



Making a Difference in the Lives
of Infants and Toddlers and
Their Families: The Impacts of
Early Head Start

Executive Summary



U.S. Department of Health and Human Services
Administration for Children and Families
Office of Planning, Research and Evaluation
Child Outcomes Research and Evaluation
Administration on Children, Youth and Families
Head Start Bureau



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● Office of Planning, Research, and Evaluation
Administration for Children and Families
And the Head Start Bureau
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Department of Health and Human Services

Early Head Start Evaluation Reports

Leading the Way: Describes the characteristics and implementation levels of 17 Early Head Start programs in fall 1997, soon after they began serving families.

Executive Summary (December 2000): Summarizes Volumes I, II, and III.

Volume I (December 1999): *Cross-Site Perspectives*—Describes the characteristics of Early Head Start research programs in fall 1997, across 17 sites.

Volume II (December 1999): *Program Profiles*—Presents the stories of each of the Early Head Start research programs.

Volume III (December 2000): *Program Implementation*—Describes and analyzes the extent to which the programs fully implemented, as specified in the Revised Head Start Program Performance Standards, as of fall 1997.

Pathways to Quality and Full Implementation (spring 2002): Describes and analyzes the characteristics, levels of implementation, and levels of quality of the 17 Early Head Start programs in fall 1999, three years into serving families. Presents an analysis of the pathways programs followed to achieve full implementation and high quality.

Building Their Futures: How Early Head Start Programs Are Enhancing the Lives of Infants and Toddlers in Low-Income Families: Presents analysis of the impacts that the research programs have had on children's development, parenting, and family development through 2 years of age.

Summary Report (January 2001): Synopsis of the major findings.

Technical Report (June 2001): Detailed findings and report on methodology and analytic approaches.

Special Policy Report on Child Care in Early Head Start (summer 2002): Describes the nature, types, and quality of child care arrangements in which Early Head Start and control group children enrolled, and presents implications for public policy.

Special Policy Report on Children's Health in Early Head Start (summer 2002): Describes health services received by Early Head Start and control group families.

Making a Difference in the Lives of Infants and Toddlers and Their Families: The Impacts of Early Head Start (June 2002): Presents analysis of the impacts that the research programs have had on children's development, parenting, and family development through the children's third birthday (including two to three years of program participation).

Reports Are Available at:

http://www.acf.dhhs.gov/programs/core/ongoing_research/ehs/ehs_intro.html

<http://www.mathematica-mpr.com/3rdLevel/ehstoc.htm>

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EXECUTIVE SUMMARY

EARLY HEAD START AND ITS EARLY DEVELOPMENT IN BRIEF

Following the recommendations of the Secretary's Advisory Committee on Services for Families with Infants and Toddlers in 1994, the Administration on Children, Youth and Families (ACYF) designed Early Head Start as a two-generation program to enhance children's development and health, strengthen family and community partnerships, and support the staff delivering new services to low-income families with pregnant women, infants, or toddlers. In 1995 and 1996, ACYF funded the first 143 programs, revised the Head Start Program Performance Standards to bring Early Head Start under the Head Start umbrella, created an ongoing national system of training and technical assistance (provided by the Early Head Start National Resource Center in coordination with ACYF's regional offices and training centers), and began conducting regular program monitoring to ensure compliance with the performance standards.¹ Today, the program operates in 664 communities and serves some 55,000 children.

At the same time, ACYF selected 17 programs from across the country to participate in a rigorous, large-scale, random-assignment evaluation.² The Early Head Start evaluation was designed to carry out the recommendation of the Advisory Committee on Services for Families with Infants and Toddlers for a strong research and evaluation component to support continuous improvement within the Early Head Start program and to meet the requirement in the 1994 and 1998 reauthorizations for a national evaluation of the new infant-toddler program. The research programs include all the major program approaches and are located in all regions of the country and in urban and rural settings. The families they serve are highly diverse. Their purposeful selection resulted in a research sample (17 programs and 3,001 families) that reflects the characteristics of all programs funded in 1995 and 1996, including their program approaches and family demographic characteristics.

¹The revised Head Start Program Performance Standards were published in the *Federal Register* for public comment in November 1996 and became effective in January 1998.

²From among 41 Early Head Start programs that applied with local research partners to be research sites, ACYF selected 15 to achieve a balance of rural and urban locations, racial/ethnic composition, and program approaches from among those that could recruit twice as many families as they could serve, taking into consideration the viability of the proposed local research. Subsequently, ACYF added two sites to provide the desired balance of approaches.

EARLY HEAD START PROGRAMS AND SERVICES

Early Head Start grantees are charged with tailoring their program services to meet the needs of low-income pregnant women and families with infants and toddlers in their communities and may select among program options specified in the performance standards (home-based, center-based, combination, and locally designed options). Grantees are required to provide child development services, build family and community partnerships, and support staff to provide high-quality services for children and families. Early Head Start programs may select from a variety of approaches to enhance child development directly and to support child development through parenting and/or family development services.

