Head Start Impact Study First Year Findings

Executive Summary

June 2005

U.S. Department of Health and Human Services
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Office of Planning, Research and Evaluation
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Head Start Bureau

Head Start Impact Study

First Year Findings

June 2005

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Head Start Impact Study: First Year Findings

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There were those who were worried that random assignment and subsequent data collection efforts would be difficult, if not impossible to implement. Study staff have done a tremendous job in meeting these challenges to ensure the success of the study. Moreover, the partnership and support from the National Head Start Association, Head Start Grantees and Delegate Agencies and their center staff were instrumental in the successful implementation of this study. The ongoing backing of the Head Start Bureau and Regional Office staff were critical to the recruitment process. A special thank you is extended to all the families and their children who participated in the study. Their continued contributions of time and information over the last three years have been exceptional and greatly appreciated.

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This report presents initial findings from the Congressionally mandated Head Start Impact Study. Three required reports to Congress have already been submitted. This report, while not mandated, presents preliminary findings on impacts after one year in Head Start (fall 2002 to spring 2003). A final report will present results of analyses following children through the end of first grade.

Executive Summary

Highlights

The Congressionally-mandated Head Start Impact Study is being conducted across 84 nationally representative grantee/delegate agencies. Approximately 5,000 newly entering 3- and 4-year-old children applying for Head Start were randomly assigned to either a Head Start group that had access to Head Start program services or to a non-Head Start group that could enroll in available community non-Head Start services, selected by their parents. Data collection began in fall 2002 and is scheduled to continue through 2006, following children through the spring of their 1st-grade year.

The study quantifies the impact of Head Start separately for 3- and 4-year-old children across child cognitive, social-emotional, and health domains as well as

Exhibit 1: Summary of Main Impact Findings[1]

Domains, Constructs, and Measures	Effect Sizes[2]	
	3-Year-Old Group	4-Year-Old Group
Cognitive Domain		
Pre-Reading		
Woodcock-Johnson III Letter-Word Identification	**0.24**	**0.22**
Letter Naming	**0.19**	**0.24**
Pre-Writing		
McCarthy Draw-A-Design	**0.13**	**--**
Woodcock-Johnson III Spelling	**--**	**0.16**
Vocabulary		
PPVT-III Adapted	**0.12**	**--**
Color Naming	**0.10**	--
Parent Reported Literacy Skills	**0.34**	**0.29**
Oral Comprehension and Phonological Awareness	**--**	**--**
Early Math	**--**	**--**
Social-Emotional Domain		
Problem Behaviors		
Total Behavior Problems	**-0.13**[3]	**--**
Hyperactive Behavior	**-0.18**[3]	**--**
Aggressive Behavior	--	--
Withdrawn Behavior	--	--
Social Skills and Approaches to Learning	**--**	**--**
Social Competencies	**--**	**--**
Health Domain		
Access to Health Care		
Child Had Dental Care	**0.34**	**0.32**
Child Has Health Insurance	--	--
Health Status		
Overall Health Status	**0.12**	**--**
Child Needs Ongoing Care	**--**	**--**
Child Had Care for Injury	**--**	**--**
Parenting Domain		
Educational Activities		
Number of Times Child Read To	**0.18**	**0.13**
Family Cultural Enrichment Scale	**0.11**	**--**
Discipline Strategies		
Spanked Child in Last Week	**-0.14**[3]	**--**
Number of Times Spanked	**-0.10**[3]	**--**
Used Timeout	**--**	**--**
Number of Timeouts	**--**	**--**
Child Safety Practices		
Overall Parental Safety Practices	**--**	**--**
Removing Harmful Objects	**--**	**--**
Restricting Child Movement	**--**	**--**
Safety Devices	**--**	**--**

[1] All effect sizes presented in table are based on statistically significant treatment and control differences of at least $p \leq 0.05$.

[2] Effect sizes relate the magnitude of impacts to the variation of the outcome as measured by the estimated treatment and control differences relative to the magnitude of the standard deviation on the measure of interest (i.e., as a fraction of one standard deviation).

[3] Negative effect sizes mean reduction in total problem behaviors, hyperactive behavior, and spanking.

on parenting practices. For children in the 3-year-old group, the preliminary results from the first year of data collection demonstrate small to moderate[1] positive effects favoring the children enrolled in Head Start for some outcomes in each domain. Fewer positive impacts were found for children in the 4-year-old group.[2] The key findings are summarized below and presented in Exhibit 1:

Cognitive Domain

The cognitive domain consists of six constructs each comprising one or more measures. The key findings in this domain are:

- There are small to moderate statistically significant positive impacts for both 3- and 4-year-old children on several measures across four of the six cognitive constructs, including pre-reading, pre-writing, vocabulary, and parent reports of children's literacy skills.
- No significant impacts were found for the constructs oral comprehension and phonological awareness or early mathematics skills for either age group.

Social-Emotional Domain

The social-emotional domain consists of three constructs, each comprising one or more parent-reported measures.[3] The key findings in this domain are:

- For children who entered the study as 3-year-olds, there is a small statistically significant impact in one of the three social-emotional constructs, problem behaviors.
- There were no statistically significant impacts on social skills and approaches to learning or on social competencies for 3-year-olds.
- No significant impacts were found for children entering the program as 4-year-olds.

Health Domain

The key findings in this domain, consisting of two constructs, are:

- For 3-year-olds, there are small to moderate statistically significant impacts in both constructs, higher parent reports of children's access to health care and reportedly better health status for children enrolled in Head Start.
- For children who entered the program as 4-year-olds, there are moderate statistically significant impacts on access to health care, but no significant impacts for health status.

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[1] For this report we have adopted the following conventions for interpreting effect sizes: less than 0.2 is small, between 0.2 and 0.5 is a moderate impact, and over 0.5 is a large impact.

