GETTING THE MOST OUT OF EARLY HEAD START: WHAT HAS BEEN ACCOMPLISHED AND WHAT NEEDS TO BE DONE

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This paper describes impacts of Early Head Start when children were 2, 3, and 5 years old. Some of the most persistent impacts were in domains important for later school success including aggressive behavior problems, which are predictive of later behavior problems and low school engagement, and attention, which is linked to school achievement. Early Head Start also had positive impacts on parents reading to children (and learning stimulation), which is also linked to positive outcomes later on. We note the lack of impacts on achievement at age 5 and suggest the importance of examining impacts for policyrelevant subgroups. Further, findings suggest that providing preschool services before kindergarten, after Early Head Start, may create the greatest opportunity for ensuring school readiness among low-income children.

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Jeanne Brooks-Gunn, Ph.D. is the Virginia and Leonard Marx Professor of Child Development and Education at Teachers College and the College of Physicians and Surgeons at Columbia University where she directs the National Center for Children and Families. jb224@columbia.edu Like its older sibling Head Start, the federal Early Head Start (EHS) program has enjoyed bipartisan support since its launching in 1995, thirty years after Head Start itself began. Similarly, both Republican and Democratic administrations have funded EHS program evaluations. In this chapter, we describe the results of the EHS national evaluation. for which we have been principal investigators (Administration for Children and Families [ACF] at the U.S. Department of Health and Human Services).¹ We describe the EHS impact evaluation and summarize its results. looking at overall impacts as well as subgroup impacts. We also go beyond the end-of-program focus of many evaluations (that is, a focus on impacts right at the end of the children's and families' enrollment time) and look at the influence that participation in EHS had on program participation during the preschool years (the fourth and fifth years of life) and at the cumulative influences of EHS and preschool attendance on kindergarten readiness. Finally, we suggest implications for EHS programs, including their coordination with other programs, and for future research.²

The Early Head Start Evaluation

The EHS evaluation included seventeen sites drawn from the first two waves of programs started more than a decade ago. By design, ACF selected programs that would reflect the range of service options and context of all extant programs rather than choosing a representative sample. The sites were distributed across the country and included rural and urban sites. About 3,000 families were randomly assigned to the treatment or control groups. All were poor. African American, Hispanic, and white families were represented, as well as single- and twoparent households, teenage mothers and older mothers, families receiving welfare

and not receiving welfare, employed and not employed mothers. This was the first impact evaluation of services for poor pregnant women and families with children under age 3 in which the program offered center-based services in some sites and at least some home visiting in all sites.

The EHS evaluation was also unique in that it gathered extensive data on implementation via multiple visits at each site. It was possible, then, to categorize sites in terms of the timing with which they fully met the standards: early implementers, later implementers, and incomplete implementers.³ Since multi-site trials often show variability in impacts across sites, the ability to document fidelity to treatment is critical. Children were assessed at 1, 2, 3, and 5 years of age on a variety of cognitive, language, attention, health, behavioral, and engagement skills; their mothers were assessed for parenting stress and depression, home language environment, parenting, and employment.

Overall Impacts of Early Head Start

Overall, averaging across all program sites and all children and families in the sample, EHS programs showed significant impacts on a wide range of child and parent outcomes when the children were 2 and 3 years old. These included impacts in cognitive, language, and social-emotional development (such as reduced aggressive behavior problems), and approaches to learning (including attention and engagement). The effects tended to appear as early as age 2 and were, for the most part, maintained through age 3. Effect sizes for the most significant impacts were one-fifth to one-quarter of a standard deviation. For the African American subsample, the impacts were larger.

Two years after the end of the intervention (at age 5), significant impacts continued to be seen in social-emotional development (reduced behavior problems), approaches to learning, and observed attention (effect sizes around one-fifth of a standard deviation). However, the former EHS group did not continue to show the impacts on vocabulary seen in the earlier years, except for the children who were still tested in Spanish at the pre-K follow-up, and for the African American subsample. EHS children did not differ from control-group children on measures of school-related achievement.