For purposes of the research, the 17 research programs were characterized according to the options they offer *families* as (1) *center-based*, providing all services to families through center-based child care and education, parent education, and a minimum of two home visits per year to each family; (2) *home-based*, providing all services to families through weekly home visits and at least two group socializations per month for each family; or (3) *mixed approach*, a diverse group of programs providing center-based services to some families, home-based services to other families, or a mixture of center-based and home-based services.³ When initially funded, the 17 research programs were about equally divided among the three program approaches. However, by fall 1997, seven had adopted a home-based approach, four were center-based, and six were mixed-approach programs.⁴

The structure of Early Head Start programs was influenced during the first five years by a number of changes occurring in their communities and states. Families' needs changed as parents entered the workforce or undertook education and training activities in response to welfare reform or job opportunities created by favorable economic conditions. The resources for early childhood services also increased due in part to strong local economies. Meanwhile, state and community health initiatives created new access to services for all low-income families, and the federal Fatherhood Initiative heightened attention to issues of father involvement.

³Services can be mixed in several ways to meet families' needs: programs may target different types of services to different families, or they may provide individual families with a mix of services, either at the same time or at different times. Mixed programs are able to fine tune center-based and home-based services within a single program to meet family needs. A locally designed option (an official option that allows for creative program-specific services) could be classified as mixed if it included both home- and center-based services; however, there were no locally designed option programs among the research programs.

⁴Programs have continued to evolve and refine their service strategies to meet changing needs of families. See the Early Head Start implementation report, *Pathways to Quality*, for a full description of programs' development. By fall 1999, 2 programs offered home-based services exclusively, 4 continued to provide center-based services exclusively, and 11 had become mixed-approach programs.

**EARLY HEAD START
HAD POSITIVE IMPACTS
ON OUTCOMES FOR
LOW-INCOME FAMILIES
WITH INFANTS AND
TODDLERS**

The Early Head Start research programs stimulated better outcomes along a range of dimensions (with children, parents, and home environments) by the time children's eligibility ended at age 3.⁵ Overall impacts were modest, with effect sizes in the 10 to 20 percent range, although impacts were considerably larger for some subgroups, with some effect sizes in the 20 to 50 percent range. The overall pattern of favorable impacts is promising, particularly since some of the outcomes that the programs improved are important predictors of later school achievement and family functioning.

- For 3-year-old children, Early Head Start programs largely sustained the statistically significant, positive impacts on cognitive development that had been found at age 2. Early Head Start children scored higher, on average, on a standardized assessment of cognitive development, the Bayley Scales of Infant Development Mental Development Index (MDI; mean of 91.4 for the Early Head Start group vs. 89.9 for the control group). In addition, a smaller percentage of Early Head Start children (27.3 vs. 32.0 percent) scored in the at-risk range of developmental functioning (below 85 on the Bayley MDI). By moving children out of the lowest functioning group, early Head Start may be reducing their risk of poor cognitive and school outcomes later on. However, it is important to note that although the Early Head Start children scored significantly higher than their control group peers, they continued to score below the mean of the national norms (a score of 100).
- Early Head Start also sustained significant impacts found on language development from age 2 to age 3. At 3, Early Head Start children scored higher on a standardized assessment of receptive language, the Peabody Picture Vocabulary Test (PPVT-III; 83.3 for the Early Head Start group vs. 81.1 for the program group). In addition, significantly fewer program (51.1 vs. 57.1 percent) children scored in the at-risk range of developmental functioning. Early Head Start children are still scoring well below national norms (mean score of 100), although they are scoring higher than children in the control group.
- Early Head Start programs had favorable impacts on several aspects of social-emotional development at age 3 (more than at age 2). Early Head Start children were observed to engage their parents more, were less negative to their parents, and were more attentive to objects during play, and Early Head Start children were rated lower in aggressive behavior by their parents than control children.

⁵Table 1 (attached) shows the 3-year-old average impacts for the major outcomes measured in the evaluation, along with the impacts found at age 2, as reported in the study's interim report, *Building Their Futures* (Administration on Children, Youth and Families 2001).

