeanah, 2000) and rarely treated (Horwitz, Gary, Briggs-Gowan, & Carter, 2003). With increasing recognition of early-emergent mental health problems comes an urgent need for evidence-based intervention approaches that incorporate principles of developmental psychopathology, address contextual risks, and are integrated with existing service systems within communities. Child FIRST (Child and Family Interagency, Resource, Support, and Training) is a

comprehensive, home-based, therapeutic intervention targeting multirisk young children and families embedded in a coordinated "system of care" (Stroul, 2002). It was developed to prevent or diminish serious emotional disturbance, developmental and learning disabilities, and abuse and neglect. Child FIRST has two core components which act synergistically: (a) a system of care approach to provide comprehensive, integrated services and supports (e.g., early education, housing, substance abuse treatment) to the child and family and (b) a relationship-based approach to enhance nurturing, responsive parent-child interactions and promote positive social-emotional and cognitive development. This is the first randomized, controlled trial (RCT) to test the effectiveness of the Child FIRST integrated model.

### *Early Childhood Mental Health*

As many as 15%–20% of young children are now estimated to have significant social-emotional or behavioral problems and rates are even higher in

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children living in impoverished environments (Briggs-Gowan, Carter, Skuban, & Horwitz, 2001). This is consistent with an abundant literature that indicates that cumulative environmental risk is strongly associated with increased incidence of social-emotional and behavioral problems (Knapp, Ammen, Arstein-Kerslake, Poulsen, & Mastergeorge, 2007; Sameroff & Seifer, 1995). While early-emerging emotional and behavioral problems may change in expression, many do not spontaneously resolve and nearly half persist into the early primary grades (Briggs-Gowan & Carter, 2008). Thus, comprehensive intervention approaches, such as Child FIRST, have the potential to prevent persistent mental health problems and to promote later healthy well-being.

#### *The Central Role of Early Relationships*

Responsive early relationships are crucial to later success because they form the foundation for both cognitive and social-emotional development, which are inextricably connected in the early years of life (Morrison, Rimm-Kauffman, & Pianta, 2003; NICHD Early Child Care Research Network, 2005b). A sensitive, responsive, secure parent-child relationship is associated with multiple positive outcomes, including increased self-reliance, adaptation to novel and challenging situations, empathy, curiosity, emotional regulation, and social competence (Eshel, Daelmans, de Mello, & Martines, 2006; Sroufe, 2005; Thompson, 2008). Given current state and national focus on school readiness, it is important to recognize that these social-emotional strengths are essential to the development of a motivated learner who is eager to explore and engage with parents, teachers, and peers in learning opportunities. Researchers in developmental psychology, neurobiology, and economics generally agree that attempts at remediation later in life are less effective and much more costly (cf. Knudsen, Heckman, Cameron, & Shonkoff, 2006; National Scientific Council on the Developing Child, 2007), supporting the powerful opportunity offered by prevention and early intervention activities.

#### *The Child FIRST Model*

The goal of the Child FIRST model was to identify children in families with high cumulative risk as early as possible and to intervene to prevent or remediate serious emotional disturbance, developmental and learning problems, and abuse and neglect. The model was formulated with two

complementary core components: (a) connection to comprehensive, integrated services and supports through a "system of care" approach to decrease psychosocial stress and promote positive outcomes and (b) promotion of responsive, nurturing caregiving through a relationship-based psychotherapeutic approach to enhance social-emotional and cognitive development. Services were offered in the home to reduce barriers to treatment, increase engagement, and intervene in the child's natural environment.

*System of care component.* "System of care" refers to a comprehensive, individualized, well-integrated, community-based approach to providing services and supports driven by the strengths, needs, and culture of the family (Knitzer, 2000; Stroul, 2002). Built on an ecological framework, the child's emotional well-being is addressed across a continuum of coordinated supports that cross multiple child and adult service sectors, including mental health, health, early care, early intervention, education, child protection, and social and concrete services. The system of care approach promotes integration of fragmented service systems and merging of categorical funding streams at the state level and building of professional relationships and agency collaboration at the local level (Perry, Kaufmann, & Knitzer, 2007). Empirical evidence of the effectiveness of this approach has been constrained partially due to the complexity of evaluating both systems- and clinical/functional-level outcomes, especially relative to a comparison group (Gilliam, Ripple, Zigler, & Leiter, 2000; Smith & Fox, 2004; Stroul, 2002). A national evaluation indicated that the system of care approach was associated with increased academic performance and emotional health and decreased delinquency among young adolescents (Farmer, Mustillo, Burns, & Costello, 2005). Recognition of the need for a system of care focusing on the mental health of young children has evolved over the past two decades (Perry et al., 2007). Many states and regions/localities have acquired federal or state funds, often through public-private partnerships, to address this need with strong positive outcomes (Johnson & Theberge, 2007; Kaye & Rosenthal, 2008). Notable interventions include the Children's Upstream Services in Vermont and the SAMHSA cross-site Starting Early, Starting Smart Initiative. Results show decreased parenting stress and child behavior problems, as well as improved parent-child interaction (Kaufmann & Hepburn, 2007; Pandina et al., 2004; Springer, Sale, Basen, & Pecora, 2003). While many programs have been implemented, to our

knowledge, none have been evaluated with an RCT in early childhood.

*Home visitation.* Home visitation utilizes the natural home environment to promote healthy child development and optimal parenting practices (e.g., Duggan et al., 1999; Olds, 2006). The broad and varied array of programs include universal and targeted prevention programs using manualized, educational curriculum with high-risk, low-income, first-time mothers (e.g., the Nurse–Family Partnership, Olds, 2006), programs connecting families with comprehensive and individualized services and supports (e.g., the Syracuse University Family Development Research Project, Lally, Mangione, & Honig, 1988), and Early Head Start (Love et al., 2005). The many evaluations of home visitation programs demonstrate promising although often modest results in the areas of cognitive and language development, child problem behaviors, parent–child interactions, and child maltreatment, as well as selected evidence of reductions in long-term substance use and delinquency (Gomby, Culross, & Behrman, 1999; Love et al., 2005; Olds, 2006; Sweet & Applebaum, 2004). Some home-visiting programs have documented improvements in maternal mental health outcomes with specific populations (e.g., Gelfand, Teti, Seiner, & Jameson, 1996), while others have not (e.g., Duggan et al., 1999), and many programs have not examined these outcomes, suggesting the need for more research in this area. In contrast to many home visitation programs, Child FIRST employed a team with mental health clinicians providing a dyadic, two-generation psychotherapeutic intervention, and care coordinators who (a) connected families with wanted community-based services, (b) provided content guided by parental need rather than a fixed curriculum, and (c) accepted all parents and young children without exclusion.