> Averaging across all program sites and all children and families in the sample, programs showed significant impacts on a wide range of parent outcomes when the children were 2 and 3 years old.

Equally important, in our view, were the impacts on parenting and the home environment, as these are crucial mediators of young children's development. The program enhanced parental support for children's language and literacy development, daily reading, and teaching activities at ages 2 and 3, with, for the most part, these effects continuing through age 5.

Growth curve analyses demonstrated that the EHS program had a positive impact over time in four areas. For children's cognitive ability and aggressive behavior, and for maternal supportiveness and the home learning environment the positive program impacts appeared early and the magnitude of the impacts remained relatively constant from age 2 to 5 (although in the cross-sectional impact analyses, the effects for cognitive ability were not found for the total sample at age 5). As other early interventions have found, while it is noteworthy that the program impacts did not diminish with time, neither did they increase.⁴

After the original evaluation ended and children left the program (or control condition) for whatever programs awaited them between ages 3 and 5, we tracked children's program participation. Program group children were significantly more likely than their control counterparts to enroll in formal preschool programs at both ages 3 to 4 and 4 to 5 (47 percent versus 42 percent), although the differences between the groups were small. That is, a large proportion of children in the control group received some preschool education. This might explain why control-group children seemed to catch up to the treatment group children in terms of cognitive and language skills at age 5.

The results reviewed so far are from analyses conducted within the framework of the randomized experimental design. In addition to these, the team conducted nonexperimental analyses to tease apart the contributions of children's experiences birth to age 3 and their post-EHS program experiences age 3 to age 5. The children and families who experienced EHS followed by formal program enrollment (whether Head Start, preschool, or center child care) in the 3- to 5-year age period demonstrated the most favorable pre-K outcomes. These analyses are not based on randomization (that is, children were not assigned to formal programs or not at the end of EHS) and thus are subject to selection bias.

Impacts— "the Median Isn't the Message"⁵

Averages mislead when considerable variability exists within any group. EHS programs and families differ along many dimensions. These include community characteristics (such as urban or rural settings), program characteristics (such as the approaches implemented and patterns of implementation), race and ethnicity of families enrolled, extent to which families experienced various risk factors, and so forth. We focus on the groups defined by the type of program implemented, the quality (or fidelity) of program implementation, the families' race or ethnicity, the families' level of risk, and the intensity of program services received. These analyses lead to important lessons from the impact analyses at age 3.

It is possible that highrisk families take longer to benefit from a program and that the benefits may be in areas other than cognitive skills.

<u>Program approach</u>. When we focused on the age 3 impacts, the lesson was clear. Across the program sites that implemented a mixed approach to providing services, that is, they enrolled families in center- or home-based services or both (either at the same time or over time), the impacts on children and families were stronger. Several of the interaction effects between program approach and impacts were statistically significant—in the areas of children's cognitive and language development and parenting.⁶

Quality of program implementation. As part of the in-depth EHS implementation study, the evaluation measured the extent to which programs met the criteria set forth in the Head Start Program Performance Standards along several dimensions. At the end of program participation the programs we classified as fully implemented had greater impacts on children and families than the programs that had only incompletely implemented the quality standards.

Family race or ethnicity. Subgroup analyses found that EHS had more positive impacts on African American poor families than on Hispanic or white poor families. The effect sizes were often one-third to one-half of a standard deviation. These effects were sustained at age 5. As has been seen in other programs, such as the Infant Health and Development Program (IHDP),⁷ the African American families in the EHS study were more disadvantaged than the white and Hispanic families. Perhaps as a result of their level of disadvantage, the African American families in the control group had lower levels of positive parenting, of reading to their children, and of learning activities than the other ethnic groups within the control condition.⁸ In addition, the African American children in the control group had lower means on cognitive and language outcomes than did the white children in the control group.⁹ If a subset of children and mothers have, in the absence of an intervention, lower scores on outcomes being targeted by an intervention, it is possible that they might benefit more from a particular intervention.