[2] Future analysis will test statistical significance of the differences in impacts across the two age groups.

[3] Future reports will also examine this domain using teacher-reported data.

Parenting Practices Domain

The key findings in this domain, consisting of three constructs, are:

- For children who entered the program as 3-year-olds, there are small statistically significant impacts in two of the three parenting constructs, including a higher use of educational activities and a lower use of physical discipline by parents of Head Start children. There were no significant impacts for safety practices.
- For children who entered the program as 4-year-olds, there are small statistically significant impacts on parents' use of educational activities. No significant impacts were found for discipline or safety practices.

Future reports will extend these analyses to examine additional areas of possible impact, explore possible variation in impact by program characteristics (e.g., classroom quality, teacher educational level, full-day versus part-day programs, etc.) and community characteristics, and follow children through the end of 1st grade.

Study Overview

Since its beginning in 1965 as a part of the War on Poverty, Head Start's goal has been to boost the school readiness of low-income children. Based on a "whole child" model, the program provides comprehensive services that include preschool education; medical, dental, and mental health care; nutrition services; and efforts to help parents foster their child's development. Head Start services are designed to be responsive to each child's and family's ethnic, cultural, and linguistic heritage.

Study Goals

1) Determine the impact of Head Start on:
- Children's school readiness, and
- Parental practices that support children's development.

2) Determine under what circumstances Head Start achieves its greatest impact and for which children.

In the 1998 reauthorization of Head Start, Congress mandated that the US Department of Health and Human Services (DHHS) determine, on a national level, the impact of Head Start on the children it serves. As noted by the Advisory Committee on Head Start Research, this legislative mandate required that the impact study address two main research questions:[4]

- "What difference does Head Start make to key outcomes of development and learning (and in particular, the multiple domains of school readiness) for low-income

[4]Advisory Committee on Head Start Research and Evaluation (1999). ***Evaluating Head Start: A Recommended Framework for Studying the Impact of the Head Start Program.*** Washington, DC: US Department of Health and Human Services.

children? What difference does Head Start make to parental practices that contribute to children's school readiness?"

- "Under what circumstances does Head Start achieve the greatest impact? What works for which children? What Head Start services are most related to impact?"

Random Assignment
Newly entering 3- and 4-year-old Head Start applicants were **randomly assigned** either to a **treatment group** that had access to Head Start services or to a **control group** that could receive any other non-Head Start services chosen by their parents.

To reliably answer these questions, a nationally representative sample of Head Start programs and newly entering 3- and 4-year-old children was selected, and children were **randomly assigned** either to a **treatment group** that had access to Head Start services or to a **control group** that could receive any other non-Head Start services available in the community, chosen by their parents. Under this randomized design, a simple comparison of outcomes for the two groups yields an unbiased estimate of the impact of access to Head Start on children's school readiness. This research design, if properly implemented, ensures that the two groups will not differ in any systematic or unmeasured way except through their access to Head Start services.

In addition to random assignment, this study is set apart from most program evaluations because children were selected at random from those applying for entry into Head Start in a nationally representative sample of programs, making results generalizable to the entire Head Start program, not just to the selected samples of programs and children.

Study Sample
The nationally representative study sample, spread over 23 different states, consists of a total of 84 randomly selected grantees/delegate agencies, 383 randomly selected Head Start centers, and a total of 4,667 newly entering children; 2,559 3-year-olds and 2,108 4-year-olds.

One constraint imposed on this study was that selected Head Start grantees and centers had to have a sufficient number of "extra" applicants for the 2002-03 program year to allow for the creation of a non-Head Start control group through random assignment, thereby avoiding ethical concerns about possible denial of services to eligible children. As a consequence, the study was conducted in communities that had more children eligible for Head Start than could be served with the existing number of funded slots.

At each of the selected Head Start centers, program staff provided information about the study to parents at the time enrollment applications were distributed. Parents were told that

enrollment procedures would be different for the 2002-03 Head Start year and that some decisions regarding enrollment would be made using a lottery-like process. Local agency staff implemented their typical process of reviewing enrollment applications and screening children for admission to Head Start based on criteria approved by their respective Policy Councils. No changes were made to these locally established ranking criteria.

Information was collected on all children determined to be eligible for enrollment in fall 2002, and an average sample of 27 children per center was selected from this pool: 16 who were assigned to the Head Start group and 11 who were assigned to the non-Head Start group. Random assignment was done separately for two study samples—**newly entering** 3-year-olds (to be studied through two years of Head Start participation, kindergarten, and 1st grade) and **newly entering** 4-year-olds (studied through one year of Head Start participation, kindergarten, and 1st grade).

The total sample, spread over 23 different states, consists of 84 randomly selected Head Start grantees/delegate agencies, 383 randomly selected Head Start centers, and a total of 4,667 newly entering children, including 2,559 in the 3-year-old group and 2,108 in the 4-year-old group.[5] No statistically significant differences were found between the children randomly assigned to the Head Start and non-Head Start groups, providing one of several indications that the initial randomization was accomplished with high integrity, necessary for the validity of the impact estimates.

Data Collection

- Baseline data were collected in fall 2002 with annual spring follow-ups through 2006, the end of 1st grade for the youngest children.
- Comparable data are being collected for both Head Start and non-Head Start children, including interviews with parents, direct child assessments, surveys of Head Start and non-Head-Start teachers, interviews with center directors and other care providers, direct observations of the quality of various care settings, and care provider ratings of children.

Data collection began in the fall of 2002 and will continue through the spring of 2006, following children from age of entry into Head Start through the end of 1st grade. Comparable data are being collected for both Head Start and non-Head Start children, including interviews with parents, direct child assessments, surveys of Head Start and non-Head-Start teachers, interviews with center directors and other care providers, direct observations of the quality of various care settings, and care provider ratings of children.