*Dyadic psychotherapeutic component.* In recent years, many excellent therapeutic programs have been developed to support parents and promote young children’s social-emotional and cognitive development (Berlin, Zeanah, & Lieberman, 2008). In contrast to home visitation, which is largely viewed as preventive, these programs focus on children who are exhibiting clinically significant mental health and relational problems, varying in their emphasis on changing parent behaviors and/or representations of the infant and the relationship. Several RCTs have documented the efficacy of parent–child dyadic psychotherapy, supporting improvements in child symptoms, emotional regulation, cognitive development, attachment security and organization, parent–infant interaction, and

maternal depressive symptoms (Cicchetti, Rogosch, & Toth, 2000; Field et al., 2000; Heinicke, Fineman, Ponce, & Guthrie, 2001; Lieberman, Ghosh Ippen, & Van Horn, 2006; Toth, Rogosch, Manly, & Cicchetti, 2006). Meta-analyses of procedures to improve maternal sensitivity suggest that brief interventions may be more successful than longer term ones (van IJzendoorn, Bakermans-Kranenburg, & Juffer, 2005).

The relationship-based infant– and child–parent psychotherapy pioneered by Fraiberg (1980) and expanded upon by Lieberman and her colleagues (Lieberman & Van Horn, 2008) was chosen as the basis for the psychotherapeutic component of Child FIRST, with multiple RCTs supporting the efficacy of this model (Cicchetti et al., 2000; Lieberman et al., 2006). The therapist–parent alliance serves as a fulcrum for change in the parent–child dyad with the therapist working conjointly with the parent and child to enhance maternal reflectivity and empathy with the child’s experience as a means of improving maternal sensitivity and responsiveness to the child (Brophy-Herb & Honig, 1999).

*Summary.* Research on systems of care has produced encouraging results, yet evidence of effectiveness has been limited, especially relative to a control group. The broad range of home visitation programs that have reported positive outcomes suggests the value of bringing services into families’ homes as a way to reach the most high-risk families. However, there has been limited evidence of the effectiveness of these programs to target child and maternal mental health outcomes, suggesting a need for more research in this area. Dyadic psychotherapeutic approaches have been shown to be efficacious under controlled conditions with specific risk populations. More research is needed to establish whether such approaches can be integrated with a system of care treatment to connect parents with needed/wanted services and promote child language outcomes and positive child and parent mental health, while reducing child exposure to abuse and neglect and parenting stress. Of key relevance, is the ability of this model to be implemented with multirisk families raising very young children who may already be showing signs of social-emotional/behavioral problems, and the ability of researchers to evaluate these complex programs with an RCT design (Gilliam et al., 2000; Smith & Fox, 2004).

The Child FIRST Intervention was developed to translate research on the negative effects of exposure to cumulative psychosocial risks on young children’s emotional and cognitive development, as well as the promising evaluation research regarding

systems of care, home visitation programs, and dyadic psychotherapeutic interventions into an integrated intervention that (a) provided comprehensive, coordinated services and supports to the child and family to decrease environmental stressors and address family needs and (b) utilized the power of early relationships to enhance social-emotional and cognitive development. The Child FIRST Intervention received by research participants was an existing model that was being delivered concurrently to children referred from other community providers within the Bridgeport, Connecticut region. Hence, this RCT was developed to test the *effectiveness* of the Child FIRST Intervention in a *real-world context*. It was hypothesized that the Child FIRST Intervention would be associated with: (a) increased family utilization of community resources and supports, (b) lower levels of child emotional/behavioral problems, (c) lower levels of child language problems, (d) lower levels of maternal depressive and other mental health symptoms, (e) less parenting stress, and (f) lower levels of involvement with Child Protective Services (CPS).

## Method

### Participants

Children in this RCT were eligible if the child met the following criteria: age 6–36 months, screened positive for social-emotional/behavioral problems on the Brief Infant-Toddler Social and Emotional Assessment, (BITSEA; Briggs-Gowan & Carter, 2006) and/or the parent screened high for psychosocial risk on a risk screen developed for this study (Parent Risk Questionnaire [PRQ]); lived in the city of Bridgeport, Connecticut; and was in a permanent caregiving environment. Children referred directly from community providers and families with prior involvement with Child FIRST were not eligible for the RCT. Eligible families were identified at two sites that served predominantly inner-city families living in poverty: (a) Bridgeport Hospital Pediatric Primary Care Center (PCC) and (b) the Supplementary Nutrition Program for Women, Infants, and Children (WIC). The screening sites were chosen because the ongoing Child FIRST Intervention program was not receiving services from these sites, and therefore randomization would not deny services to any children or families.

A total of 642 families completed screens (330 in PCC and 312 at WIC). Four hundred and sixty-four families screened positive. All of these families completed the PRQ, and those with children over

12 months ( $n = 310$ ) also completed the BITSEA. Of the 310 families who completed the BITSEA and PRQ, 72% were positive on both, 27% were positive on the PRQ only, and < 1% were BITSEA positive only. After the initial screening, attempts to contact all eligible families by phone and/or letter resulted in successful contact with 363 families (78%), 80% of whom agreed to be visited in their homes to learn more about the intervention study ( $n = 290$ ). Of these, 254 parents could be scheduled for home visits and consented to enroll in the RCT, representing 55% of families who screened positive. Families providing consent ( $n = 254$ ) were similar to those who were screened but not enrolled ( $n = 210$ ) in terms of screen status on the BITSEA (72.4% vs. 72.1% positive) and PRQ (98.4% vs. 97.1% positive), as well as on level of parental worry (50.8% vs. 46.4%). Reasons for nonparticipation included lack of time (e.g., work, school, or family commitments) or discomfort with home visits due to living in another's home. After consent was obtained, families completed two assessment visits prior to randomization. The 97 families not randomized because they did not complete baseline visits were comparable to the 157 randomized on all screening variables.

*Attrition.* At enrollment there were 78 children in the Child FIRST intervention group and 79 in the Usual Care control group. Sixty-four Child FIRST and 67 Usual Care families participated at the 6 month follow-up (82% and 85% overall retention, respectively). Fifty-eight Child FIRST and 59 Usual Care families participated at the 12 month follow-up (74% and 75% retention, respectively). Analyses focus on this latter group ( $n = 117$ ). Dropouts from the two groups ( $n = 40$ ) were similar on all baseline characteristics presented in Tables 1 and 2 ( $p > .10$ ).

*Group comparability.* The Child FIRST and Usual Care groups were similar on all baseline measures of sociodemographic and psychosocial risk, service needs and history of CPS involvement (Table 1), with one exception described below. Participants in the 6-month and 12-month follow-ups also were comparable on these baseline measures. At baseline, maternal education was lower in the Child FIRST group ( $\chi^2 = 2.83$ ,  $p < .10$ ,  $\phi = -.13$ ). This difference was significant at the 6-month follow-up ( $\chi^2 = 4.25$ ,  $p < .05$ ,  $\phi = -.18$ ) but not at the 12-month follow-up. Thus, maternal education was included as a covariate in models. As the groups were comparable in child age and sex at all time points, these variables were not included as covariates.