- When children were 3, Early Head Start programs continued to have significant favorable impacts on a wide range of parenting outcomes. Early Head Start parents were observed to be more emotionally supportive, and had significantly higher scores than control parents had on a commonly used measure of the home environment, the Home Observation for Measurement of the Environment (HOME). Early Head Start parents provided significantly more support for language and learning than control-group parents as measured by a subscale of the HOME. Early Head Start parents were also more likely to report reading daily to their child (56.8 versus 52.0 percent). They were *less* likely than control-group parents to engage in negative parenting behaviors. Early Head Start parents were less detached than control group parents, and 46.7 percent of Early Head Start parents reported that they spanked their children in the past week, compared with 53.8 percent of control group parents. Early Head Start parents reported a greater repertoire of discipline strategies, including more mild and fewer punitive strategies.
- Early Head Start programs had some impacts on parents' progress toward self-sufficiency. The significant positive impacts on participation in education and job training activities continued through 26 months following enrollment, and some impacts on employment began emerging late in the study period in some subgroups. Of Early Head Start parents, 60.0 percent participated in education or job training (vs. 51.4 percent of control group parents); and 86.8 percent of program parents (compared with 83.4 percent of control parents) were employed at some time during the first 26 months after random assignment. These impacts did not result in significant improvements in income during this period, however.
- Early Head Start mothers were less likely to have subsequent births during the first two years after they enrolled: 22.9 percent of the program group vs. 27.1 percent of the control group mothers gave birth to another child within two years after beginning the study.
- Early Head Start had significant favorable impacts in several areas of fathering and father-child interactions, although the programs had less experience in providing services to fathers (compared with mothers). A subset of 12 of the 17 sites participated in father studies. Early Head Start fathers were significantly less likely to report spanking their children during the previous week (25.4 percent) than control group fathers (35.6 percent). In sites completing observations, Early Head Start fathers were also observed to be less intrusive; and program children were observed to be more able to engage their fathers and to be more attentive during play. Fathers and father figures from the program group families

were significantly more likely to participate in program-related child development activities, such as home visits, parenting classes and meetings for fathers.

- The program impacts on children and parents in some subgroups of programs were larger than those in other subgroups. The subgroups in which the impacts were relatively large (with effect sizes in the 20 to 50 percent range across multiple outcomes) included mixed-approach programs, African American families, families who enrolled during pregnancy, and families with a moderately high (vs. a low or very high) number of demographic risk factors. In a few subgroups, the programs produced few significant favorable impacts (see below). Knowledge of these variations in impacts across subgroups can be used to guide program improvement efforts.

In sum, there is a consistent pattern of statistically significant, modest, favorable impacts across a range of outcomes when children were 2 and 3 years old, with larger impacts in several subgroups. Although little is known about how important this pattern of impacts sustained through toddlerhood will be in the long run, reductions in risk factors and improvements in protective factors may support improved later outcomes.

Consistent with programs' theories of change, we found evidence that the impacts on children when they were 3 years old were associated with impacts on parenting when children were 2. For example, higher scores on the cognitive development measure at age 3 were associated with higher levels of parent supportiveness in play and a more supportive cognitive and literacy environment when the children were 2; similarly, lower levels of child aggressive behavior at age 3 were related to greater warmth and lower levels of parents spanking and parenting stress when the children were 2 years old.

The programs' impacts on child and family outcomes were consistent with the substantial impacts the programs had on families' service receipt. Nearly all families received some services, but given the voluntary nature of the Early Head Start program, participation levels ranged from no participation to intensive participation throughout the evaluation period. On average, program families were enrolled in Early Head Start for 21 months, and half of the families remained in the program for at least two years. Many program families received intensive services. Although many families did not participate for the full period during which they were eligible or at the recommended levels throughout their enrollment, the program impacts on service receipt were substantial. Early Head Start families were, during the first 28 months after random assignment, significantly more likely than control families to receive a wide variety of services, much more likely to receive intensive services, and much more likely to receive intensive services that focused on child development and parenting.

FULL IMPLEMENTATION MATTERS

Implementing key services in accordance with the Head Start Program Performance Standards for quality and comprehensiveness is important to success.⁶ When children were 2, programs that fully implemented key elements of the Head Start Program Performance Standards early had a stronger pattern of impacts than programs that reached full implementation of the standards later or not at all during the evaluation period. The differences in impacts on children and parenting among programs that fully implemented the standards early, later, or incompletely became less distinct by the 3-year assessment point, when all three groups of programs had some important impacts. Nevertheless, the findings show that:

- The early and later implementers produced a broader range of impacts at age 3 than the incomplete implementers.
- Although it is not possible to fully disentangle the effects of program approach and implementation pattern, there is evidence that reaching full implementation contributes to a stronger pattern of impacts. Mixed-approach programs that were fully implemented early demonstrated a stronger pattern of impacts at age 3 than those that were not, and some of these impacts were among the largest found in the study. Home-based programs that were fully implemented early or later demonstrated impacts on some important outcomes at age 3 that incompletely implemented home-based programs did not have. There were too few center-based programs to make this comparison across implementation patterns.

⁶In-depth site visits provided information for rating levels of implementation along key program elements (24 elements in 1997 and 25 in 1999) contained in the Early Head Start program grant announcement and the Head Start Program Performance Standards. Although the implementation ratings designed for research purposes were not used to monitor compliance, they included criteria on most of the dimensions that the Head Start Bureau uses in program monitoring, including child development and health, family development, community building, staff development, and management systems. Details of the implementation study can be found in two reports, *Leading the Way: Characteristics and Early Experiences of Selected Early Head Start Programs* (Administration on Children, Youth and Families 1999) and *Pathways to Quality and Full Implementation in Early Head Start Programs* (Administration on Children, Youth and Families 2002).