[5] The sample of 3-year-olds is slightly larger than the sample of 4-year-olds to protect against the possibility of higher study attrition resulting from an additional year of longitudinal data collection for the younger children.

To date, response rates have been very good, with 83 percent of parents completing interviews in fall 2002 and spring 2003, and assessments being completed for 82 percent of the children. There is some difference in response rates between the Head Start and non-Head Start groups. Statistical weighting has been used both to adjust for the observed non-response and to generalize the data to the national Head Start program.

Statistical analysis of the characteristics of the sample used in this report (i.e., those children and parents for whom data were collected in spring 2003) indicate that the Head Start and non-Head Start groups are well matched on available characteristics, with only two small differences for each of the two age groups. These differences are not fully accounted for by the use of non-response adjustments to the sampling weights and are instead dealt with through their inclusion as covariates in the statistical models used to estimate program impacts.

Although every effort was made to ensure complete compliance with random assignment, some children accepted into Head Start did not participate in the program (this is not an uncommon occurrence in the program), and some children assigned to the non-Head Start group nevertheless entered the program, typically at centers that were not in the study sample. Statistical procedures for dealing with these events are discussed in the report. The findings in this report provide estimates of both the impact of access to Head Start using the sample of all randomly assigned children and a preliminary look at the impact of Head Start on program participants (adjusting for the deviations from random assignment).

Analysis Methods

Impact estimates discussed in this report represent the effect of Head Start on children and parents after one year of program participation.[6] Estimates are primarily based on the use of statistical models that control for any random differences in background characteristics between the Head Start and non-Head Start groups. Impacts are presented both for the overall average effects (for the full sample) and for selected subgroups of children and parents. All estimates use weighted data to generalize the findings to the full population of newly entering Head Start children.

[6] These are the average impacts of access to Head Start, often referred to as "intent to treat" impact estimates. Additional analysis on the children and parents who actually participated in the program (referred to as the "impact on the treated") are presented in appendices 4-8.

Before describing the results, three points are worth emphasizing.

1. **The initial analyses represent only a portion of what is planned for future reports:** In looking at child experiences, the current report provides only a partial set of preliminary indicators. Future reports will expand upon the description of the characteristics of the child care settings used by families and explore how child impacts vary with the quality of their early care experience. Additionally, future reports will address an expanded array of outcomes, the impacts of full-day/part-day programs, and other factors that have been shown to influence children's school readiness, such as teacher characteristics.

2. **The non-Head Start (control) group is not a "no service" group:** Parents of children in the control group were not precluded from enrolling their children in other types of preschool or child care arrangements. Consequently, the impact of Head Start is being evaluated against a mixture of alternatives available in the community, ranging from parent care to non-Head Start center-based programs. In some cases, these alternatives may look very much like Head Start, while others may look very different from Head Start. Evaluating Head Start against the current mixture of alternative arrangements isolates the contribution the Federal program is making relative to the array of other child care services currently available to low-income families.

3. **The magnitude of estimated impacts must be viewed in context:** This report uses a strict standard for reporting statistical significance. Only those impacts that could be detected with 95 percent confidence are reported as statistically significant. For those outcomes where statistically significant impacts were detected, results are provided in both their "natural" units (e.g., as points on a test score) and as "effect sizes" which provide a common yardstick for comparing across the different outcomes as well as to other research studies. When no significant impact was detected, effect sizes are not reported. For this report we have adopted the following conventions for interpreting effect sizes. Effect sizes of less than 0.2 are considered small, between 0.2 and 0.5 are considered a moderate impact, and over 0.5 are considered large impacts. For the most part, effect sizes from the current analysis are in the range of small to moderate. In considering the effect sizes, readers should keep in mind that:

   a. These findings represent the impact of Head Start after a single year of participation.

   b. There were some deviations from perfect random assignment that may affect the size and statistical significance of estimated impacts.

   c. Any judgment about the importance of the reported impact estimates must consider both the level of gains that children can be expected to achieve within a relatively short period of time and the size of effects that have been found in other early childhood and educational research studies.

Key Findings

As a way to provide a context for understanding the estimated program impacts, this section begins with a description of the early experiences of children assigned to the Head Start and non-Head Start groups. The impact findings are then organized by the two overarching

research questions: (1) overall national average impacts on children's school readiness and parenting practices that support their development and (2) program impacts for particular subgroups of children and parents.

Within these two broad categories, results are organized by four outcome domains: (1) children's cognitive development, (2) children's social-emotional development, (3) children's health status and access to health care, and (4) parenting practices. Within each domain, results are presented separately for children in the 3- and 4-year-old groups.

