

# Research BRIEF

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## **A Year in Head Start: Findings from FACES 2014 on Children's Progress Toward School Readiness During the 2014-2015 Program Year**

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### **INTRODUCTION AND BACKGROUND**

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Using data from the Head Start Family and Child Experiences Survey (FACES 2014), this research brief describes the family background and developmental progress of Head Start children as they complete a program year (from fall 2014 to spring 2015). This brief highlights descriptive information from the FACES 2014–2015 Data Tables and Study Design report (Aikens et al. 2017a). Other FACES 2014 products describe characteristics of Head Start children at the beginning of the program year (Aikens et al. 2017c; Tarullo et al. 2017). This research brief addresses the following research questions:

1. What are the demographic characteristics of children and families who are completing a program year?
2. What are the cognitive and social skills of Head Start children as they complete a program year? How do these compare to their skills at the beginning of the program year?
3. What is the physical health status of children as they complete a program year? How does this compare to their status at the beginning of the program year?
4. Do children's cognitive and social skills and health status at the end of the program year vary by their program exposure and age? Does children's progress in their skills or health status vary across the program year?
5. What are the cognitive and social skills and health status of dual language learners (DLLs<sup>1</sup>) as they complete a program year? How do these compare to their skills or health status at the beginning of the program year?

To address question one, we examine the following: child age, child race/ethnicity, whether children are completing their first year of Head Start or their second year (program exposure), home language background, parents' education and employment (based on the most highly educated or employed parent), the household structure, and the family's poverty status.<sup>2</sup>

To address question two, we report children's cognitive and social skills at the end of the program year and their progress in those areas during the program year.<sup>3,4</sup> For children's cognitive skills (in language, literacy, and mathematics), we examine children assessed in English.<sup>5</sup> We also examine several aspects of children's social-emotional development—social skills, problem behaviors, and executive function. For the skills on which standard scores are available, we compare the average scores of the Head Start children to those of other children of the same age in the general population.

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For question three, we note children's body mass index (BMI) gathered from the direct assessment and their general health status as reported by their parents at the end of the program year. We also examine whether children's BMI and health status changed from the beginning to the end of the program year.

To address question four, we examine whether there are differences in children's skills and health status by length of exposure to the program or by the children's age in their first program year. We compare children completing their second program year (who are generally 4 years old) to two groups: (1) all children completing their first year (both 3- and 4-year-olds) and (2) 4-year-olds completing their first year.<sup>6</sup> We also examine differences between 3- and 4-year-olds within the first-year children. The comparisons provide information on differences in children's skills by their background characteristics (program exposure, age), which could have implications for classroom practice. For cognitive skills, the analyses of standard scores provide information on whether 3- or 4-year-olds perform closer to children of the same age nationally and whether they make similar progress toward children of the same age nationally. Comparisons on the social-emotional outcomes focus on raw scores, which do not have a national comparison. In general, all comparisons are descriptive, so they do not account for any other factors that might explain differences between groups of children.

For the final research question, we describe the developmental skills of DLL children at the end of the program year and examine how these compare to their skills at the beginning of the program year. Specifically, we examine language development in depth (English ability as determined through a screener, receptive vocabulary skills in English and Spanish, and expressive vocabulary across languages); cognitive development (literacy and math skills in English); social-emotional development (social skills, problem behaviors, and executive function); and general health status.<sup>7</sup>