<u>Family risk</u>. One finding that initially surprised us was that the families with the highest risk levels, as defined in this study,

showed no positive impacts of the program when children were 3. Moderate-risk families showed the largest and most consistent impacts. These findings are similar to those from the IHDP, another multi-site randomized trial for children from birth to age 3 (looking at cognitive skills at age 3).¹⁰ An additional follow-up at age 8 suggested that sustained effects of the intervention were seen in mothers who were moderate risk as well.¹¹ In EHS at age 5, however, impacts for the high-risk group emerged for parenting and home environment outcomes. It is possible that high-risk families take longer to benefit from a program and that the benefits may be in arenas other than cognitive skills. Indeed, in EHS, we found some impacts on reduced violence in the home.

Intensity of services. Administrative data on the number of days children attended EHS centers (or hours at the center per year) were not available. Based on maternal report of average weekly hours, we found that EHS children spent about 1,000 hours in EHS child care in the center-based sites over the life of the program, with far fewer hours spent in child care in the homevisiting and mixed-approach sites (as would be expected). EHS families in home-based sites received an average of seventy-one visits over their twenty-two month enrollment period, or about 3.2 visits per month (home visit rates were smaller in the center- and mixed-approach sites). Thus, about four-fifths of possible visits were completed (based on an expectation of a weekly visit), which is well above the 50 percent rate cited for previous home-visiting programs.¹²

Several studies have found links between number of days in centers and child outcomes.¹³ The most sophisticated of these studies involves propensity score matching to examine possible effects of number of days on child outcomes.¹⁴ These nonexperimental analyses suggest that children with more days in the center are more likely to show benefits from the program, both at the end of the program and two to five years later. Long-term large effects (at age 8) appeared only for children who received 300 to 325 days in the center (over a two-year period, or 150 to 175 days per year; effect sizes of more than one-half of a standard deviation). Shorter-term (and smaller) impacts were found at lower levels of center attendance (about 250 days total). The large impacts in Abecedarian and IHDP at the end of each program (on cognitive outcomes, about three-quarters of a standard deviation) are probably due to the fact that so many of the children received a high level of center-based care. Although some EHS children in center-based sites received 175 days per year, over all sites attendance was quite low.

Most of the non-EHS studies focused on cognitive and language outcomes. A significant advantage of EHS is that aggressive behaviors, attention, and approaches to learning also were assessed. It is in these domains that we see sustained effects of EHS. We do not know if these domains are more amenable to lower doses of intervention or if these domains are more influenced by the home-visiting component of the program. It is encouraging, however, to see an intervention that achieved sustained effects in these important areas of school readiness.

Interpretations and Implications of the Findings

The findings described in this paper lead us to six conclusions on the enduring impacts, the community context, the focus on quality and intensity of services, the continuity of interventions, impacts on Hispanic children and families, and the costs and benefits of Early Head Start.

Enduring impacts. Some of the most persistent impacts were in domains particularly important for later success in school. For example, aggressive behavior problems, which EHS programs reduced at all three age points, are predictive of later behavior problems and low school engagement.¹⁵ Attention, which EHS also influenced positively, is linked to school achievement.¹⁶ Parent reading to children (and learning stimulation) is also linked to positive outcomes later on.¹⁷ Although policymakers need to understand the lack of impacts on achievement at age 5, the sustained impacts on domains that might contribute to school success later on also need to be a focus.

> We need programs that are of the highest possible quality and intensity, begin at or before birth, and provide for continuity of services for a fiveyear period.

<u>Context</u>. When we consider that these impacts occurred when averaged across seventeen program sites that were among the first 143 programs to be funded in a large-scale, nationwide roll-out of a new initiative, they really are quite notable, even though modest when compared with the common benchmark Abecedarian project.¹⁸ It should be noted, however, that the counterfactual, namely, that the types and availability of child care and family services available in communities were vastly different at the time of the Abecedarian study compared with the more-recent EHS evaluation: communities offered more services for infants and toddlers in the 1990s (compared with the 1970s) and many more of the EHS study control-group children were in child care.