*Participant characteristics.* At baseline, children were 5.4–35.9 months of age (Child FIRST

Table 1  
Sociodemographic and Psychosocial Characteristics of the Sample at  
Baseline (n = 157)

	Child FIRST	Usual care
	%	%
Boys	42.3	45.6
Girls	57.7	54.4
Maternal ethnicity		
Latino/Hispanic	60.3	57.0
African American	26.9	32.9
Caucasian	6.4	8.9
Other	6.4	1.3
Marital status		
Married	33.8	32.1
Divorced or separated	6.5	10.3
Single, never married	59.7	57.7
Teenage mother	9.1	10.1
Mother or partner ever incarcerated	24.3	29.1
Maternal education		
< 9th grade	27.0	16.7
9th–12th grade, no diploma	34.6	27.9
High school degree/GED	22.2	26.9
Some college, no degree	6.4	19.2
2-year degree	5.0	6.5
Bachelor's degree or other	1.6	2.6
Maternal work status		
Unemployed	65.4	62.0
Temp/part-time/self-employed	25.6	25.3
Full-time (> 25 hr/week)	9.0	12.7
Receiving public assistance	92.9	92.4
Ever homeless	25.6	23.4
Family substance abuse history	46.2	41.0
Family CPS involvement history	28.2	39.2

Note. GED = General Educational Development test; CPS = child protective services.

$M = 19.0$  months,  $SD = 9.2$  months, 43.6% 21 months or older; Usual Care  $M = 18.0$ ,  $SD = 8.8$  months, 38.0% 21 months or older). Mothers ranged in age from 17 to 47 years (Child FIRST  $M = 27.7$ ,  $SD = 7.0$ ; Usual Care  $M = 26.9$ ,  $SD = 6.9$ ). Household size was 2–11 people (Child FIRST  $M = 4.9$ ,  $SD = 1.9$ ; Usual Care  $M = 5.0$ ,  $SD = 2.1$ ). Psychosocial risk was very high at baseline (Tables 1 and 2). Many children had clinically significant social-emotional/behavioral problems or language delays (Table 2). Families had an average of 15 unmet service needs at baseline (Child FIRST  $M = 15.3$ ,  $SD = 9.2$ ; Usual Care  $M = 15.2$ ,  $SD = 9.9$ ).

### Procedures

Parents were given the screening measures with a cover letter describing the voluntary nature of par-

ticipation, indicating they would be contacted if they were eligible for the intervention study. The baseline assessment consisted of questionnaires completed in two sessions in the family home and a third session in the hospital office. Parents completed screening measures and questionnaires in English or Spanish independently or via interview for any parent who indicated difficulty reading the materials (all at or below a sixth-grade level). Families were randomized by coin toss by the principal investigator to the Child FIRST intervention group or Usual Care control group after completing the baseline assessment. To facilitate group comparability, randomization was stratified by child age (6–20 months and 21–36 months), BITSEA score (low, moderate, or high positive), and family psychosocial risk (moderate or high). Families were reassessed at approximately 6 and 12 months after completion of baseline, with self-report questionnaires and interviews. Research assistants were trained to administer items in a standard fashion without providing feedback to mothers. Although efforts were made to keep the research assistants unaware of group status, research assistants frequently learned about group status in follow-up assessments because families divulged their involvement with Child FIRST when providing responses to the interview about service involvement.

Parents received \$75 for participation in the baseline assessment, \$50 for the 6-month assessment, and \$75 for the 12-month assessment. Informed consent was obtained from all participants. All procedures were approved by the institutional Investigation and Review Board.

### Description of Child FIRST Intervention

The Child FIRST Intervention was designed to span the continuum from prevention to intervention, avoiding the fragmentation of categorical programs focused on a single-risk population. For this RCT, child enrollment was limited to ages 6–36 months; however, Child FIRST is routinely available to any child, prenatal to 6 years of age, evidencing emotional/behavior or developmental/learning problems or living within a family experiencing significant psychosocial risk. Each family was assigned a clinical team, consisting of a master's level developmental/mental health clinician and an associate's or bachelor's level care coordinator/case manager, who usually reflected the ethnic diversity of the family and spoke the language of the family's choosing. Engagement and building trust were fundamental goals of the intervention.

Table 2

Proportion With Clinically Concerning Problems at Baseline and at Follow-Ups (FU) at 6 and 12 Months Postbaseline

		Base <sup>a</sup>	Base <sup>b</sup>	6-month FU	12-month FU		Base <sup>a</sup>	Base <sup>b</sup>	6-month FU	12-month FU	
Child outcomes		%	%	%	%	Parenting stress	%	%	%	%	
Child language	CF	17.1	17.5	16.9 <sub>a</sub>	10.5 <sub>b</sub>	Any PSI scale	CF	56.4	60.0	38.1 <sub>f</sub>	32.7 <sub>g</sub>
	UC	21.9	20.8	30.3 <sub>a</sub>	33.3 <sub>b</sub>		UC	51.9	50.9	57.6 <sub>f</sub>	44.1 <sub>g</sub>
Any ITSEA domain	CF	56.6	56.1	26.3	26.4 <sub>c</sub>	Total score	CF	41.0	45.6	20.6 <sub>h</sub>	19.6
	UC	48.1	48.8	44.4	36.4 <sub>c</sub>		UC	35.4	35.6	34.9 <sub>h</sub>	22.0
ITSEA externalizing	CF	43.4	46.3	22.8	17.0 <sub>d</sub>	Difficult child	CF	18.0	20.0	4.8 <sub>i</sub>	7.1
	UC	36.5	36.6	36.5	29.1 <sub>d</sub>		UC	15.2	15.3	19.7 <sub>i</sub>	11.9
ITSEA dysregulation	CF	28.3	24.4	7.0	11.3	Parent distress	CF	41.0	43.6	31.8 <sub>j</sub>	21.4
	UC	32.7	29.3	15.9	12.7		UC	36.7	37.3	45.5 <sub>j</sub>	28.8
ITSEA internalizing	CF	9.4	9.8	3.5	1.9	Parent-child dysfunction	CF	23.1	25.5	19.1	21.4
	UC	13.5	12.2	1.6	1.8		UC	20.3	18.6	22.7	17.0
Maternal symptoms											
BSI	CF	30.8	28.1	25.8	14.0 <sub>e</sub>	CES-D	CF	56.4	54.7	46.0	33.3
	UC	30.4	28.8	31.8	39.0 <sub>e</sub>		UC	51.9	51.5	40.8	37.9

Note. Percentages with the same subscript differ at  $p < .05$ . ITSEA = Infant-Toddler Social and Emotional Assessment; CF = Child FIRST intervention group; UC = Usual Care control group; BSI = Brief Symptom Inventory; CES-D = Center for Epidemiological Studies Depression Scale.

<sup>a</sup>All randomized subjects ( $n = 157$ ). <sup>b</sup>Analyzed sample ( $n = 117$  with data at baseline and both FU).