## **WHAT ARE THE DEMOGRAPHIC CHARACTERISTICS OF CHILDREN AND FAMILIES WHO ARE COMPLETING A PROGRAM YEAR?**

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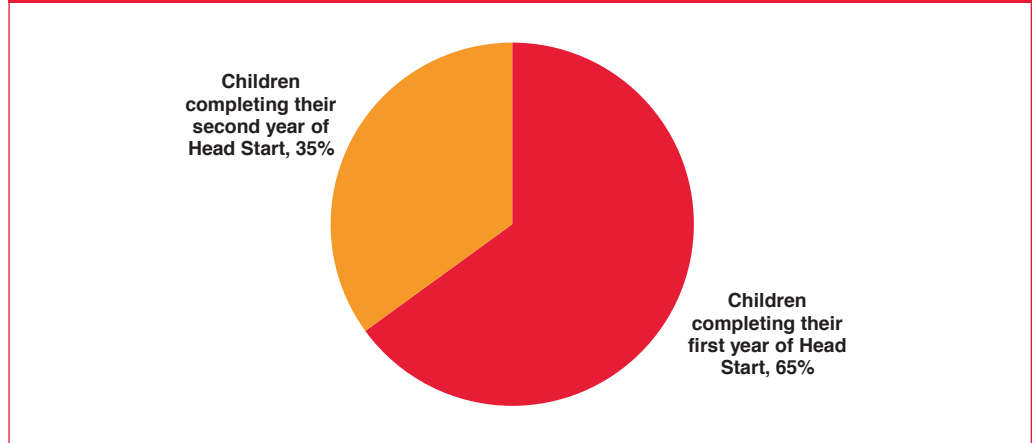
The influence that early care and education experiences have on young children is often dependent on children's prior experiences and the characteristics of the families and homes in which children live (Bryk and Schneider 2003; Fantuzzo and McWayne 2002; Lopez et al. 1999). Therefore, information about families and homes provides important context for Head Start programs for shaping services to meet the needs of the children and families they serve. Important characteristics include prior program exposure, child's age and race/ethnicity, the languages spoken in the home, and household structure. Additionally, we examine parental education, parental employment, and poverty status because they are associated with children's access to resources, the quality of the home environment, and children's development (Duncan et al. 2011; Harding 2015; Magnusson et al. 2009; Yeung et al. 2002). We examine these child, family, and home characteristics to better understand the population of children who are in Head Start and how their experiences in the program might fit into the larger context in which they are developing.

### **Demographic characteristics of children and families completing a program year**

**Among children still attending Head Start in the spring, 56 percent were 4 years old, and 44 percent were 3 years old, at the start of the program year.** Sixty-five percent are completing their first year of Head Start, whereas 35 percent are completing their second program year (Figure 1). Of children completing their first year, 63 percent are 3 years old, and the rest are 4 years old. Of those completing their second year, 92 percent are 4 years old, and the rest are 3 years old at the start of the program year.

Figure 1:

**Two-thirds of children are completing their first year of Head Start**



Source: Fall 2014 FACES Parent Survey and Survey Management System.

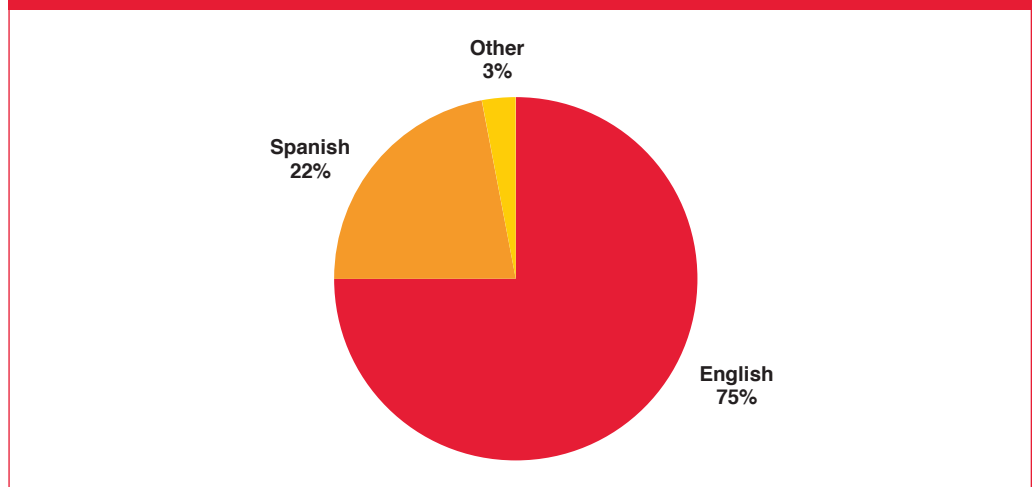
Note: Statistics are weighted to represent all children enrolled in Head Start in fall 2014 and who were still enrolled in spring 2015.

**Forty-two percent of all Head Start children completing the program year are Hispanic/Latino;** 27 percent are White, non-Hispanic; 23 percent are African American, non-Hispanic; and the remaining children are of other races and ethnicities, including American Indian and Alaska Native, non-Hispanic; Asian/Pacific Islander, non-Hispanic; and multiracial and biracial designations.

**Forty percent of Head Start children who are still attending in the spring live in households where a language other than English is spoken, and 25 percent live in households where a language other than English is the primary language spoken to them.** Spanish is the most prevalent non-English language and the primary language spoken to 22 percent of children at home (Figure 2).