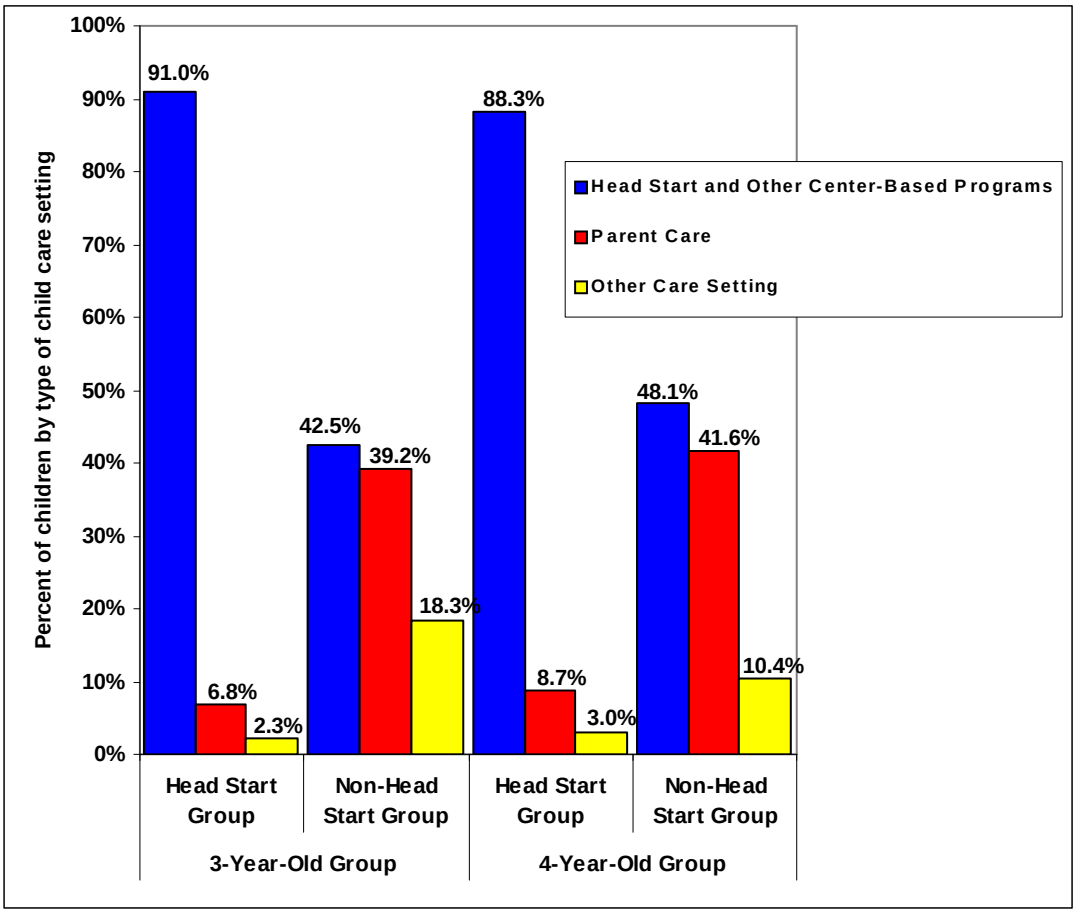
Children's Early Experiences

There is clear evidence that Head Start increases the likelihood that low-income children will be enrolled in center-based child care. Specifically, Head Start group children were twice as likely as the non-Head Start group children to use a center-based program in spring 2003. Approximately 90 percent of children in the Head Start group in both age cohorts were using a center-based program compared to 43 percent of children in the 3-year-old non-Head Start group and 48 percent of the 4-year-old non-Head Start group. Head Start group children were also more likely than non-Head Start group children to be in a center-based environment in **both** fall 2002 and spring 2003 and to have been in their spring 2003 setting since the start of the 2002-03 program year.

Conversely, non-Head Start group children were substantially more likely than Head Start group children to be exclusively in parent care[7] in spring 2003. Among children in the 3-year-old group, 39.2 percent of non-Head Start group children were in parent care as compared to only 6.8 percent of children in the Head Start group; among children in the 4-year-old group, the figures were 41.6 and 8.7 percent, respectively (see Exhibit 2).

[7] Exclusively in parent care is defined as being in **no** other non-parental setting for at least 5 hours per week.

Exhibit 2: Child Care Settings Used by Head Start and Non-Head Start Children, Spring 2003



The rates at which children in the study used Head Start or other center-based care did not differ substantially by age group. This is a somewhat surprising finding because in the general population, 4-year-olds are more likely than younger children to be enrolled in center-based programs.

In addition to conducting a preliminary examination of the impact of Head Start on children's use of early care arrangements, this report also presents findings on some initial quality indicators for the Head Start centers and other center-based programs attended by study children. These descriptive data provide some insight into the different environments in which Head Start and non-Head Start children are found when they attend centers, a difference that has important implications for understanding the impact of Head Start on children and parents. On the initial indicators assessed, children in the Head Start centers were in environments that more often (1) had positive interactions between children and teachers as measured by the Arnett Scale of

Teacher Behavior, (2) used curriculum and activities to enhance children's skills, and (3) had higher scores on the Early Childhood Environment Rating Scale: Revised Edition.

Overall Average Impacts

Impact on Children's Cognitive Development

The impact of Head Start on children's cognitive development was examined in five constructs based on direct child assessments: (1) pre-reading skills focusing primarily on letter recognition, an important stepping stone on the path to becoming a proficient reader; (2) pre-writing skills that address children's ability at drawing shapes and writing letters; (3) vocabulary knowledge, which is indicative of children's receptive language development; (4) oral comprehension and phonological awareness which assess the ability to understand spoken language, including the knowledge that spoken sentences are made of component words that, in turn, comprise syllables and sounds (phonemes); and (5) early math skills that are essential for the development of more advanced quantitative capabilities. In addition, parents were asked to provide their perceptions of their child's emerging literacy and language skills.

Exhibit 3: Effect Sizes on Assessments for Which Head Start Had a Significant Overall Impact [1]

Cognitive Domains	Effect Sizes	
	3-Year-Old Group	4-Year-Old Group
Pre-Reading		
Woodcock-Johnson III Letter-Word Identification	**0.24**	**0.22**
Letter Naming	**0.19**	**0.24**
Pre-Writing		
McCarthy Draw-A-Design	**0.13**	**--**
Woodcock-Johnson III Spelling	**--**	**0.16**
Vocabulary		
PPVT-III Adapted	**0.12**	**--**
Color Naming	**0.10**	--
Parent Reported Literacy Skills	**0.34**	**0.29**
Oral Comprehension and Phonological Awareness	**--**	**--**
Early Math	**--**	**--**