Staff were trained to approach families with warmth, empathy, and respect and to communicate in words and deeds that they were there as partners and advocates. Outreach continued even in the face of multiple missed appointments. The approach was to ask without judgment or agenda, "How would you like us to help you and your family?" Often beginning by listening to and meeting the family's concrete needs, the clinical team strove to create a "holding environment" and to give many parents a new experience of relationships. The family was the target of the intervention; thus, all important individuals in the child's life were included (e.g., grandparents, siblings, father even if out of home, and the primary parent's partner) to strengthen the parent-child relationships and to build a network of supportive relationships that could continue to sustain the primary parent (usually the mother) over the long term.

Therapeutic services were delivered predominantly in the home, which provided an opportunity to respond to identified problems as they arose in their natural setting and eliminated barriers of transportation, child care, and stigma. The clinician and care coordinator partnered with the parents in a comprehensive assessment of the child and family, identifying and, when appropriate, involving all other service providers. This resulted in a family driven plan of broad, integrated supports and services for all family members, which reflected family priorities, strengths, culture, and needs. The clini-

cian took primary responsibility for therapeutic assessment and intervention with child and parent; the care coordinator, with expertise in community resources, facilitated family engagement in community services. They also had role flexibility to respond to individual family needs. For example, the care coordinator could play with and observe the target child and siblings while the clinician discussed sensitive topics with the parent(s). Weekly visits of 45–90 min were made jointly or individually, as needed by the family. Notably, there were many missed and canceled appointments.

Guided by the issues that were most salient to the family and driven by the child and family strengths, needs, and psychological availability, a highly individualized, multilevel, parent-child psychotherapeutic and psychoeducational approach was used (Heinicke et al., 2001; Lieberman & Van Horn, 2008). There was no set curriculum; however, child development materials often were shared. These materials were written at sixth grade reading level and available in English and Spanish. A major goal of the therapeutic relationship was to help the parent(s) reflect on their child's experiences and the motivations and feelings underlying their child's behavior and, in turn, on their own feelings and responses to the behavior. This often involved exploring connections between the parent's past and current relationships and feelings toward the child. Together, parent and clinician explored alternate interpretations of the meaning of the child's

behavior and developed more effective responses. For example, a child's "hitting" the mother could be reframed as a bid for attention from a child who needed his mother, with the therapist speaking for the child. The goal was to help parents internalize a process for future responses to child communications rather than teaching specific strategies for specific problem behaviors. Additionally, clinicians were trained to reinforce positive maternal behaviors directed to the child and child behaviors that were indicative of the importance of the mother to the child. A central goal was to facilitate mutual delight through reciprocal parent-child play, as well as positive interactions through reading, play, and family routines. Play also was used to help the child master and rework difficult challenges and to promote language development.

The Child FIRST Assessment and Intervention Manual was used to teach and guide the intervention. The Assessment and Intervention Fidelity Checklist focused on the core elements of the intervention and included: observation of the child's emotional, cognitive, and physical development; observation of parent-child interaction and play; psychoeducation including developmental stages, expectations, and meaning of typical behaviors; reflective functioning to understand the child's feelings and meaning of child's unique and challenging behaviors; psychodynamic understanding of mother's history, feelings, and experience of the child; alternate perspectives of child behavior and new parental responses; and positive reinforcement of both parents' and child's strengths to promote parental self-esteem. In addition, a parent-child interaction rubric consisting of 20 items on a 5-point Likert scale helped to guide observations of parent-child interactions. After each visit, the clinician completed the fidelity checklist, which was reviewed in individual, clinical supervision to maintain intervention fidelity.

### Measures

Sociodemographic variables and family risk were assessed at screening/baseline only. All measures of child language and social-emotional adjustment, maternal symptoms, service needs, and CPS involvement were assessed at baseline, 6 months, and 12 months.

At the initial screening, psychosocial risk was assessed using the PRQ, a 25-item, one-page, parent-report screener developed for this study. The PRQ is composed of simple, nonthreatening questions written below a sixth-grade level that require

a *yes* or *no* response. Risk is assessed in 12 areas, including depression, domestic violence, substance use, homelessness, incarceration, isolation, single and teen parenthood, education, and employment. A weighted score was used to determine eligibility. Social-emotional/behavioral problems at the initial screening were assessed with parent reports on the BITSEA (Briggs-Gowan & Carter, 2006). The BITSEA is a 42-item standardized screener for children ages 12–36 months. It has acceptable reliability and validity.

Child language status was assessed with the Infant-Toddler Developmental Assessment (IDA; Provence, Erickson, Vater, & Palmieri, 1995), administered by a trained assessor. The IDA has acceptable reliability and validity. "Of concern" cut-points from a standardization sample were used.

Child social-emotional/behavioral problems were assessed with the Infant-Toddler Social and Emotional Assessment (ITSEA; Carter & Briggs-Gowan, 2006), a reliable and valid questionnaire. The ITSEA is composed of Internalizing, Externalizing, and Dysregulation domains. The latter domain is unique to the ITSEA and concerns sleep, eating, sensory sensitivities, and negative emotionality. Items are rated on a 3-point scale from *not true/rarely* to *very true/often*. *T* scores  $\geq 65$  indicate clinical problems.

Parents completed the Parenting Stress Index (PSI) Short Form (Abidin, 1990). Items are rated on a 5-point scale from *strongly disagree* to *strongly agree*. All domains (Parent Distress, Difficult Child, and Parent-Child Dysfunctional Interaction) have acceptable reliability and validity. Parental depressive symptoms were assessed with self-reports on the Center for Epidemiological Studies Depression Scale (CES-D; Radloff, 1977). Items are rated on a 4-point scale from *rarely or none of the time* to *most or all of the time*. The CES-D has acceptable reliability and validity. A clinical cutoff of 16 was used. Global psychiatric symptoms were assessed using parent self-report on the global severity index of the Brief Symptom Inventory (BSI; Derogatis, 1993). Items are rated on a 5-point scale from *not at all* to *extremely*. Reliability and validity are acceptable. A norm-based clinical cutpoint was employed.

Service needs and access were assessed via parent questionnaire and interview designed to determine the services families currently had and those they needed/wanted. Nine domains of service needs were assessed: (a) child development, (b) early care and education, (c) child emotions and behavior, (d) family health, (e) parent support, (f) adult education, (g) adult mental health and

substance use, (h) social services, and (i) concrete needs.

At each assessment, mothers were interviewed about the family's prior or current involvement with CPS. With parental consent, State of Connecticut CPS records were abstracted. These data provided investigation dates for the mother or child but were not sufficiently detailed to establish the duration of involvement or active involvement at baseline. Some mothers reported involvement that was not indicated in the CPS records, presumably due to difficulty locating cases based on names/birth dates (a common problem with CPS records). Thus, CPS involvement was coded positive if it was reported by the mother and/or indicated in the records. Variables reflecting CPS involvement (a) prior to (or at) baseline and (b) at any time from baseline to 3 years postbaseline were created.