Figure 2:

**Spanish is the most prevalent primary home language other than English**



Source: Fall 2014 FACES Parent Survey.

Note: Statistics are weighted to represent all children enrolled in Head Start in fall 2014 and who were still enrolled in spring 2015.

Other category includes African languages, Arabic, and Native American or Alaskan languages, among other languages.

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**Nearly half of Head Start children who are still attending in the spring live with both of their biological or adoptive parents (49 percent).** Forty-four percent of Head Start children live with their biological mother, but not their biological father (although there may be other adults living in the household).

**More than three-quarters of Head Start children (78 percent) who are still attending in the spring live with at least one parent with a high school diploma, GED, or higher.** Specifically, one-third (34 percent) of Head Start children live with at least one parent who has earned a high school diploma or GED. Another one-third live with at least one parent who has attended some college or had vocational or technical training (34 percent). Ten percent live with at least one parent who has a bachelor's degree or higher.

**Three-quarters of Head Start children (75 percent) who are still attending in the spring live with at least one parent who is working full or part time.** Specifically, 53 percent of children live with at least one parent who is working full time, and 22 percent live with at least one parent who is working part time. For the remaining 25 percent, the parent is either looking for work or not in the labor force.

**Two-thirds of Head Start children (67 percent) are living at or below the federal poverty threshold as they complete the program year.** Thirty-six percent of children live between 50 percent and 100 percent of the poverty threshold, and 31 percent live below 50 percent of the poverty threshold.<sup>8</sup>

## **WHAT ARE THE COGNITIVE AND SOCIAL SKILLS OF HEAD START CHILDREN AS THEY COMPLETE A PROGRAM YEAR? HOW DO THESE COMPARE TO THEIR SKILLS AT THE BEGINNING OF THE PROGRAM YEAR?**

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In fall 2014 and spring 2015, FACES included direct assessments of children's cognitive skills (in language, literacy, and mathematics) and executive function, and indirect assessments of children's social-emotional skills. We examine children's growth during the program year to learn about Head Start children's progress toward being ready for school. The examination of children's growth during the program year, even when compared with national changes over time, is purely descriptive and does not reflect the causal impact of Head Start, or the lack thereof. Changes reflect a range of influences, including maturation, program and family influences, and other factors in children's lives.

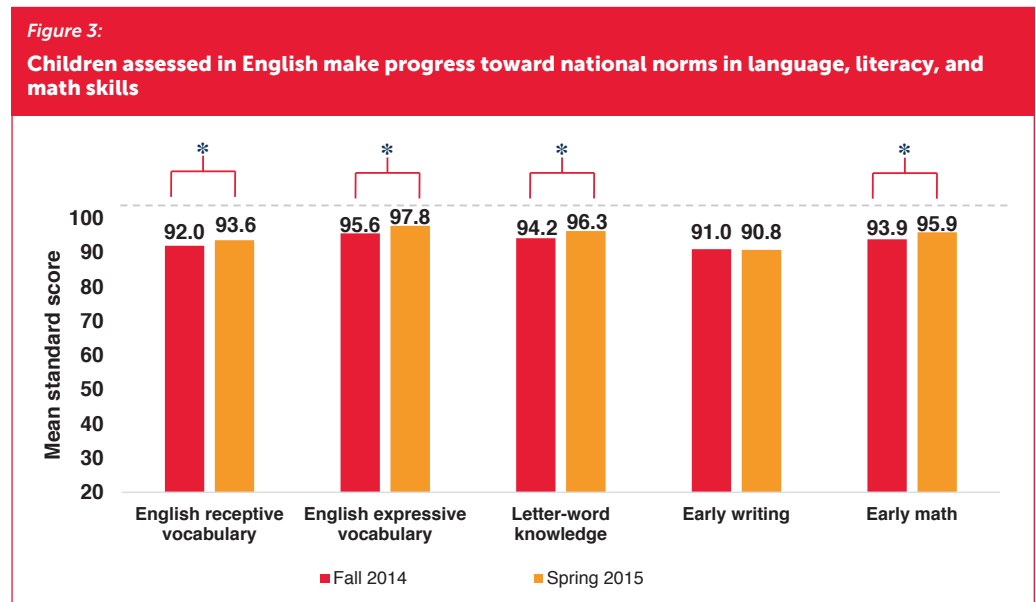
On average, low-income children arrive to kindergarten less prepared than their more affluent counterparts (Lee and Burkham 2002), a gap that tends to widen with additional years in school (Reardon et al. 2012). Head Start aims to prepare preschoolers for kindergarten and narrow the gap at entry and beyond, as early achievement is associated with later achievement. For example, reading and language skills as early as preschool are predictive of reading performance in elementary school (Juel 1988; Whitehurst and Lonigan 1998, 2002). Kindergarten math achievement is associated with later elementary school achievement in both math (Pollack et al. 2005; Rathbun and West 2004) and reading (Claessens et al. 2009; Duncan et al. 2007). Early social-emotional skills and executive function are associated with a child's ability to learn math, vocabulary, and literacy skills in preschool and later (Blair and Razza 2007; Espy et al. 2004; McClelland et al. 2007). Social-emotional development in preschool is also associated with later learning behaviors and long-term life outcomes (ACF 2015).