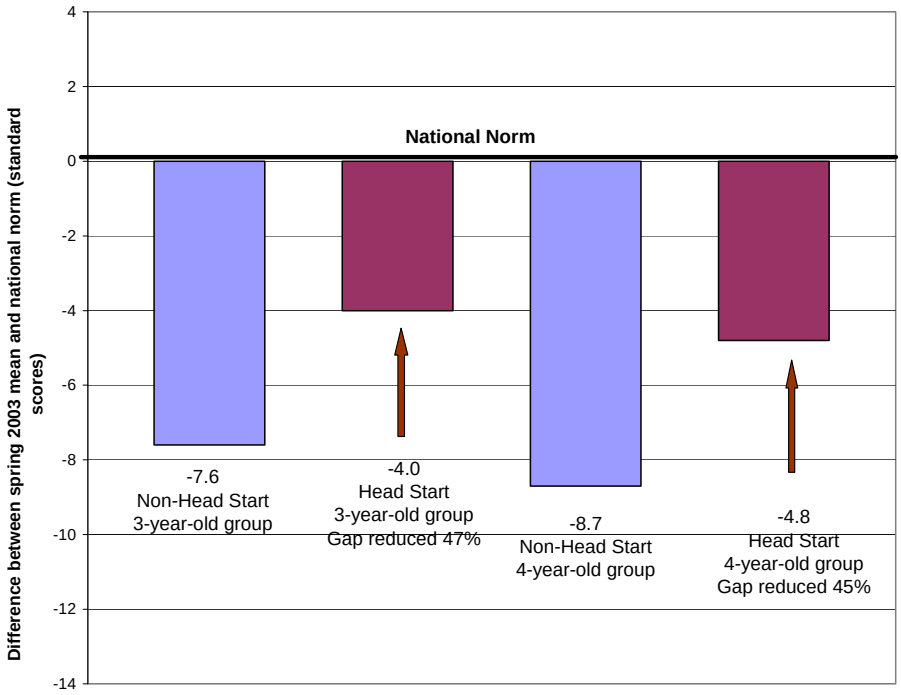
[1] All effect sizes presented in table are based on statistically significant treatment and control differences of at least $p \leq 0.05$.

As shown in Exhibit 3, the largest impacts were found for direct assessments of pre-reading skills and for parent-reported perceptions of their child's emergent literacy and language skills. Somewhat smaller impacts were found for the direct assessments of pre-writing skills and vocabulary (see Exhibit 3). No overall positive impact was found in the areas of oral comprehension and phonological awareness, or early math skills.

With regard to pre-reading skills, the effect sizes of the impacts on the Woodcock-Johnson III Letter-Word Identification test scores were 24 percent of a standard deviation for children in the 3-year-old group and 22 percent for children in the 4-year-old group. The effect sizes of the impact on the Letter Naming task were 19 percent for children in the 3-year-old group and 24 percent for children in the 4-year-old group.

Comparing the skill levels of children in the Head Start Impact Study with those of the general population of 3- and 4-year-olds in the United States (including those who were not from

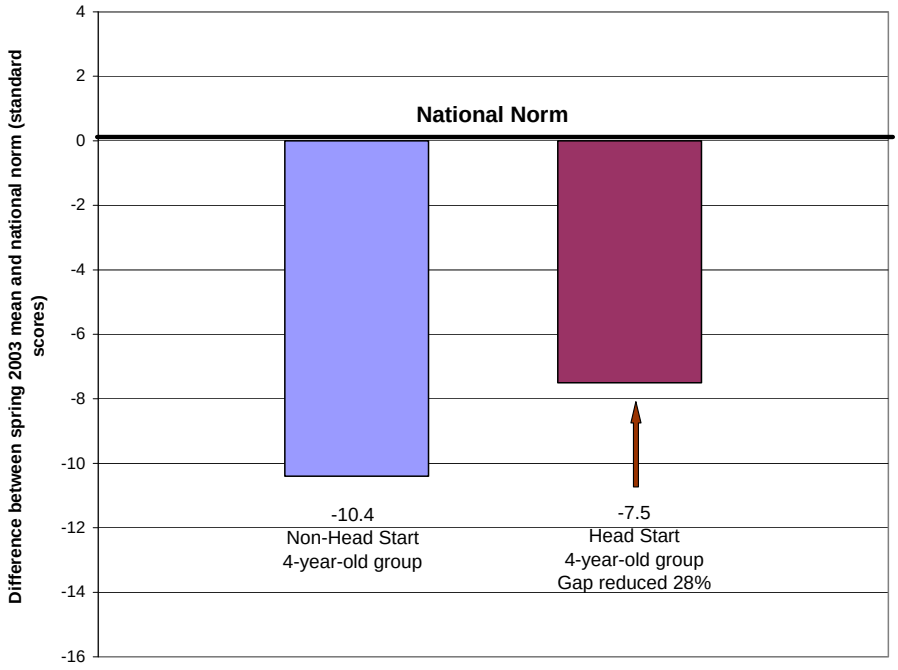
Exhibit 4: Impact of Head Start on Reducing the Achievement Gap in Children's Pre-Reading Skills (Woodcock-Johnson III Letter-Word Identification): Comparing Spring 2003 Means to National Norms by Age Group



low-income families) on the Woodcock-Johnson III Letter-Word Identification test showed that, after one year, the mean performance of Head Start children was still below the average performance level for all U.S. children, by about one-third of a standard deviation (about 5 points). However, at the end of one year, Head Start was able to nearly cut in half the achievement gap that would be expected in the absence of the program (as indicated by comparing the means for the Head Start and non-Head Start groups in Exhibit 4).