At the completion of treatment, Child FIRST parents completed the Parent Satisfaction Questionnaire (PSQ; Marshall, Hays, Sherbourne, & Wells, 1993). The original PSQ was supplemented with six items concerning feeling respected, problem behavior, and connection to resources. Items were rated on a 5-point scale from *strongly disagree* to *strongly agree*.

### *Analytic Approach*

An intention-to-treat analytic strategy was employed in which models included all participants with data on the outcome variable, irrespective of treatment received. Primary repeated measures analyses utilizing data from baseline, and the 6- and 12-month follow-up focus on the 117 participants with complete data for all assessments. Because loss to follow-up to the 12 month assessment could influence findings, all models also were examined in the sample with baseline and 6-month follow-up data ( $n = 131$ ); results are noted in the footnote to Table 3. Data were screened for outliers and tested for assumptions of normality. Outliers were defined as scores  $\geq 3.29$  standard deviations from the mean. Outliers on individual measures ( $n = 7$ ) were recoded (assigned values at 3.29 standard deviations above the mean). The BSI and Parent-Child Dysfunctional Interaction Scale domain of the PSI were skewed ( $> 1.0$ ) and successfully transformed with a square root transformation.

Repeated measures analysis of covariance (ANCOVA) and logistic regression models were employed to evaluate treatment effects on continuous and categorical outcome variables, respectively. All models controlled for baseline scores on the

outcome variable, to test for the effect of treatment on change relative to baseline and included maternal education as a covariate. In the repeated measures ANCOVA analyses, treatment effects were indicated by both treatment group main effects and Treatment Group  $\times$  Time interactions. Significant effects identified in repeated measures models were further examined with separate ANCOVAs for the 6-month and 12-month outcomes, controlling for baseline scores and maternal education. Logistic regression models were employed to test for treatment effects on variables with categorical outcomes (i.e., language status and CPS involvement). They also were used to aid in the interpretation of the clinical significance of the findings from ANCOVA models; thus, statistically significant effects observed in continuous models were followed with logistic regression models predicting to clinical cut-points. All models controlled for baseline scores on the outcome variable. Due to power constraints in these categorical models, independent variables that did not contribute significantly to the model (i.e., deletion did not significantly reduce  $G^2$  and parameter estimates did not change by more than 10%) were individually deleted.

## **Results**

### *Treatment Contacts*

Child FIRST treatment for all families who had 12-month data (consistent with an intention-to-treat analysis) lasted a mean of 22.1 weeks ( $SD = 14.5$ ,  $Mdn = 18.7$ ) and comprised an average of 24.0 contacts per family ( $SD = 14.3$ ), including direct contacts with the family through home-based clinician and care coordinator visits ( $M = 12.2$ ,  $SD = 6.9$ ) and phone contacts for case management ( $M = 11.8$ ,  $SD = 8.4$ ), consultation, and scheduling.

### *Parent Satisfaction*

Parents randomized to Child FIRST indicated a very high level of satisfaction, with a mean rating of 4.6 on a 5-point Likert scale ( $SD = 0.5$ ).

### *Services Accessed*

The Child FIRST Intervention had a strong effect on access to services at both 6-month and 12-month assessments. Child FIRST families received a mean of 14.7 ( $SD = 5.4$ ) wanted services as opposed to Usual Care families who received 5.1 ( $SD = 2.4$ ).

Table 3  
Treatment Effects on Maternal and Child Outcomes at Follow-Up (FU) Assessments at 6 and 12 months Postbaseline (n = 117)

Outcome	Group <sup>a</sup>	Baseline		6-month FU		12-month FU		Repeated measures ANCOVA		6-month FU ANCOVA <sup>b</sup>		12-month FU ANCOVA	
		Raw M	SD	Raw M	SD	Raw M	SD	F values	Part. $\eta^2$	F values	Part. $\eta^2$	F values	Part. $\eta^2$
ITSEA externalizing	CF	18.4	(8.6)	15.4	(7.6)	13.8 <sub>a</sub>	(7.6)	F <sub>Group</sub> : 5.79*	.078	F <sub>Group</sub> : 2.61	.037	F <sub>Group</sub> : 7.08*	.094
	UC	18.3	(7.5)	18.4	(9.4)	18.4 <sub>a</sub>	(9.6)	F <sub>Group x Time</sub> : 1.55	.022	F <sub>Group</sub> : 0.47	.007	F <sub>Group</sub> : 1.07	.015
ITSEA internalizing	CF	16.8	(7.4)	15.4	(7.9)	13.1	(5.9)	F <sub>Group</sub> : 1.02	.015	F <sub>Group</sub> : 1.45	.021	F <sub>Group</sub> : 3.82 <sup>†</sup>	.053
	UC	16.7	(6.9)	15.8	(6.3)	14.6	(7.0)	F <sub>Group x Time</sub> : 0.12	.002	F <sub>Group</sub> : 0.00	.000	F <sub>Group</sub> : 9.05**	.076
ITSEA dysregulation	CF	21.4	(10.0)	18.4	(9.2)	16.4	(7.8)	F <sub>Group</sub> : 3.61 <sup>†</sup>	.050	F <sub>Group</sub> : 6.89*	.059	F <sub>Group</sub> : 1.22	.011
	UC	23.6	(8.9)	21.4	(8.1)	20.7	(8.9)	F <sub>Group x Time</sub> : 0.71	.010	F <sub>Group</sub> : 6.43*	.055	F <sub>Group</sub> : 2.24	.020
BSI	CF	35.9	(29.1)	32.7	(34.7)	21.0 <sub>c</sub>	(22.1)	F <sub>Group</sub> : 2.51	.022	F <sub>Group</sub> : 2.14	.019	F <sub>Group</sub> : 0.00	.000
	UC	35.9	(28.8)	33.0	(30.8)	35.1 <sub>c</sub>	(32.4)	F <sub>Group x Time</sub> : 9.77**	.082	F <sub>Group</sub> : 421.13***	.800	F <sub>Group</sub> : 450.60*	.811
CES-D	CF	20.1	(11.1)	16.9	(11.6)	13.5 <sub>d</sub>	(10.9)	F <sub>Group</sub> : 3.95*	.034	F <sub>Group</sub> : 0.00	.000	F <sub>Group</sub> : 0.00	.000
	UC	18.5	(10.7)	18.5	(10.6)	17.4 <sub>d</sub>	(10.9)	F <sub>Group x Time</sub> : 2.16	.019	F <sub>Group</sub> : 6.53*	.056	F <sub>Group</sub> : 1.55	.014
PSI total score	CF	86.0	(20.2)	74.2 <sub>e</sub>	(19.5)	76.3	(20.3)	F <sub>Group</sub> : 5.05*	.044	F <sub>Group</sub> : 0.00	.000	F <sub>Group</sub> : 0.00	.000
	UC	81.0	(20.1)	81.9 <sub>e</sub>	(21.2)	76.9	(18.0)	F <sub>Group x Time</sub> : 2.57	.023	F <sub>Group</sub> : 421.13***	.800	F <sub>Group</sub> : 450.60*	.811
PSI difficult child	CF	28.1	(8.7)	23.5 <sub>f</sub>	(7.7)	24.9	(6.6)	F <sub>Group</sub> : 5.87*	.051	F <sub>Group</sub> : 6.43*	.055	F <sub>Group</sub> : 2.24	.020
	UC	26.8	(8.1)	26.5 <sub>f</sub>	(8.7)	25.9	(7.8)	F <sub>Group x Time</sub> : 1.55	.014	F <sub>Group</sub> : 0.00	.000	F <sub>Group</sub> : 0.00	.000
PSI parent-child dysfunction	CF	23.6	(8.2)	20.4	(8.0)	21.6	(7.5)	F <sub>Group</sub> : 0.81	.007	F <sub>Group</sub> : 2.14	.019	F <sub>Group</sub> : 0.00	.000
	UC	21.5	(7.8)	21.9	(8.1)	20.6	(6.7)	F <sub>Group x Time</sub> : 2.30	.020	F <sub>Group</sub> : 6.53*	.056	F <sub>Group</sub> : 1.55	.014
PSI parent distress	CF	34.2	(9.0)	30.3 <sub>g</sub>	(9.8)	29.7	(9.6)	F <sub>Group</sub> : 5.21*	.045	F <sub>Group</sub> : 0.00	.000	F <sub>Group</sub> : 0.00	.000
	UC	32.6	(8.9)	33.6 <sub>g</sub>	(9.1)	30.4	(9.1)	F <sub>Group x Time</sub> : 1.37	.012	F <sub>Group</sub> : 421.13***	.800	F <sub>Group</sub> : 450.60*	.811
% wanted services received	CF	6.1	(2.4)	88.1 <sub>h</sub>	(9.8)	91.2 <sub>i</sub>	(8.8)	—	—	F <sub>Group</sub> : 421.13***	.800	F <sub>Group</sub> : 450.60*	.811
	UC	4.7	(1.8)	31.8 <sub>h</sub>	(15.8)	33.2 <sub>i</sub>	(15.8)	—	—	F <sub>Group</sub> : 421.13***	.800	F <sub>Group</sub> : 450.60*	.811