Being fully implemented meant that programs achieved a rating of 4 or 5 on the 5-point scales used by the research team across most of the elements rated. Programs that were not fully implemented overall had implemented some aspects of the relevant program elements fully and had implemented other aspects, but not at a level required for a rating of 4 or 5. Some of the incompletely implemented programs showed strengths in family development, community building, or staff development.

ALL PROGRAM APPROACHES HAD IMPACTS

All program approaches for delivering services produced impacts on child and parent outcomes. Programs chose their service approaches based on local family needs, and programs selecting different approaches affected different outcomes:

- The center-based programs consistently enhanced cognitive development and, by age 3, reduced negative aspects of children’s social-emotional development. The programs also demonstrated favorable impacts on several parenting outcomes, but had few impacts on participation in self-sufficiency-oriented activities.
- The home-based programs had favorable impacts on language development at age 2, but not at age 3. They had a favorable impact on children’s engagement of their parents in semistructured play interactions at age 3. Only a few impacts on parents were significant, but parents in home-based programs reported less parenting stress than their control group. When the home-based programs reached full implementation, however, they had a stronger pattern of impacts. The programs that reached full implementation had significant favorable impacts on cognitive and language development at age 3 that have not generally been found in evaluations of home-visiting programs.
- The mixed-approach programs consistently enhanced children’s language development and aspects of social-emotional development. These programs also had consistent significant favorable impacts on a wider range of parenting behavior and participation in self-sufficiency-oriented activities. The mixed-approach programs that became fully implemented early had a particularly strong pattern of impacts (with many significant impacts having effect sizes ranging from 20 to 50 percent). The stronger pattern of impacts among mixed-approach programs may reflect the benefits of families receiving both home-based and center-based services, the value of programs’ flexibility to fit services to family needs, or the fact that these programs were able to keep families enrolled somewhat longer.

EARLY HEAD START HAD IMPACTS ACROSS DEMOGRAPHIC GROUPS

The programs reached all types of families with child development services and provided them with a significantly greater number of services and more-intensive services than they would have received in their communities without the benefit of Early Head Start. By age 3, Early Head Start had some favorable impacts on most subgroups of children. Similarly, most subgroups of parents benefited in some way related to their parenting. The programs also helped parents in most subgroups work toward self-sufficiency. Of the

27 subgroups of families studied, 23 experienced significant favorable impacts on child development, and 24 experienced significant favorable impacts on parenting outcomes.⁷

Among the many subgroups of families studied, some groups benefited more than others.

- **Pregnant or parenting when enrolled:** Earlier intervention is better. The impacts on child outcomes were greater for children whose mothers enrolled during pregnancy, as were a number of impacts on parenting (such as supportiveness during play). The impacts on other aspects of parenting, including daily reading, were somewhat larger among families who enrolled after their children were born.
- **Whether parent enrolled with first- or later-born child:** The programs had significant favorable impacts on child development and parenting in families who enrolled with firstborn children as well as those who enrolled with later-born children. Early Head Start consistently increased the participation in education of parents of firstborn children, however, and reduced the proportion who had another baby during the first two years after enrollment.
- **Race/Ethnicity:** The Early Head Start programs were especially effective in improving child development and parenting outcomes of the African American children and parents who participated, and they also had a favorable pattern of impacts on the Hispanic children and parents who participated. Although many impacts on child development and parenting were in a positive direction among white families, virtually none was statistically significant. The more-disadvantaged status of African American control group children and families relative to the control families in other racial/ethnic groups may have set the stage for the Early Head Start programs to make a larger difference in the lives of the African American children and parents they served. Early Head Start brought many of the outcomes of African American children and parents in the program group closer to the levels experienced by the other racial/ethnic groups.

⁷We examined the programs' impacts on 27 subgroups, which were defined based on 11 family characteristics at the time of random assignment. The subgroups were defined based on one characteristic at a time, and the subgroups naturally overlap. In sensitivity analyses we found that the patterns of differential impacts largely remained after potential confounding characteristics were controlled.

- Number of demographic risks: Families facing many risks usually pose difficult challenges for early intervention and family support programs, and this was true for the Early Head Start research programs as well.⁸ Early Head Start had strong impacts on families who had 3 of the 5 demographic risks we counted. The programs had only a few significant impacts on families with fewer than 3 demographic risks, and the impacts on the families with more than 3 risks were unfavorable. (Interestingly, programs did significantly delay subsequent births in the group with more than 3 risks). Previous research suggests that low-income families who have experienced high levels of instability, change, and risk may be overwhelmed by changes that a new program introduces into their lives, even though the program is designed to help. As a result, the program requirements may create unintended negative consequences for these families. Because families with the most risks were more likely to be in home-based or mixed-approach programs that were not fully implemented early, it is possible that the staff turnover and disruptions in staff-family relationships experienced in some of these programs had an adverse effect on the most vulnerable families.