The box describing the Head Start FACES study at the end of this brief includes more information about the measures of children's development.

## Children's cognitive skills

**On average, Head Start children assessed in English lag behind other children of the same age in language, literacy, and math skills in both the fall and spring of the Head Start year (Figure 3).<sup>9</sup>**

Standard scores allow for comparisons of an individual child's performance to national norms for other children of the same age. These scores have a mean of 100 and a standard deviation of 15. Children gain between 1.6 and 2.2 standard score points in both English receptive and expressive vocabulary, letter-word knowledge, and early math, but do not make gains in early writing skills relative to same-age children in the general population.<sup>10</sup>



Source: Fall 2014 and Spring 2015 Direct Child Assessment.

Note: Statistics are weighted to represent all children enrolled in Head Start in fall 2014 and who were still enrolled in spring 2015.

This figure presents outcomes for all children assessed in English, regardless of language used most often at home. One exception is English expressive vocabulary. Children who most often use Spanish at home received the conceptual expressive vocabulary measure, so their skills are not reflected in the English expressive vocabulary bars.<sup>11</sup>

\*Asterisk indicates that the difference between the fall and spring scores is statistically significant at the  $p \leq .05$  level.

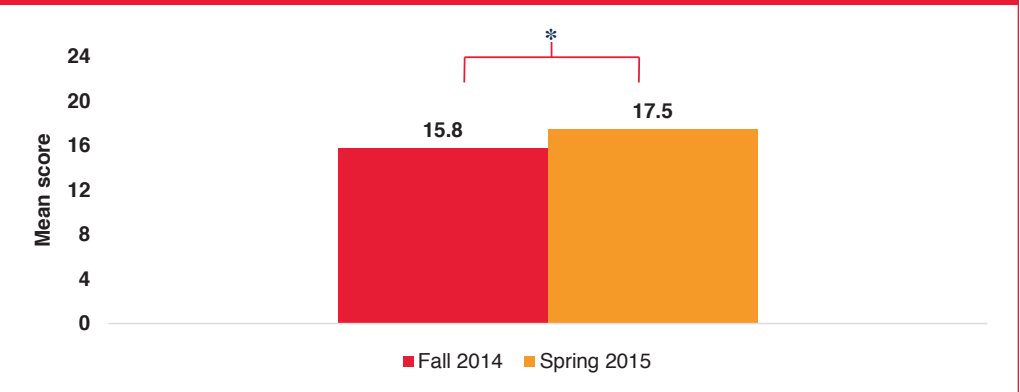
----- The dotted line indicates national norms.

## Children's social-emotional skills

**On average, teachers' reports show improvement in aspects of children's social-emotional skills during the Head Start program year.** Children's social-emotional skills are measured with raw scores, which are counts or averages of the individual items reported by teachers. These are indicators of absolute performance rather than performance compared to children of the same age. According to teachers' reports, Head Start children demonstrate better social skills on average by the spring of the Head Start year than in the fall (17.5 versus 15.8 out of a possible 24 points) (Figure 4) and more positive approaches to learning (1.9 versus 1.7 out of a possible 3 points) (Figure 5). Head Start children score similarly on teacher-reported total problem behaviors in the fall and spring (4.1 versus 4.0 out of a possible 28 points).

Figure 4:

**Teachers' reports show children have better social skills in the spring versus the fall**



Source: Fall 2014 and Spring 2015 FACES Teacher Child Report.