Note. Means with the same subscript differed significantly at the given assessment point ( $p < .05$ ). ANCOVA = analysis of covariance; ITSEA = Infant-Toddler Social and Emotional Assessment; CF = Child FIRST Intervention; UC = Usual Care (control); BSI = Brief Symptom Inventory; CES-D = Center for Epidemiological Studies Depression Scale; PSI = Parenting Stress Index.  
<sup>a</sup>F values control for baseline status; and partial  $\eta^2$  measures effect size. Values below .056 are considered to be small, .056 to .139 medium,  $\geq .139$  large. <sup>b</sup>Results presented are for participants with data at all three assessment points. The same significant effects were observed in 6-month FU models for the 131 participants with baseline and 6-month FU data (regardless of 12-month FU data).  
<sup>†</sup> $p < .10$ . \* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .001$ .

A great majority (91.2%) of wanted service needs were met in Child FIRST families at 12 months, compared with only one third (33.2%) in Usual Care. Families in Child FIRST had significantly greater numbers of needs met in all domains than Usual Care (Child Mental Health 93% vs. 2%, respectively, Child Development 99% vs. 14%, Early Education 88% vs. 26%, Family Support 83% vs. 9%, Adult Mental Health 92% vs. 7%, Social Services 93% vs. 56%, Medical Services 98% vs. 78%, Adult Education 62% vs. 9%, and Concrete Needs 89% vs. 16%;  $t$  values ranged from 5.20 to 20.28,  $p < .001$ ).

### Child Outcomes

**Language.** Patterns of language problems at each assessment are presented in Table 2. Results of a multivariate logistic regression model indicated significant effects of the intervention on language at the 6-month (odds ratio [OR] = 3.0, 95% confidence interval [CI] = 1.1–8.5,  $p < .05$ ) and 12-month assessments (OR = 4.4, 95% CI = 1.4–14.2,  $p < .05$ ), controlling for baseline language problems (maternal education was not a covariate because its deletion did not influence model fit or parameter estimates). Examination of language problems at 12 months, stratified by the presence or absence of language at baseline suggests that the observed effect reflects both remission of existing problems and prevention of new problems in families in Child FIRST compared with Usual Care (Figure 1).

**Child symptoms.** Results of a repeated measures ANCOVA indicated a significant effect of Child FIRST on ITSEA Externalizing behaviors, but no significant Group  $\times$  Time interaction (Table 3). Follow-up ANCOVAs indicated that although the

intervention effect was not significant at 6 months, it was significant at 12-months, with a moderate effect size. The same pattern was observed in logistic regression models in which baseline ITSEA Externalizing scores and maternal education were controlled, with a significant effect observed at the 12-month follow-up (OR = 4.7, 95% CI = 1.4–16.8,  $p < .05$ ), but not at 6-month follow-up (OR = 2.7, 95% CI = 0.8–16.8,  $p > .10$ ). As shown in Figure 1, there appears to have been a significant reduction in clinical levels of externalizing problems in the intervention group relative to the controls. In contrast, ITSEA Internalizing and Dysregulation revealed no significant intervention effects (Table 3). Logistic regressions were not used due to the nonsignificant continuous models.

**Maternal symptoms.** A significant effect of treatment group on maternal global symptoms reported on the BSI was observed, with lower symptoms in the Child FIRST group and a moderate effect size (Table 3). Follow-up ANCOVAs indicated that the group effect was significant at 12-month but not at 6-month follow-up. The logistic regression models revealed a significant effect of intervention on clinical levels of symptoms at 12-month follow-up (OR = 4.0, 95% CI = 1.6–10.0,  $p < .05$ ). The pattern of findings presented in Figure 1 suggest that these findings reflect both a reduction in maternal symptoms and a prevention of new symptoms among mothers in Child FIRST, relative to Usual Care. For maternal depressive symptoms reported on the CES-D, the repeated measures ANCOVA revealed a significant group effect, with lower symptoms reported by mothers in Child FIRST relative to Usual Care, which also was evident in the 12-month ANCOVA. However, the logistic regression model predicting to clinical levels of depressive symptoms at 12 month follow-up was not significant (OR = 1.9, 95% CI = 0.9–4.1,  $p < .15$ ).