The Early Head Start programs also benefited two difficult-to-serve subgroups:

- Parents at risk for depression: Among parents at risk of depression in the eight research sites that measured depression at baseline, Early Head Start parents reported significantly less depression than control-group parents when children were 3, and Early Head Start demonstrated a favorable pattern of impacts on children's social-emotional development and parenting outcomes among these families. Although Early Head Start was also effective with children whose parents did not report symptoms of depression, the impacts on families of parents with depressive symptoms are notable, as that is a group that other programs have found difficult to serve.
- Teenage parents: The impacts on teenage mothers and their children are also particularly notable. Like other programs designed to increase self-sufficiency among disadvantaged teenage parents, the

⁸ The families whom Early Head Start serves are all at risk to some degree because of their low incomes. For our analyses, we considered five demographic risk factors in addition to income (and whatever other family circumstances may not have been measured). These were (1) being a single parent, (2) receiving public assistance, (3) being neither employed nor in school or job training, (4) being a teenage parent, and (5) lacking a high school diploma or GED.

Early Head Start research programs succeeded in increasing school attendance among teenage parents. Unlike other large-scale programs, however, the programs also enhanced their children's development. Early Head Start also provided support for children's development if they had older parents.

LESSONS FOR PROGRAMS

The impact findings, taken together with findings from the study of program implementation (see *Pathways to Quality*), suggest several lessons for programs. A number of the lessons pertain to program implementation:

- Implementing key elements of the Head Start Program Performance Standards fully is important for maximizing impacts on children and parents. The research programs that reached full implementation by fall 1999 had a stronger pattern of impacts on child and family outcomes than the programs that did not.
- Programs offering center-based services should seek ways to place greater emphasis on parenting, parent-child relationships, and family support, areas in which the center-based research programs did not have a strong pattern of impacts. They should also increase efforts to support language development.
- Programs offering home-based services should strive to deliver a greater intensity of services, including meeting the required frequency of home visits and group socializations, while also attending to children's cognitive development and encouraging and supporting center-based activities for children as they become older toddlers. As documented in the implementation study, delivering home visits at the required intensity was extremely challenging, and the pattern of impacts produced by the home-based research programs suggests that doing so is important.
- Programs may need to investigate new or alternative strategies for serving families who have many demographic risk factors.

Two lessons for programs emerge from the evaluation findings related to specific outcomes:

- To ensure the safety of infants and toddlers, programs (especially center-based ones) should be more vigilant about parental safety practices. When children were 3, programs did not increase consistent, correct use of car seats among families, a finding that parallels the difficulties programs had in supporting a range of safety practices at age 2.

- Greater access to services to address the mental health needs of parents, many of whom reported symptoms of depression and parenting stress, is needed. Although several subgroups demonstrated that favorable impacts on parent mental health outcomes are possible, we found no significant impacts on receipt of mental health services or on parent mental health outcomes overall.

Finally, several recommendations for programs pertain to which families they should seek to enroll and the timing of enrollment:

- Programs should enroll parents and children as early as possible, preferably before children are born. Although the programs improved outcomes among children whose families enrolled after the children were born, the strongest pattern of impacts was achieved with children whose families enrolled earlier.
- Programs should enroll parents at all stages of childbearing. The research programs had favorable impacts on both firstborn and later-born children and their parents.

LESSONS FOR POLICYMAKERS

The evaluation findings also have implications for policymakers, including Head Start Bureau staff and policymakers concerned with programs and policies serving low-income families with very young children:

- Early Head Start programs may provide a foundation of support for children’s development among families who are struggling with their own economic and developmental needs. At the same time they were increasing participation in education and employment-oriented activities, the Early Head Start research programs had significant favorable impacts on children’s development. These improvements occurred despite the fact that average family income did not increase significantly.
- Early Head Start programs provide effective ways of serving some difficult-to-serve families. The research programs achieved favorable significant impacts among teenage parents and parents who reported depressive symptoms when they enrolled, including significant positive impacts on children as well as parents.
- Like other early childhood programs, Early Head Start programs may have the greatest opportunity to improve outcomes among

families with a moderate number of demographic risks, but are challenged to significantly improve outcomes among the highest-risk families with young children.

- This study validated the importance of meeting the Head Start Program Performance Standards for achieving impacts on children and parents, and it underscores the value of monitoring programs regularly. The performance standards may be useful as a guide to providing effective services in other early childhood and early intervention programs as well.
- The strong pattern of impacts among mixed-approach programs suggests that flexibility in service options for families would be valuable when community needs assessments show that both home- and center-based services are needed.