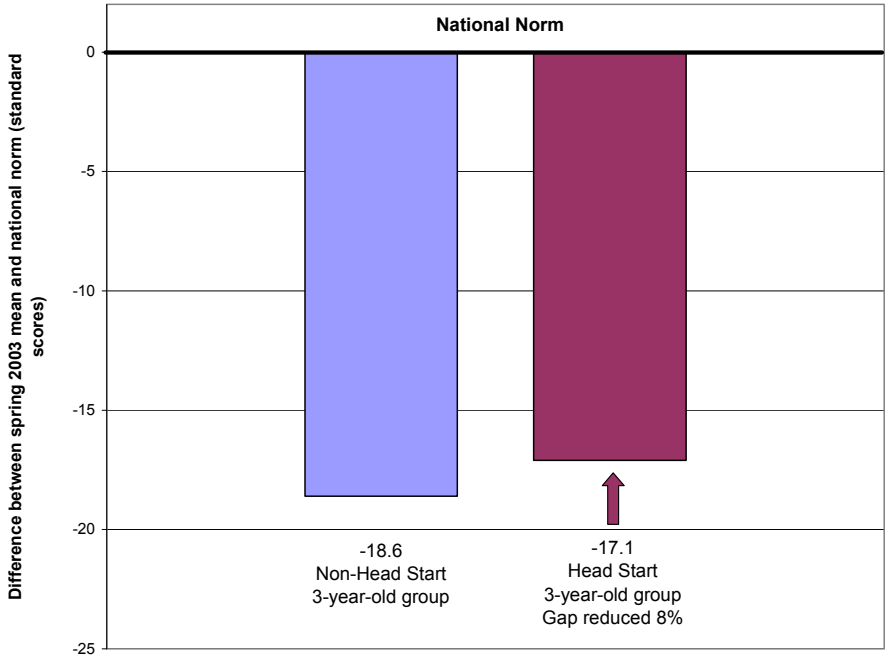
Among children in the 3-year-old group, the impact of Head Start on pre-writing skills was apparent in their score on the McCarthy Draw-a-Design test, which was 0.15 points higher for the Head Start group than the non-Head Start group with an effect size of 13 percent. For children in the 4-year-old group, there was also a positive impact on pre-writing skills for the Head Start group with an effect size of 16 percent as assessed by the Woodcock-Johnson III Spelling test. Head Start children were again found to be closer than non-Head Start children to the national norm for early writing skills by 28 percent (see Exhibit 5).

Exhibit 5: Impact of Head Start on Reducing the Achievement Gap in Children's Pre-Writing Skills (Woodcock-Johnson III Spelling): Comparing Spring 2003 Means to National Norms by Age Group



Statistically significant impacts on vocabulary knowledge were found, only for children in the 3-year-old group, with an effect size of 12 percent on the PPVT-III (Adapted) test. Thus, for this group only, Head Start children were 8 percent closer than non-Head Start children to the national norm on vocabulary skills (see Exhibit 6). No significant effects were found on vocabulary knowledge for the 4-year-old Head Start group.

Exhibit 6: Impact of Head Start on Reducing the Achievement Gap in Children's Vocabulary Skills (PPVT-III (adapted)): Comparing Spring 2003 Means to National Norms by Age Group



Impact on Children's Social-Emotional Development

The impact of Head Start on children's social-emotional development was examined along three dimensions: (1) social skills and positive approaches to learning that deal with curiosity, imagination, openness to new tasks and challenges, and having a positive attitude about gaining new knowledge and skills, (2) the incidence of various problem behaviors, and (3) social competencies.

Among children in the 3-year-old group, the frequency and severity of problem behavior reported by their parents were lower for children in the Head Start group compared to children in the non-Head Start group (see Exhibits 7 and 8). With regard to the overall problem behavior, the incidence of parent-reported problems was lower for 3-year-old children in the Head Start group (an effect size of 13 percent),

Exhibit 7: Effect Sizes for Social-Emotional Factors for Which Head Start Had a Significant Overall Impact [1]

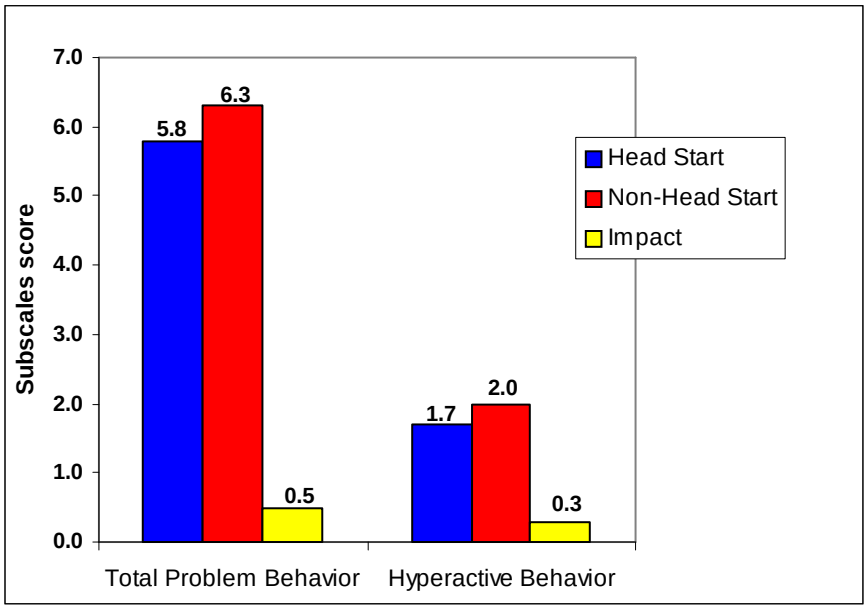
Social-Emotional	Effect Size	
	3-Year-Old Group	4-Year-Old Group
Problem Behaviors		
Total Behavior Problems	**-0.13**	--
Hyperactive Behavior	**-0.18**	--
Aggressive Behavior	--	--
Withdrawn Behavior	--	--
Social Skills and Approaches to Learning	--	--
Social Competencies	--	--

Negative effect sizes means reduction in problem behavior and aggressive behavior.
[1] All effect sizes presented in table are based on statistically significant treatment and control differences of at least $p \leq 0.05$.

and the incidence of parent report of hyperactive behavior was also lower for 3-year-old children in the Head Start group (an effect size of 18 percent). No overall impact of Head Start was found on the parent-reported Social Skills and Positive Approaches to Learning scale or on the parent-reported Social Competencies Checklist, for children in both age groups.