**Parenting stress.** Results of repeated measures ANCOVAs indicated significant intervention effects on the Total, Difficult Child, and Parent Distress scores of the PSI. The 6-month follow-up models indicated that Child FIRST mothers reported significantly lower parenting stress on the Total, Difficult Child, and Parent Distress scores relative to mothers in Usual Care; however the ANCOVAs for the 12-month follow-up were not significant. Multivariate logistic regression models indicated that Child FIRST mothers were significantly less likely than mothers in Usual Care to report clinical levels of parenting stress at the 6-month follow-up on the PSI total score (OR = 3.0, 95% CI = 1.3–6.5,  $p < .05$ ); Difficult Child domain (OR = 7.4, 95% CI = 1.8–31.2,

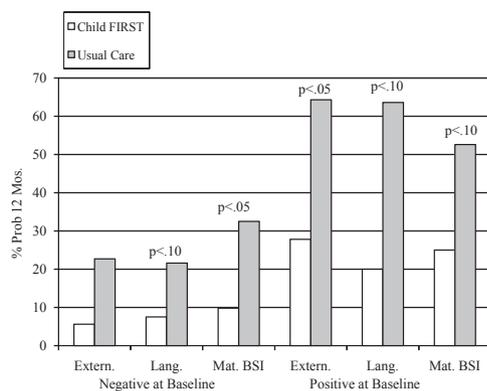


Figure 1. Child and maternal clinical problem outcomes according to baseline status.

$p < .01$ ), and Parent Distress domain (OR = 2.4, 95% CI = 1.1–5.3,  $p < .05$ ).

*Child protective services.* Logistic regression models were used to test for treatment effects on family involvement with CPS (using the composite derived from parent reports and CPS data) for the period from enrollment to 3 years after enrollment (Figure 1). As data were available for 157 families, this analysis included all enrolled families, including dropouts. Controlling for baseline CPS involvement, there was no significant intervention effect on involvement between baseline and 6 months (OR = 1.7, 95% CI = 0.7–3.9), 12 months (OR = 1.7, 95% CI = 0.7–3.9), or 24 months after baseline (OR = 1.9, 95% CI = 0.9–4.2). However, there was a significant effect of the intervention on involvement by 36 months postbaseline, controlling for history of involvement with CPS (OR = 2.1, 95% CI = 1.0–4.4,  $p < .05$ ; see Figure 2).

## Discussion

This RCT supports the effectiveness of Child FIRST, a comprehensive intervention that provides psychotherapeutic parent–child treatment and collaborative “system of care” services for the identified child, siblings, and parents. Most notable is the breadth of positive effects observed across multiple domains within a low income, diverse, urban sample of multirisk families with children less than 3 years of age, many of whom already were exhibiting social-emotional and behavioral problems. Participants received the same intervention, provided by the same clinicians, as children referred from community providers. Randomization was ethically feasible because enrolled families were identified through screening sites that had not yet begun to make referrals to Child FIRST. Consistent with previous studies documenting the negative

impact of cumulative psychosocial stress on child social-emotional problems (e.g., Sameroff & Seifer, 1995), nearly all of the families that screened positive for social-emotional problems also screened positive for psychosocial risk. As no exclusions were made based on type or level of risk, including maternal psychopathology, substance abuse, domestic violence, or homelessness, the effectiveness of this model can be generalized to similar multirisk populations.

The Child FIRST Intervention was very effective at achieving a primary program goal of increasing family access to a wide range of community-based services, including those pertaining to child and adult: health, mental health, education, social services, and concrete needs. Intervention families were successfully connected with 91% of desired resources, compared to only 33% for Usual Care families. These effects were achieved by the 6-month postbaseline assessment and maintained at the 12-month follow-up, suggesting lasting success in connecting families with services. The vast majority of Child FIRST families were receiving wanted/needed early education (88%) and child development services (e.g., 99%), while only a minority of Usual Care families connected with these resources (< 26%). These findings are promising in light of research that documents associations between early education/intervention and enhanced school readiness, academic achievement, and employment, and reductions in developmental delays and poverty (Love et al., 2005; NICHD Early Child Care Research Network., 2005a; Schweinhart et al., 2005; Shonkoff & Phillips, 2000).

The Child FIRST intervention demonstrated positive benefits in two key areas for promoting healthy development and school readiness: children’s language and social-emotional/behavioral problems. Intervention effects on language were present at 6 months postbaseline and sustained at the 12-month follow-up. Further, patterns of observed change suggest the presence of gains for Child FIRST children who had language problems upon enrollment, as well as prevention of new problems in those who did not. By the 12-month follow-up, children in Child FIRST had fewer externalizing problems. Among children with externalizing problems at baseline, the rate of clinical problems was 28% in Child FIRST compared to 64% in Usual Care. Thus, Child FIRST appears to have been effective in preventing language problems and ameliorating both language and behavioral problems.

Child FIRST was also successful in improving parenting outcomes, including parenting stress,

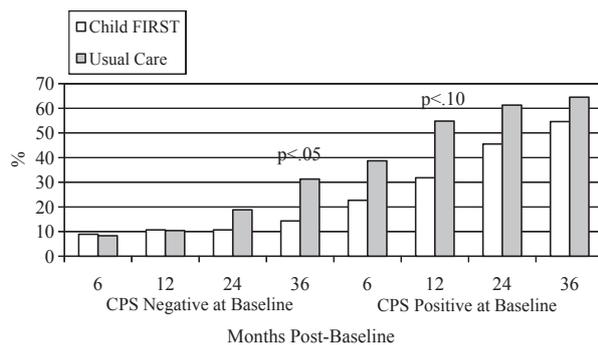


Figure 2. Involvement with Child Protective Services (CPS;  $n = 157$ ).

mental health symptoms, and suspected child abuse and neglect. Parenting stress was significantly lower among Child FIRST intervention mothers than Usual Care mothers at the 6-month follow-up, although no longer significant at the 12-month follow-up. In contrast, Child FIRST mothers showed reduced global psychological symptoms and depressive symptoms at 12 months. Among mothers without clinically significant mental health problems at baseline, symptoms were less likely to begin among mothers in the Child FIRST Intervention than in Usual Care (10% vs. 33%), consistent with a preventive effect. The patterns also suggested some amelioration, as persistent maternal symptoms, (i.e., elevated at baseline and the 12-month follow-up), were more common among those in Usual Care than in Child FIRST (53% vs. 25%). These longer term effects may reflect changes in maternal psychological well-being and coping strategies, ongoing engagement with other services, or lasting reductions in environmental stressors.

From the perspective of social policy, a critical finding is that families in Child FIRST were significantly less likely to be involved with CPS 3 years after enrollment than were families in Usual Care. This finding was most likely due to a combination of factors, including efforts to promote positive changes in the parent-child relationship (e.g., increased understanding of child behaviors, decreased use of physical discipline, and increased capacity to keep the child safe) and increased engagement in community services that provided access to emotional supports as well as concrete resources like food, housing, and heat.