LESSONS FOR RESEARCHERS

Finally, the national Early Head Start Research and Evaluation project incorporated some innovative features into a large, multisite evaluation, and the evaluation findings have implications for researchers:

- Devoting significant resources to conceptualizing, documenting, and analyzing the implementation process and understanding as fully as possible the approaches (strategies and activities) that programs take in delivering services is critical for understanding program impacts and deriving lessons from them.
- Using multiple methods for measuring outcomes, so that findings are not dependent only on parent reports, child assessments, or any single methodology, increases the confidence that can be placed in the impact findings. The Early Head Start findings are based on a mixture of direct child assessments, observations of children's behavior by in-person interviewers, ratings of videotaped parent-child interactions in standardized ways, ratings of children's behaviors by their parents, and parents' self-reports of their own behaviors, attitudes, and circumstances.
- Identifying subgroups of programs and policy-relevant populations is valuable so that analyses can begin to address questions about what works for whom. Having adequate numbers of programs and adequate sample sizes within sites to make program-control comparisons of outcomes for particular subgroups of sites or subgroups of families can provide important insights into program impacts under particular conditions and for particular groups of families.

- Incorporating local perspectives in national evaluation studies enables the voices of programs and local researchers to supplement the cross-site analyses and enhance the interpretation of the national findings. This report demonstrates the diversity of research at the local program level that can be brought to bear on a large number of developmental, programmatic, and policy questions.
- Partnerships with local programs were important to the success of the evaluation, and participating in the research enhanced local programs' continuous program improvement processes.

NEXT STEPS

More analyses are available in two special policy reports that provide additional findings related to children's health and child care. In addition, members of the Early Head Start Research Consortium are continuing to analyze national data, and local research partners are analyzing local data. Reports similar to those presented in Volume III will continue to appear in the future. Finally, ACF/ACYF are sponsoring a longitudinal follow-up study in which the children in the national sample at the 17 sites are being assessed, and their mothers and fathers interviewed, as they enter kindergarten. The follow-up study, which will be completed by 2004, will provide an opportunity to learn about the experiences of Early Head Start children and families after they leave the program.

TABLE 1

SELECTED KEY GLOBAL IMPACTS ON CHILDREN AND PARENTS WHEN CHILDREN WERE 2 AND 3 YEARS OLD

Outcome	Impacts at Age 2				Impacts at Age 3			
	Program Group Mean	Control Group Mean	Estimated Impact per Participant	Effect Size (Percent) ^a	Program Group Mean	Control Group Mean	Estimated Impact per Participant	Effect Size (Percent) ^a
Child Cognitive and Language Development								
Average Bayley Mental Development Index (MDI)	90.1	88.1	2.0***	14.9	91.4	89.9	1.6**	12.0
Percentage with MDI Below 85	33.6	40.2	-6.6**	-13.5	27.3	32.0	-4.7*	-10.1
CDI Vocabulary Production Score	56.3	53.9	2.4**	10.8	NA	NA	NA	NA
CDI Sentence Complexity Score	8.6	7.7	0.9**	11.4	NA	NA	NA	NA
CDI Percentage Combining Words	81.0	77.9	3.1	7.4	NA	NA	NA	NA
Peabody Picture Vocabulary Test (PPVT-III) Standard Score	NA	NA	NA	NA	83.3	81.1	2.1**	13.1
Percent with PPVT-III Below 85	NA	NA	NA	NA	51.1	57.1	-6.0**	-12.1
Child Social-Emotional Development								
Child Behavior Checklist: Aggressive Behavior	9.9	10.5	-0.6**	-10.2	10.6	11.3	-0.7**	-10.8
Bayley Behavior Rating Scale (BRS): Emotional Regulation	3.6	3.6	-0.0	1.4	4.0	4.0	0.0	0.6
Bayley BRS: Orientation/Engagement	3.7	3.6	0.0	0.5	3.9	3.8	0.0	4.0
Child Frustration During Parent-Child Puzzle Challenge Task	NA	NA	NA	NA	2.7	2.7	0.0	2.2
Engagement of Parent During Parent-Child Semistructured Play	4.3	4.2	0.1	7.6	4.8	4.6	0.2***	20.3
Engagement of Parent During Parent-Child Puzzle Challenge Task	NA	NA	NA	NA	5.0	4.9	0.1	8.8
Negativity Toward Parent During Parent-Child Semistructured Play	1.7	1.8	-0.1	-8.0	1.2	1.3	-0.1**	-13.8
Sustained Attention to Objects During Parent-Child Semistructured Play	5.0	5.0	0.1	6.8	5.0	4.8	0.2***	15.9
Persistence During Parent-Child Puzzle Challenge Task	NA	NA	NA	NA	4.6	4.5	0.1	6.3

TABLE 1 (continued)