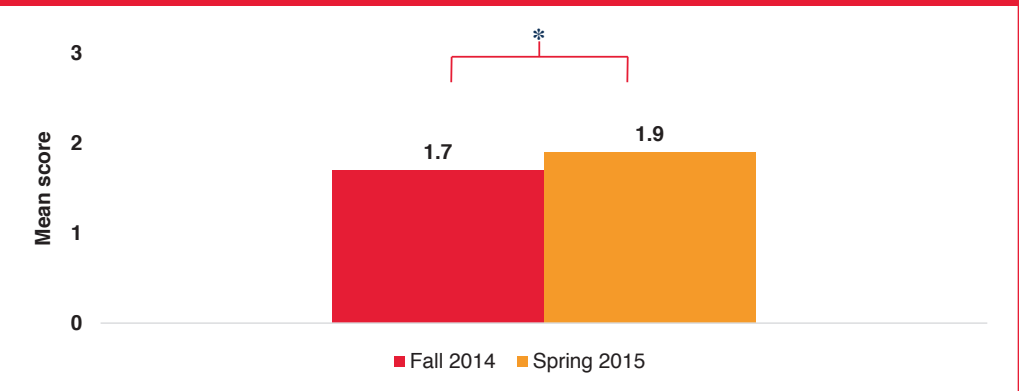
Note: Statistics are weighted to represent all children enrolled in Head Start in fall 2014 and who were still enrolled in spring 2015.

Social skills scores have a possible range of 0 to 24.

\*Asterisk indicates that the difference between the fall and spring scores is statistically significant at the  $p \leq .05$  level.

Figure 5:

**Teachers' reports show children have more positive approaches to learning in the spring versus the fall**



Source: Fall 2014 and Spring 2015 FACES Teacher Child Report.

Note: Statistics are weighted to represent all children enrolled in Head Start in fall 2014 and who were still enrolled in spring 2015.

Approaches to learning scores have a possible range of 0 to 3.

\*Asterisk indicates that the difference between the fall and spring scores is statistically significant at the  $p \leq .05$  level.

**Children improve their performance on a measure of executive function over the Head Start program year.** They are able to respond correctly across more trials of a pencil tapping task by the end of the year. Correct responses require the child to inhibit the impulse to copy the assessor and instead do the opposite of the assessor's pencil tapping. In the spring, children are able to respond correctly 65 percent of the time. Fewer than half (47 percent) were able to do so in the fall.

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## **WHAT IS THE PHYSICAL HEALTH STATUS OF CHILDREN AS THEY COMPLETE A PROGRAM YEAR? HOW DOES THIS DIFFER FROM THEIR STATUS AT THE BEGINNING OF THE PROGRAM YEAR?**

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In the fall of 2014 and spring of 2015, parents reported on their children's general health status and direct assessments measured children's physical development (height and weight). A child's health status can influence the child's well-being, development, and his or her readiness for school (Currie 2005; Janus and Duku 2007). Childhood obesity poses both short- and long-term health and emotional risks for children (Daniels 2006).

**Based on parent report, the majority of children have “excellent” or “very good” health in the fall and spring (81 percent and 83 percent, respectively).** According to reports from parents, children are just as healthy at the beginning of the Head Start year as they are at the end.

**Children's BMI does not significantly change during the year.** Children's height and weight increase between fall and spring by an average of 1.2 inches and 2.4 pounds. About one-third of children are overweight or obese at both the beginning and the end of the Head Start year (34 percent at each wave).<sup>12</sup>

## **DO CHILDREN'S COGNITIVE AND SOCIAL SKILLS AND HEALTH STATUS AT THE END OF THE PROGRAM YEAR VARY BY THEIR PROGRAM EXPOSURE AND AGE? DOES CHILDREN'S PROGRESS IN THEIR SKILLS OR HEALTH STATUS VARY ACROSS THE PROGRAM YEAR?**

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We highlight differences in children's cognitive and social skills and health status at the end of the program year and across the year by program exposure and by age among first year children.<sup>13</sup> That is, we compare children finishing their second program year (who are generally 4 years old) to children completing their first year (for both 3- and 4-year-olds together and for 4-year-olds separately). In addition, we compare first-year 3-year-olds to first-year 4-year-olds. Cognitive scores compare children's skills to same-age children nationally. In other words, comparisons examine which age group scores closer to children of the same age nationally. Comparisons on the social-emotional outcomes focus on raw scores, which do not have a national comparison. These comparisons are purely descriptive and do not include any controls for factors that may explain differences between groups. Children were not randomly assigned to attend one or two years of Head Start, and therefore any differences cannot be interpreted as the impact of one versus two program years.