These measures are based on behavior reports from parents. An important additional source of information on children's social development—reports from children's teachers and caregivers—was not available for all children at this stage but will be available in future years of the study, when the children are in elementary school.

Exhibit 8: Impact of Head Start on Behavior Problems and Hyperactive Behavior, 3-Year-Old Group



Impact on Children's Health Outcomes

Head Start had a positive impact on certain indicators of children's health. The impact of access to Head Start on children's health was examined for a few selected measures reported by parents at the end of the first program year:

Exhibit 9: Effect Sizes for Health Care Factors for Which Head Start Had a Significant Overall Impact [1]

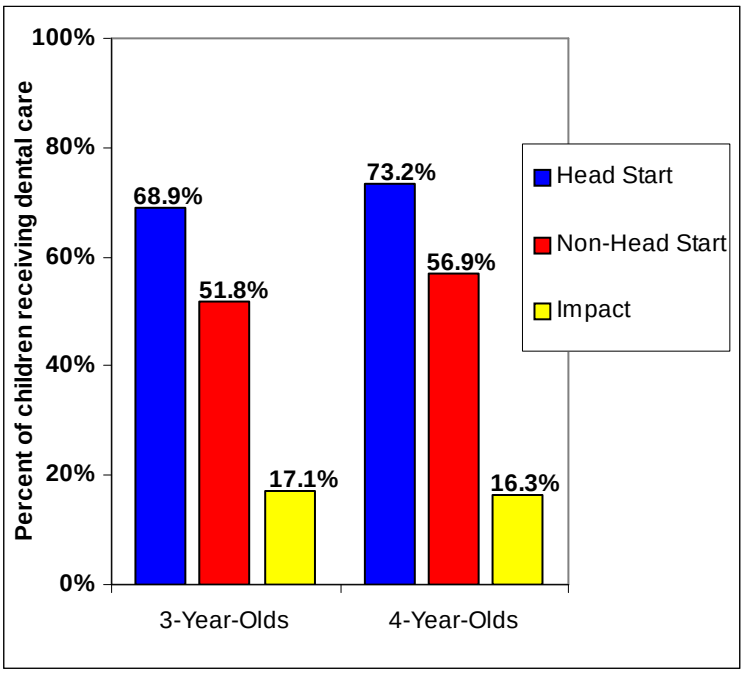
Health Outcomes	Effect Size	
	3-Year-Old Group	4-Year-Old Group
Access to Health Care		
Child Had Dental Care	**0.34**	**0.32**
Child Has Health Insurance	--	--
Health Status		
Overall Health Status	**0.12**	**--**
Child Needs Ongoing Care	**--**	**--**
Child Had Injury	**--**	**--**

[1] All effect sizes presented in table are based on statistically significant treatment and control differences of at least $p \leq 0.05$.

(1) the child's health status, including parent's report of the child's overall health status, whether the child needs ongoing care for an illness or condition, and whether the child had an injury in the last month and (2) the child's access to health care services, including whether the child has health insurance and whether the child has received dental care. No direct measures of children's actual health status, or their receipt of health care services, were undertaken for this study. Instead, data are based on parent report.

For children in both the 3- and 4-year-old group, a positive impact was found on the receipt of dental care (see Exhibits 9 and 10). The impact was similar for children in both age groups (17 percentage points for the 3-year-old group and 16 percentage points for the 4-year-old group), with similar effect sizes as well (34 percent and 32 percent, respectively). For children in the 3-year-old group, a positive impact was also found on parents' reported ratings of their children's health status, with more parents of children in the Head Start group reporting that their child's health was either excellent or very good (an effect size of 12 percent).

Exhibit 10: Impact of Head Start on Parent-Reported Receipt of Dental Care, 3- and 4-Year-Old Groups



Impact on Parenting Practices

One of the hallmarks of Head Start is its focus on parents as their child's first and primary teacher, recognizing that the involvement of parents is crucial for fostering children's school readiness. Historically, Head Start programs have reached out to families in a variety of ways, by encouraging parent involvement in their child's classroom, providing parent education to help strengthen parents' childrearing knowledge and skills, and providing referrals to address family needs so that parents can be more effective in their role as caregiver.

The impact of Head Start on parenting practices was examined in three main areas for this report: (1) educational activities that parents do with their children, including parent-child interactions that involve talking, reading, teaching, and exposure to new experiences that are crucial for promoting language development and early literacy; (2) parental discipline that emphasizes establishing firm but fair expectations for child behavior and promotes the development of social understanding and skills necessary for positive relationships with peers and adults; and (3) safety practices--parents' preventive efforts to safeguard the child's environment that are crucial for children's physical health and overall well-being.

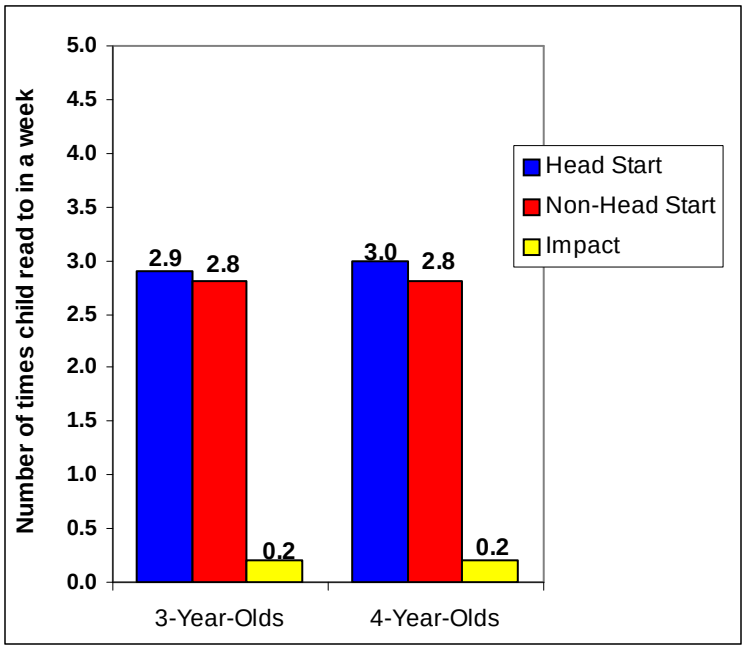
For both age cohorts, Head Start had a small positive impact on the extent to which parents reported reading to their child (see Exhibits 11 and 12), with an 18 percent effect size for the 3-year-old group and a 13 percent effect size for the 4-year-old group. Positive impacts also were found for children in the 3-year-old group on the extent to which their parents exposed them to a variety of cultural enrichment activities such as taking them to a museum or a zoo (an effect size of 11 percent).