The improvements in child social-emotional/behavioral functioning found in this study are consistent with outcomes reported by RCTs of relationship-based interventions (e.g., Heinicke et al., 2001; Lieberman et al., 2006; Toth et al., 2006) and other interventions with a home-visiting component (e.g., Love et al., 2005; Olds, 2006). However, our results are notable given the breadth of positive effects observed across multiple child and parent domains in a multirisk sample. As with other comprehensive interventions, it is not possible to determine which components of Child FIRST influenced the various outcomes. The effectiveness of Child FIRST for these multirisk families is likely driven by the synergistic contributions of the two component model. The family centered, system of care approach focuses on the mothers' agenda, often beginning with obtaining concrete supports and services (e.g., food, furniture, and heat). This appears to help families feel heard and supported,

which facilitates trust and engagement, critical to the therapeutic alliance. Moreover, a strong therapeutic alliance may be an important component of the dyadic psychotherapeutic intervention, as maternal trust and engagement with the therapeutic team likely promotes greater change in the parent-child relationship. In addition, this trust and respect may contribute to mothers' openness to engage with outside social services. Greater utilization of services may decrease environmental challenges, enhance family stabilization, decrease maternal stress, and enhance mothers' capacity to nurture their children. Ideally, the synergistic contributions of the two component model result in mothers having the emotional and concrete resources necessary to optimize their children's healthy development.

#### *Limitations and Future Directions*

This research should be understood in light of certain limitations, many of which reflect common challenges of conducting community-based, clinical intervention research (e.g., Olds, Sadler, & Kitzman, 2007). Future research is needed to examine the mechanisms or developmental processes through which intervention effects were achieved. For example, do changes in quality of the parent-child interaction or parental reflective functioning lead to improvements in child and parent outcomes? Are treatment effects moderated by specific child or family risk factors, such as maternal depression, substance use, homelessness, and violence exposure? Multimethod (e.g., observed and reported parenting) and multi-informant assessments are optimal when assessing treatment effects but were not feasible given funding constraints. Thus, current assessment relied on maternal reports, with the exception of child language and state CPS data. Additionally, our inability to keep research staff unaware of group status is a limitation, although most measures were independently completed as parent-report questionnaires. Finally, the use of a fidelity checklist within clinical supervision, without formal analysis of intervention fidelity, limits our ability to document the extent to which Child FIRST was implemented as designed.

While the results of this RCT provide promising support for the Child FIRST model, critical empirical work remains. We are disseminating this model to other communities serving high-risk families, pursuing the following goals: (a) demonstrate that Child FIRST can be reliably implemented with fidelity and compliance in other communities; (b)

replicate the findings observed in this RCT with a multimethod, multi-informant, multisite design; (c) evaluate the relationships between individual (e.g., maternal depression, domestic violence, substance abuse) and cumulative risk to specific child and parent outcomes; (d) document the impact on parental employment, welfare involvement, repeat pregnancy, and use of the health care system; (e) explore the optimal duration of treatment; and (f) evaluate whether a range of intervention effects endure beyond the 12-month follow-up by connecting with longitudinal data collected by child welfare, mental health, education, Medicaid, and public health systems.

*Raising Healthy Children: Implications for Policy and Practice*

The policy and practice implications of this RCT are substantial as it demonstrates that very young children living in families burdened by a wide range of risks in an ethnically and racially diverse city can achieve enhanced outcomes across multiple domains of functioning. States are interested in the most salient, efficient, and cost-effective strategies for raising the functioning levels of children and families. We have reported on specific outcomes that are important to policy makers and costly to state government, including: enhanced child language development, which has been linked to child literacy and therefore relevant to efforts to close the achievement gap; decreased child behavioral problems, which may interfere with learning and lead to costly mental health services and involvement in the juvenile justice system; reductions in CPS involvement; decreased maternal mental health problems, which are major risk factors for child learning and emotional disturbances; and increased use of existing community services.

Use of a coordinated, comprehensive, family focused approach, which varies the intensity of intervention and spectrum of services based on individual family needs, differs from efforts to provide standard services tailored to categorical subgroups of families with specific risks. The continuum of care within the current Child FIRST model extends from screening to mental health assessment/consultation to intensive, home-based intervention, without a need to create new, separate programs or systems for each purpose. The Child FIRST model provides an opportunity to provide two-generational treatment in the home, removing barriers of stigma, child care, and transportation. Furthermore, partnership with early care and edu-

cation and pediatric primary care enables on-site screening, developmental/mental health consultation, and care coordination to be provided. The availability of a system of care model empowers child and adult agency staff (e.g., early education, pediatrics, CPS, shelters, WIC, early intervention, home visiting, adult substance abuse and mental health services, and court services) to recognize broad family needs, knowing that they are part of a partnership that will ensure that families receive necessary services and supports. This model also works to correct the significant fragmentation and inefficiency in current early childhood systems, at the federal, state, and local levels (Koyanagi & Boudreaux, 2003; Perry et al., 2007).

Funding is the greatest challenge, best addressed by braiding or blending multiple federal and state funding sources (Koyanagi & Boudreaux, 2003; Perry et al., 2007). Cost-benefit analysis of a number of early childhood programs, most notably the High Scope/Perry Preschool Project and the Abecedarian Project, has led to the promotion of quality early childhood education for the most disadvantaged children (cf. Knudsen et al., 2006), with widespread state and federal support for early intervention policy and practice (e.g., Head Start and Early Head Start). However, fewer policy makers are aware of the harmful effects of psychosocial stress on young children's social-emotional and cognitive development or the positive associations between responsive nurturing relationships and improved social-emotional and cognitive functioning (cf. Shonkoff & Phillips, 2000). This is consistent with research that demonstrates that responsive, contingent, nurturing relationships function as a buffer to high cumulative, or "toxic," psychosocial stress, preventing the rise of cortisol and other hormonal mediators, which can damage brain architecture (Champagne, Francis, Mar, & Meaney, 2003; Gunnar, 2003; Knudsen et al., 2006; Laucht, Esser, & Schmidt, 2001; National Scientific Council on the Developing Child, 2007).

A full cost-benefit analysis of the Child FIRST model is an essential next step (Knudsen et al., 2006). We have estimated that the cost associated with the psychotherapeutic and care coordination components of this short-term intervention was relatively low, less than \$4,000 per family. However, the costs of additional services received by families as a result of new linkages with community services is currently unknown, as are the costs of the services received by families in the Usual Care group. We believe that results of a comprehensive cost evaluation will still compare very favorably

with the extensive state costs of CPS involvement, foster care, mental health, special education, juvenile justice, and health. In fact, intensive mental health services for children can be as high as \$450,000/year for a state juvenile training school and over \$700,000/year for psychiatric hospitalization (Connecticut Department of Children and Families, Finance Office, personal communication, June 1, 2009). Ultimately, evidence of cost effectiveness would support the efforts of states, local government, and providers to mobilize funds for prevention of serious emotional disturbance and developmental disabilities in the highest risk children, rather than pay the enormous costs of intensive services later (Knudsen et al., 2006).

This RCT demonstrates the effectiveness of the Child FIRST early childhood system of care model to promote healthy development in young children. It does so by identifying and engaging high-risk families and providing them with a two-generational therapeutic intervention combined with comprehensive community-based services. Child FIRST has demonstrated improvement in child social-emotional functioning, language development, and parental mental health, and has decreased child abuse and neglect. These effects were achieved in a "real-world," urban community, and thus have strong potential for generalization to other communities with multirisk families.

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