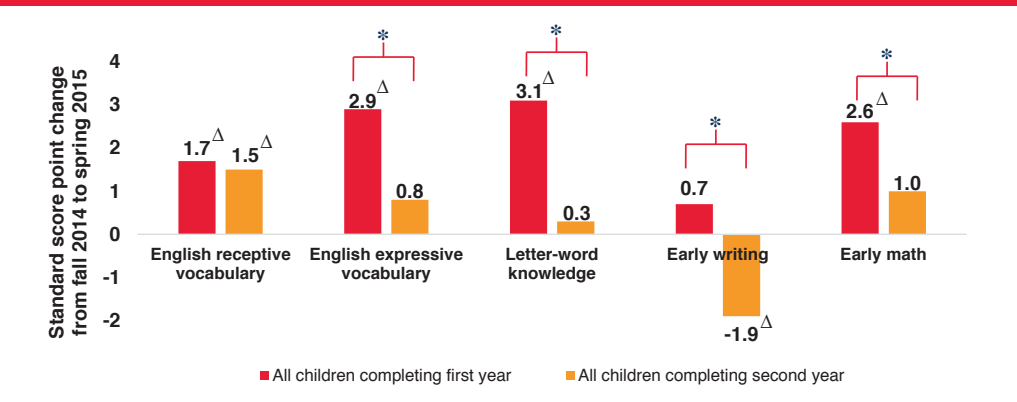
### **Children's cognitive skills by program exposure and age of first-year children**

**Children's spring cognitive skills differ by age.** In English expressive vocabulary, 4-year-olds completing their first year score closer to national norms for children their age than 3-year-olds completing their first year (100.3 versus 96.5). However, in letter-word knowledge, 3-year-olds completing their first year score closer to national norms than 4-year-olds completing their first year do (97.0 versus 95.1).<sup>14</sup>

**Children completing their first year generally experience larger gains during the program year than children completing their second year.** To understand differences in children's progress from fall to spring by program exposure, we first consider the gains each group makes. Children completing their second year make significant gains toward norms in English receptive vocabulary, but experience a significant decline in their early writing ability. They do not make significant gains in English expressive vocabulary, letter-word knowledge, or early math. In contrast, children completing their first year in Head Start make significant gains toward norms in all areas except early writing. When comparing the size of the fall-to-spring gains of these groups, the changes for children completing their first year are significantly larger than they are for children completing a second year in all areas except English receptive vocabulary (Figure 6).<sup>15</sup>

Figure 6:

**Children completing their first year make more progress toward norms during the year than children completing their second year**

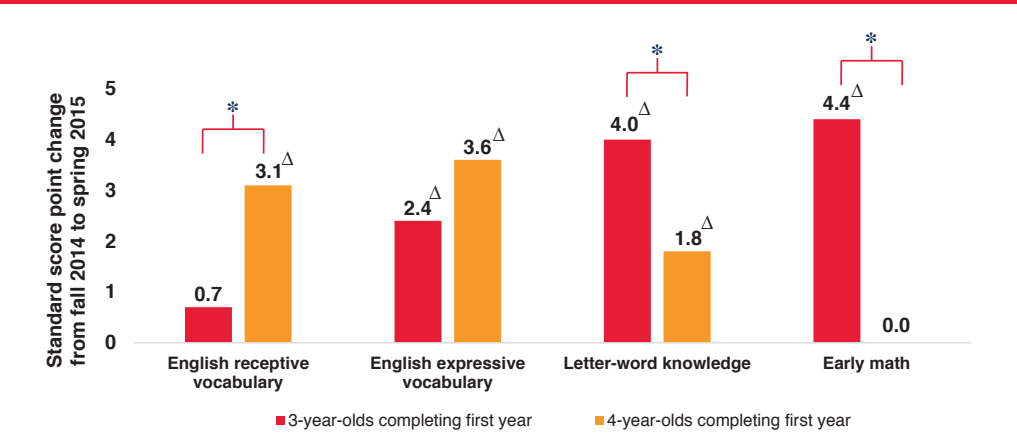


Source: Fall 2014 and Spring 2015 FACES Direct Child Assessment, Fall 2014 Parent Survey, and Survey Management System.  
 Note: Statistics are weighted to represent all children enrolled in Head Start in fall 2014 and who were still enrolled in spring 2015. This figure presents outcomes for all children assessed in English, regardless of language used most often at home. One exception is English expressive vocabulary. Children who most often use Spanish at home received the conceptual expressive vocabulary measure, so their skills are not reflected in the English expressive vocabulary bars.  
<sup>Δ</sup> Change between fall and spring scores for the group is statistically significant at the  $p \leq .05$  level.  
 \*Asterisk indicates that the difference in the change scores between all children in their first year and all children in their second year is statistically significant at the  $p \leq .05$  level.