Outcome	Impacts at Age 2				Impacts at Age 3			
	Program Group Mean	Control Group Mean	Estimated Impact per Participant	Effect Size (Percent) ^a	Program Group Mean	Control Group Mean	Estimated Impact per Participant	Effect Size (Percent) ^a
Parenting Behavior								
Supportiveness During Parent-Child Semistructured Play	4.1	3.9	0.1**	13.5	4.0	3.9	0.1***	14.6
Supportive Presence During Parent-Child Puzzle Challenge Task	NA	NA	NA	NA	4.5	4.4	0.1	4.2
Quality of Assistance During Parent-Child Puzzle Challenge Task	NA	NA	NA	NA	3.6	3.5	0.1*	9.0
Detachment During Parent-Child Semis-Structured Play	1.4	1.5	-0.1*	-10.4	1.2	1.3	-0.1*	-9.0
Detachment During Parent-Child Puzzle Challenge Task	NA	NA	NA	NA	1.6	1.6	-0.0	-0.2
Intrusiveness During Parent-Child Semis-Structured Play	1.9	1.9	0.0	3.0	1.6	1.6	-0.0	-5.5
Intrusiveness During Parent-Child Puzzle Challenge Task	NA	NA	NA	NA	2.7	2.7	-0.1	-5.8
Negative Regard During Parent-Child Semis-Structured Play	1.5	1.5	0.0	3.9	1.3	1.3	-0.0	-1.6
Home Observation for Measurement of the Environment (HOME): Emotional Responsivity	6.2	6.1	0.1*	8.1	NA	NA	NA	NA
HOME: Harshness	NA	NA	NA	NA	0.3	0.3	0.0	2.1
HOME: Warmth	NA	NA	NA	NA	2.6	2.5	0.1*	9.0
HOME: Total Score	26.5	26.1	0.4**	9.8	27.6	27.0	0.5**	10.9
HOME: Support of Language and Learning Parent-Child Play	10.3	10.1	0.2***	11.5	10.6	10.4	0.2**	9.9
Percentage of Parents Who Read to Child Every Day	4.6	4.5	0.1**	11.7	4.4	4.3	0.1*	9.1
Percentage of Parents Who Read to Child Every Day	57.9	52.3	5.6**	11.3	56.8	52.0	4.9**	9.7
Percentage of Parents Who Read to Child at Bedtime	29.4	22.6	6.8***	16.0	32.3	29.2	3.1	6.8
Percentage of Parents Who Set a Regular Bedtime for Child	61.6	55.8	5.9**	11.8	59.4	58.2	1.3	2.5
HOME: Internal Physical Environment	NA	NA	NA	NA	7.8	7.8	0.0	-0.3

TABLE 1 (continued)

Outcome	Impacts at Age 2				Impacts at Age 3			
	Program Group Mean	Control Group Mean	Estimated Impact per Participant	Effect Size (Percent) ^a	Program Group Mean	Control Group Mean	Estimated Impact per Participant	Effect Size (Percent) ^a
Parenting Knowledge and Discipline Strategies								
Knowledge of Infant Development Inventory	3.4	3.3	0.1***	12.3	NA	NA	NA	NA
Percentage of Parents Who Use Guards or Gates for Windows	62.7	65.0	-2.3	4.7	NA	NA	NA	NA
Percentage of Parents Who Always Use a Car Seat for Child	NA	NA	NA	NA	69.8	70.8	-0.9	-2.0
Percentage of Parents Who Spanked Child in Previous Week	47.4	52.1	-4.7*	-9.4	46.7	53.8	-7.1***	-14.2
Percentage of Parents Who Suggested Responses to Hypothetical Situations with Child: Prevent or Distract	72.9	66.8	6.1***	12.9	70.6	69.3	1.3	2.8
Percentage of Parents Who Suggested Responses to Hypothetical Situations with Child: Talk and Explain	37.2	31.1	6.1**	12.9	70.7	69.1	1.7	3.6
Percentage of Parents Who Suggested Responses to Hypothetical Situations with Child: Physical Punishment	27.7	29.7	-2.0	-4.3	46.3	51.1	-4.8**	-9.6
Percentage of Parents Who Suggested Only Mild Responses to Hypothetical Situations with Child	43.1	39.1	4.0*	8.2	44.7	40.5	4.2*	8.5
Parent's Physical and Mental Health and Family Functioning								
Family Environment Scale – Family Conflict	1.7	1.7	-0.1**	-11.0	1.7	1.7	0.0	-4.3
Parenting Stress Index : Parental Distress	25.0	25.9	-1.0**	-10.2	24.7	25.5	-0.7	-7.7
PSI : Parent-Child Dysfunctional Interaction	16.9	17.4	-0.6*	-9.4	17.8	17.8	-0.0	-0.2
CIDI-Depression – Average Probability	15.3	15.6	-0.3	-0.8	NA	NA	NA	NA
Center for Epidemiological Studies Depression (CES-D: Short Form)	NA	NA	NA	NA	7.4	7.7	-0.3	-3.7
Parent's Health Status – Average Score	3.5	3.5	0.0	2.3	3.4	3.5	-0.1	-4.9
Child's Health Status – Average Score	3.8	3.9	-0.1	-5.5	4.0	4.0	-0.0	1.5