Focus on quality and intensity of services. Head Start performance standards define quality very comprehensively and include requirements for certain levels of service breadth and intensity. The standards encompass services that include child and family development services, staff development, community building, and program management; for programs, doing things well means doing as many of the required programmatic activities as possible.¹⁹ Indeed, we found that sites differed as to how well they had implemented the performance standards, which was linked to outcomes at age 3. Another issue has to do with the specific curricula used. In 1997, EHS study programs used various curricula: two programs used the High/Scope approach, three drew on WestEd's Program for Infant/Toddler Caregivers, four drew on the Creative Curriculum for Infants and Toddlers, and others used a variety of approaches and materials.²⁰ Current EHS programs are using the Creative Curriculum (about four-fifths of center-based and family care programs) and the Partners for a Healthy Baby curriculum (three-fifths of EHS home-based programs).²¹ A final issue has to do with the appropriate levels of intensity of services for each individual family. More information on attendance would be welcome. No matter how good a curriculum might be, high rates of absenteeism will reduce its impact.

<u>Continuity</u>. It appears to us that following a birth to age 3 program like EHS

with formal preschool programs will create the greatest opportunity for ensuring that children from low-income families start formal schooling on a more positive footing. This finding is important because few programs have attempted a full birth to age 5 intervention within a single program. The fact that links are seen with the robust set of statistical controls we used in EHS leads us to speculate that larger impacts would be seen if continuity of services were provided following EHS. We recommend testing various models for providing continuity of services after children leave EHS and before they enter kindergarten. Granted, a birth (or prenatal) to age 5 program is considerably more expensive than either an infant-toddler or a preschool program. Perhaps as states are now increasingly paying for pre-K programs, the federal government could focus its resources on the early years. We can imagine a landscape in which all children have access to quality, developmentally-focused services from the time their mothers are pregnant until they begin kindergarten, enrolling in federal programs until they turn 3 years of age, and then entering state-sponsored preschool programs. Some variation on this scenario may be possible within current budget limitations, at least for some children.

Enhancing impacts for Hispanic children and families. At age 5, EHS had an impact on receptive vocabulary for Spanishspeaking children, yet impacts overall for the Hispanic subgroup (including both English- and Spanish-speaking children) were not notable. The same was true of the Head Start Impact Study. Much more needs to be done to understand why impacts are smaller for this group of families. We recommend experimentation with intervention models, curricula, and various instructional strategies for English language learners (or dual language learners), to identify best practices (work in this area is currently being funded by the National Institute of Child Health and Human Development and ACF). We also recommend more work to determine why the enrollment rates for these groups are so different.

<u>Costs and benefits of Early Head</u> <u>Start</u>. Programs are frequently asked to justify themselves by demonstrating benefits whose dollar value outweighs the costs of the intervention. The Perry Preschool Project, of course, is continually cited as having a significant monetary return on its investment.²² It is too early in the lives of the children and families who participated in the EHS evaluation for any benefits to appear with which we can associate dollar values.

Conclusion

Three principles, grounded in recent research on programs serving children who are most in need of support, lead to a clear policy recommendation: To maximize the benefits of early childhood programs in enhancing disadvantaged children's school readiness, we need programs that are of the highest possible quality and intensity, begin at birth (or before), and either continue until the children enter kindergarten or provide for continuity of services across programs throughout this five-year period.

Notes

¹ John M. Love and others, *Making a Difference in the Lives of Infants and Toddlers and Their Families: The Impacts of Early Head Start*, report prepared for the U.S. Department of Health and Human Services, Administration for Children and Families, Office of Planning, Research, and Evaluation, Child Outcomes Research and Evaluation (Washington, DC: U.S. Department of Health and Human Services, Administration for Children and Families, June 2002); Administration for Children and Families, "Research to Practice: Preliminary Findings from the Early Head Start Prekindergarten Followup," (Washington, DC: U.S. Department of Health and Human Services, Administration for Children and Families, April 2006). Available at

http://www.acf.hhs.gov/programs/opre/Early Head Start/Early Head

<u>Start_resrch/reports/prekindergarten_followup/prekindergarten_followup.pdf;</u> John M. Love and others, "The Effectiveness of Early Head Start for 3-Year-Old Children and Their Parents: Lessons for Policy and Programs," *Developmental Psychology* 41, no. 6 (2005): 885-901.