**When examining fall to spring progress by the age of children completing their first year, findings are mixed (Figure 7).** Both 3- and 4-year-olds at the end of their first year make significant gains in English expressive vocabulary and letter-word knowledge. They differ in their progress in other areas, however. Only 4-year-olds make progress in English receptive vocabulary. The opposite is true for early math, where only 3-year-olds show significant gains. In comparing the progress made across groups, both groups make similar progress in English expressive vocabulary, but the amount of progress they make in other areas differs. Three-year-olds show more progress than 4-year-olds in letter-word knowledge (4.0 versus 1.8 standard score points) and early math (4.4 versus 0.0 standard score points), whereas 4-year-olds make greater progress than 3-year-olds in English receptive vocabulary (3.1 versus 0.7 standard score points).<sup>16</sup>

Figure 7:

**There are not consistent patterns in children's progress toward norms by age**



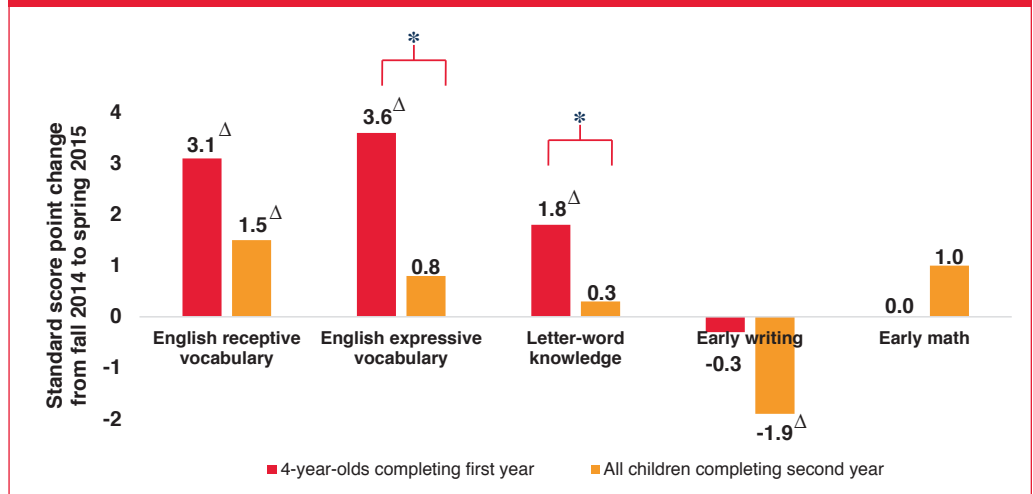
Source: Fall 2014 and Spring 2015 Direct Child Assessment, Fall 2014 Parent Survey, and Survey Management System.  
 Note: Statistics are weighted to represent all children enrolled in Head Start in fall 2014 and who were still enrolled in Spring 2015. This figure presents outcomes for all children assessed in English, regardless of language used most often at home. One exception is English expressive vocabulary. Children who most often use Spanish at home received the conceptual expressive vocabulary measure, so their skills are not reflected in the English expressive vocabulary bars.  
<sup>Δ</sup> Change between fall and spring scores for the group is statistically significant at the  $p \leq .05$  level.  
 \*Asterisk indicates that the difference in the change scores between 3-year-old children in their first year and 4-year-old children in their first year is statistically significant at the  $p \leq .05$  level.



**In comparing children who are completing their second year (most of whom are 4 years old) with 4-year-olds completing their first year, the latter group shows more progress in some areas (Figure 8).<sup>17</sup>** Four-year-olds completing their first year experience significant gains on English expressive vocabulary and letter-word knowledge, but children completing their second year do not. Consequently, 4-year-olds completing their first year show more progress than children completing their second year in these two areas—English expressive vocabulary (3.6 versus 0.8 standard score points) and letter-word knowledge (1.8 versus 0.3 standard score points). Both groups make progress in English receptive vocabulary, but neither group experiences significant gains in early math. Only children completing their second year experience a significant decline in early writing. The two groups do not significantly differ in their change in these areas.