Exhibit 11: Effect Sizes for Parenting Practices for Which Head Start Had a Significant Impact [1]

Parenting Practices	Effect Size	
	3-Year-Old Group	4-Year-Old Group
Educational		
Number of Times Child Read To	**0.18**	**0.13**
Family Cultural Enrichment Scale	**0.11**	--
Discipline Strategies		
Spank Child in Last Week	**-0.14**	--
Number of Times Spanked	**-0.10**	--
Use Timeout	--	--
Number of Timeouts	--	--
Child Safety Practices		
Overall Parental Safety Practices	--	--
Removing Harmful Objects	--	--
Restricting Child Movement	--	--
Safety Devices	--	--

Negative effect size reflects reduction in outcome.
[1] All effect sizes presented in table are based on statistically significant treatment and control differences of at least $p \leq 0.05$.

Exhibit 12: Impact of Head Start on the Number of Times Parent Reads to Child in a Week, 3- and 4-Year-Old Groups



For parents of children in the 3-year-old group, there is a lower use of physical discipline with children in the Head Start group compared to children in the non-Head Start group. A similar impact was not found on physical discipline for parents of children in the 4-year-old group. No statistically significant impacts were found on parents' child safety practices at home, for either age group.

Variation in Program Impact

It is important to understand how the impact of Head Start may vary among different types of children, parents, and communities and in relation to children's early childhood experiences. To fully understand these issues, it is necessary to assess both the **difference** in impact between subgroups (e.g., Does Head Start have larger effects on boys compared to girls?) and the impact of Head Start **on the individual subgroups themselves** (e.g., Does Head Start have an impact on boys?). To date, only an initial examination of sources of variation in program impacts has been undertaken; future reports will address this topic in more depth.

The analyses discussed in this report examine impacts on subgroups, and differences in impacts, for subgroups defined by the following child or parent characteristics: child gender, race and ethnicity; presence of special needs; and for only the cognitive outcomes, the child's status at

the time of entry into Head Start; parent's marital status; age of mother at first birth; and primary caregiver's depressive symptoms. Positive impacts were found for a variety of subgroups of children with a range of demographic and family characteristics:

- **Child and home language:** For children in the 3-year-old group whose primary language was English, positive impacts were found on a variety of cognitive outcomes, as well as on particular measures of social-emotional development, health, and parenting practices. Among children in this age group whose primary language was Spanish, impacts were found across several domains but were fewer in number. For children in the 4-year-old group whose primary language was English, positive impacts were found in all domains; for children whose primary language was Spanish in this age group, impacts were found only in the area of health.
- **Race and ethnicity:** For children in the 3-year-old group, race and ethnicity appear to influence the extent of Head Start's impact, with particularly positive impacts noted in several domains for African American and Hispanic children. For the 4-year-old group, fewer impacts were found for minority children; observable impacts were particularly scarce for Hispanic children, a group found to have just one statistically significant impact (in the area of health).
- **Primary caregiver's depressive symptoms:** For children in the 3-year-old group, cognitive impacts were found to **decrease** with increasing levels of primary caregiver's reported baseline depressive symptoms. For children in the 4-year-old group, impacts were found to be sensitive to baseline depression for just one outcome, parent-reported child social competencies.
- **Age of mother at first birth:** In the 3-year-old sample, Head Start reduced the use of physical discipline when children misbehaved for mothers who had first given birth **before** the age of 19. In both the 3- and 4-year-old group, Head Start led mothers who had first given birth **after** the age of 19 to spend more time reading to their children, and to take them to a greater variety of cultural enrichment activities.

Contents of Report

This report, consisting of two volumes, presents early estimates of the impact of Head Start; however, much is yet to be done in this complex study to explore all the possible questions of policy and program interest.

Volume 1 consists of eight chapters. Chapter 1 presents the study background, including an overview of the study objectives, sample design, data collection, and response rates. Chapter 2 provides further details about the study sample, including a description of child and parent characteristics measured before and after random assignment. To provide a context in which to understand the impact findings, Chapter 3 examines the impact of Head Start on the types of preschool and child care settings that parents selected for their children as well as descriptive

information on the characteristics of different types of early care arrangements. Chapter 4 presents an overview of the methods used for analyzing impacts on children and families.

The remaining four chapters present the results of the impact analyses. The impact of Head Start on children's cognitive development is presented in Chapter 5, focusing on six different domains of cognitive outcomes (i.e., pre-reading skills, pre-writing skills, vocabulary knowledge, oral comprehension and phonological awareness, early math skills, and parent report of children's literacy). The impact of Head Start on children's social-emotional development is presented in Chapter 6, focusing on parent-reported measures of social competencies, positive approaches to learning, and problem behaviors. Chapter 7 presents findings on the impact of Head Start on children's health status and access to health services, and Chapter 8 presents findings on the impact of Head Start on parenting practices in the areas of educational activities, discipline practices, and child safety practices. There are also technical appendices that present further details about the study design, the study sample, and analytic techniques.