³ Ellen Kisker and others, *Pathways to Quality and Full Implementation in Early Head Start Programs*, report prepared for U.S. Department of Health and Human Services, Administration for Children and Families, Office of Planning, Research, and Evaluation, Child Outcomes Research and Evaluation (Washington, DC: U.S. Department of Health and Human Services, Administration for Children and Families, December 2002).

⁴ W. Steven Barnett, "Long-Term Effects of Early Childhood Programs on Cognitive and School Outcomes," *Future of Children* 5, no. 3 (1995): 25-50; Jeanne Brooks-Gunn, "Intervention and Policy as Change Agents for Young Children," in *Human Development across Lives and Generations: The Potential for Change*, ed. Lindsay Chase-Lansdale, Kathleen Kiernan, and Ruth J. Friedman (New York: Cambridge University Press, 2004).

⁵ Stephen Jay Gould originated this phrase as he poignantly fought the central tendencies doctors used to predict his cancer outcome. Stephen J. Gould, "The Median Isn't the Message," *Discover* (June 1985). Available at <u>http://www.stat.berkeley.edu/users/rice/Stat2/GouldCancer.html</u>.

⁶ Love et al., "The Effectiveness of Early Head Start for 3-Year-Old Children and Their Parents." We note that families were not randomly assigned to the three program approaches; however, because programs serve families by identifying the mix of program services that would best meet families' needs, assigning families to those services at random would create an unrealistic situation that would not be generalizable to other EHS programs. However, a planned variation experiment could be very useful for documenting what services are most likely to impact children's outcomes for different types of families (and why).

⁷ Greg J. Duncan, Jeanne Brooks-Gunn, and Pamela K. Klebanov, "Economic Deprivation and Early-Childhood Development" *Child Development* 65, no. 2 (1994): 296-318.

⁸ For a discussion of ethnic differences in parenting, see Jeanne Brooks-Gunn and Lisa B. Markman, "The Contribution of Parenting to Ethnic and Racial Gaps in School Readiness," *Future of Children* 15, no. 1 (2005): 138-167.

⁹ For similar findings in longitudinal samples, see Roland G. Fryer, Jr. and Steven D. Levitt, "Understanding the Black-White Test Score Gap in the First Two Years of School," *The Review of Economics and Statistics* 86, no. 2 (2005): 447-464; Meredith Phillips and others, "Family Background, Parenting Practices, and the Black-White Test Score Gap," in *The Black-White Test Score Gap*, ed. Christopher Jencks and Meredith Phillips (Washington, DC: Brookings Institution, 1998).

¹⁰ The Infant Health and Development Program Staff, "Enhancing the Outcomes of Low Birth Weight, Premature Infants: A Multi-site Randomized Trial," *Journal of the American Medical Association* 263, no. 22 (1990): 3035-3042; Fong-Ruey Liaw and Jeanne Brooks-Gunn, "Patterns of Low Birth Weight Children's Cognitive Development," *Developmental Psychology* 29, no. 6 (1993): 1024-1035.

¹¹ Pamela K. Klebanov and Jeanne Brooks-Gunn, "Differential Exposure to Early Childhood Education Services and Mother-Toddler Interaction," *Early Childhood Research Quarterly* 23, no 2. (2008): 213-232.