TABLE 1 (continued)

Outcome	Impacts at Age 2				Impacts at Age 3			
	Program Group Mean	Control Group Mean	Estimated Impact per Participant	Effect Size (Percent) ^a	Program Group Mean	Control Group Mean	Estimated Impact per Participant	Effect Size (Percent) ^a
Parent Self-Sufficiency								
Percentage of Parents Who Ever Participated in an Education or Job Training Program in First 15 Months After Random Assignment	48.4	43.7	4.7**	10.7	NA	NA	NA	NA
Percentage of Parents Who Ever Participated in an Education or Job Training Program in First 26 Months After Random Assignment	NA	NA	NA	NA	60.0	51.4	8.6***	17.2
Total Hours/Week in Education/Training in First 15 Months After Random Assignment	5.3	4.1	1.1***	14.6	NA	NA	NA	NA
Total Hours/Week in Education/Training in First 26 Months After Random Assignment	NA	NA	NA	NA	4.6	3.4	1.2***	18.4
Percentage of Parents Ever Employed in First 15 Months After Random Assignment	72.2	71.9	0.2	0.5	NA	NA	NA	NA
Percentage of Parents Ever Employed in First 26 Months After Random Assignment	NA	NA	NA	NA	86.8	83.4	3.4*	9.0
Average Hours per Week Employed at All Jobs in First 15 Months After Random Assignment	14.6	15.4	-0.8	-5.5	NA	NA	NA	NA
Average Hours per Week Employed at All Jobs in First 26 Months After Random Assignment	NA	NA	NA	NA	17.1	17.1	0.1	0.5
Percentage of Parents Who Received Any Welfare Benefits During First 15 Months After Random Assignment	65.3	64.6	0.7	1.5	NA	NA	NA	NA
Percentage of Parents Who Received Any Welfare Benefits During First 26 Months After Random Assignment	NA	NA	NA	NA	68.1	66.5	1.6	3.5
Percentage of Families with Income Above the Poverty Line at Second Followup	33.8	36.4	-2.5	-7.0	NA	NA	NA	NA
Percentage of Families with Income Above the Poverty Line at Third Followup	NA	NA	NA	NA	42.9	43.3	-0.4	-0.8
Dunst Family Resource Scale at Second Followup	153.1	152.2	0.8	0.6	NA	NA	NA	NA
Dunst Family Resource Scale at Third Followup	NA	NA	NA	NA	154.8	153.8	1.0	5.2
Percentage With Any Births (Not Including Focus Child) Within 24 Months After Random Assignment	NA	NA	NA	NA	22.9	27.1	-4.2*	-9.2

TABLE 1 (*continued*)

SOURCE: Birthday-related child assessments and parent interviews conducted when children were 24 and 36 months old and parent services follow-up interviews conducted 15 and 26 months after random assignment.

NOTE: The impact estimates do not always exactly equal the program group minus the control group means due to rounding. All impact estimates were calculated using regression models, where each site was weighted equally. A participant is defined as a program group member who received more than one Early Head Start home visit, met with an Early Head Start case manager more than once, received at least two weeks of Early Head Start center-based care, and/or participated in Early Head Start group parent-child activities. The control group mean is the mean for the control group members who would have participated in Early Head Start if they had been assigned to the program group instead. This unobserved mean was estimated as the difference between the program group mean for participants and the impact per participant. The estimated impact per participant is measured as the estimated impact per eligible applicant divided by the proportion of program group members who participated in Early Head Start services (which varied by site). The estimated impact per eligible applicant is measured as the difference between the regression-adjusted means for all program and control group members.

^aThe effect size is calculated by dividing the estimated impact per participant on the outcome measure by the standard deviation of the outcome measure among the control group. Thus, it provides a way of comparing impacts across measures in terms of the size of the program-control difference relative to the standard deviation, expressed as a percentage.

*Significantly different from zero at the .10 level, two-tailed test.

**Significantly different from zero at the .05 level, two-tailed test.

***Significantly different from zero at the .01 level, two-tailed test.

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The Early Head Start Research Consortium was established in 1996 to provide a forum for researchers and program staff of the funding agency (the Administration on Children, Youth and Families), local programs, local research investigators, and the national evaluation contractor to work together in carrying out the mandate for conducting the national evaluation and local research studies with the new Early Head Start program. Consortium members include the following institutions (with contact persons listed). The Consortium membership includes many more individuals at each institution, as listed in Appendix A of the full technical report.

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