¹² Deanna Gomby, "Home Visitation in 2005: Outcomes for Children and Parents," Invest in Kids Working Paper No. 7 (Washington, DC: Invest in Kids Working Group, Committee for Economic Development, 2005); Helen Raikes and others, "Involvement in Early Head Start Home Visiting Services: Demographic Predictors and Relations to Child and Parent Outcomes," *Early Childhood Research Quarterly* 21, no. 1 (2006): 2-24.

¹³ Jennifer Hill, Jeanne Brooks-Gunn, and Jane Waldfogel, "Sustained Effects of High Participation in an Early Intervention for Low-Birth-Weight Premature Infants," *Developmental Psychology* 39, no. 4 (2003): 730-744; Fong-Ruey Liaw, Samuel J. Meisels, and Jeanne Brooks-Gunn, "The Effects of Experience of Early Intervention on Low

² These reflections are those of the authors, not ACF, the sponsoring agency.

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¹⁴ Hill, Brooks-Gunn, and Waldfogel, "Sustained Effects of High Participation."

¹⁵ Avshalom Caspi and others, "Behavioral Observations at Age 3 Years Predict Adult Psychiatric Disorders: Longitudinal Evidence from a Birth Cohort," *Archives of General Psychiatry* 53, no. 11 (1996): 1033–1039; Thomas J. Dishion, Doran C. French, and Gerald R. Patterson, "The Development and Ecology of Antisocial Behavior," in *Developmental Psychopathology, Vol. 2: Risk, Disorder, and Adaptation*, ed. Dante Cicchetti and Donald J. Cohen (Oxford, England: John Wiley and Sons, 1995).

¹⁶ Greg J. Duncan and others, "School Readiness and Later Achievement," *Developmental Psychology* 43, no. 6 (2007): 1428-1446.
¹⁷ Katherine A. Magnuson, Christopher Ruhm, and Jane Waldfogel, "Does Prekindergarten Improve School

¹⁷ Katherine A. Magnuson, Christopher Ruhm, and Jane Waldfogel, "Does Prekindergarten Improve School Preparation and Performance?" *Economics of Education Review* 26, no. 1 (2007): 33-51; Phillips et al., "Family Background."

¹⁸ Frances A. Campbell and Craig T. Ramey, "Cognitive and School Outcomes for High-Risk African American Students at Middle Adolescence: Positive Effects of Early Intervention," *American Educational Research Journal* 32, no. 4 (1995): 743-772.

¹⁹ Administration for Children and Families, *Head Start Program Performance Standards and Other Regulations* (45 CFR Parts 1301, 1302, 1303, 1304 and Guidance, 1305, 1306, and 1308 and Guidance (Washington, DC: U.S. Department of Health and Human Services, Administration for Children and Families, 1998) Available at http://www.eric.ed.gov/ERICWebPortal/custom/portlets/recordDetails/detailmini.jsp?_nfpb=true&_&ERICExtSearc h SearchValue 0=ED426807&ERICExtSearch SearchType 0=no&accno=ED426807.

²⁰ These other materials included Partners in Parenting Education, Resources for Infant Educators, Hawaii Early Learning Profile, Partners in Learning, Games to Play with Babies, Games to Play with Toddles, Playtime Learning Games for Young Children, Talking to Your Baby, Learning Activities for Infants, Ones, and Twos, Anti-Bias Curriculum, and Montessori. Ellen E. Kisker and others, Leading the Way: Characteristics and Early Experiences of Selected Early Head Start Programs, Volume I: Cross-Site Perspectives, report prepared for the U.S. Department of Health and Human Services, Administration on Children, Youth and Families (Princeton, NJ: Mathematica Policy Research, Inc., December 1999).

²¹Cheri A. Vogel and others, *Findings from the Survey of Early Head Start Programs: Communities, Programs, and Families,* report prepared for the U.S. Department of Health and Human Services, Administration for Children and Families (Princeton, NJ: Mathematica Policy Research, Inc., December 2006).

²² W. Steven Barnett and Leonard N. Masse, "Comparative Benefit–Cost Analysis of the Abecedarian Program and its Policy Implications," *Economics of Education Review* 26, no. 1 (2007): 113-125.

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