Figure 8:

**Four-year-olds completing their first year make more progress toward norms than children completing their second year**



Source: Fall 2014 and Spring 2015 Direct Child Assessment, Fall 2014 Parent Survey, and Survey Management System.

Note: Statistics are weighted to represent all children enrolled in Head Start in fall 2014 and who were still enrolled in Spring 2015.

This figure presents outcomes for all children assessed in English, regardless of language used most often at home. One exception is English expressive vocabulary. Children who most often use Spanish at home received the conceptual expressive vocabulary measure, so their skills are not reflected in the English expressive vocabulary bars.

Δ Change between fall and spring scores for the group is statistically significant at the  $p \leq .05$  level.

\*Asterisk indicates that the difference in the change scores between 4-year-old children in their first year and all children in their second year is statistically significant at the  $p \leq .05$  level.

### Children’s social-emotional skills by program exposure and age of first-year children

**At the end of the program year, there are differences in teacher-reported social-emotional skills by program exposure and age.** Children completing their second year have better teacher-reported social skills than those who are completing their first year (18.1 versus 17.2, out of a possible 24 points); more positive approaches to learning (2.0 versus 1.9, out of a possible 3 points); and fewer total problem behaviors (3.5 versus 4.2, out of a possible 28 points).<sup>18</sup> Looking at the results of children completing their first year by age, 4-year-olds are described by their teachers as having better social skills than 3-year-olds (18.1 versus 16.6); more positive approaches to learning (2.0 versus 1.8); and fewer total problem behaviors (3.3 versus 4.6).<sup>19</sup> There are no significant differences between 4-year-olds completing their first year and all children completing their second year in their teachers’ ratings of their spring social-emotional skills. As noted previously, differences in ratings of children’s social-emotional skills reflect a range of influences, including developmental changes as children grow, program and family influences, and other factors in children’s lives. The scores are not normed, and national comparisons are not available.

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**There are no differences in children’s performance on a measure of executive function by program exposure in spring 2015.**<sup>20</sup> Children returning for a second year and children in their first year perform similarly (67 percent versus 63 percent). Children in their second year perform similarly to 4-year-olds in their first year (both 67 percent).

**Teachers’ reports show that all children, no matter program exposure or age, improve their social skills, approaches to learning, and executive function in the course of the program year.**<sup>21</sup> The only significant difference between groups is that teachers’ reports show 3-year-olds in their first year improve more on social skills than 4-year-olds in their first year (2.3 versus 1.3 points on the 24-point scale).<sup>22</sup> Regardless of program exposure or age, teachers rate children’s total problem behaviors similarly in the fall and spring.<sup>23</sup>

### **Children’s physical health status by program exposure and age of first-year children**

**Findings on children’s BMI categories<sup>24</sup> by age and program exposure are mixed.** Similar percentages of children—about one-third—are overweight or obese in spring 2015, regardless of program exposure or age. Only two groups of children show changes in their BMI categories from fall to spring—there is an increase in the percentage of children who are classified as obese among all children in their first program year (2 percent increase) and among 3-year-olds in their first program year (4 percent increase).

**Parents’ reports of children’s health status generally do not differ by children’s program exposure or age.** The only significant difference is that in spring 2015, more 3-year-olds in their first program year are reported to be in fair or poor health by their parents (5 percent) than are 4-year-olds in their first program year (2 percent).<sup>25</sup>

## **WHAT ARE THE COGNITIVE AND SOCIAL SKILLS AND HEALTH STATUS OF DLLS AS THEY COMPLETE A PROGRAM YEAR? HOW DO THESE COMPARE TO THEIR SKILLS OR HEALTH STATUS AT THE BEGINNING OF THE PROGRAM YEAR?**

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Next, we turn to a description of the developmental skills of DLL children—that is, children whose primary home language is not English. Findings for cognitive outcomes focus on DLLs assessed in English in both the fall and the spring.<sup>26</sup> The sample sizes for DLLs assessed in Spanish or the ones who switched language of direct assessment during the year are too small to analyze. The appendix to this brief includes descriptive data on the demographic characteristics and language of direct assessment of these children.

### **CHILD AND FAMILY DEMOGRAPHIC CHARACTERISTICS OF DLLS WHO ARE COMPLETING A PROGRAM YEAR**

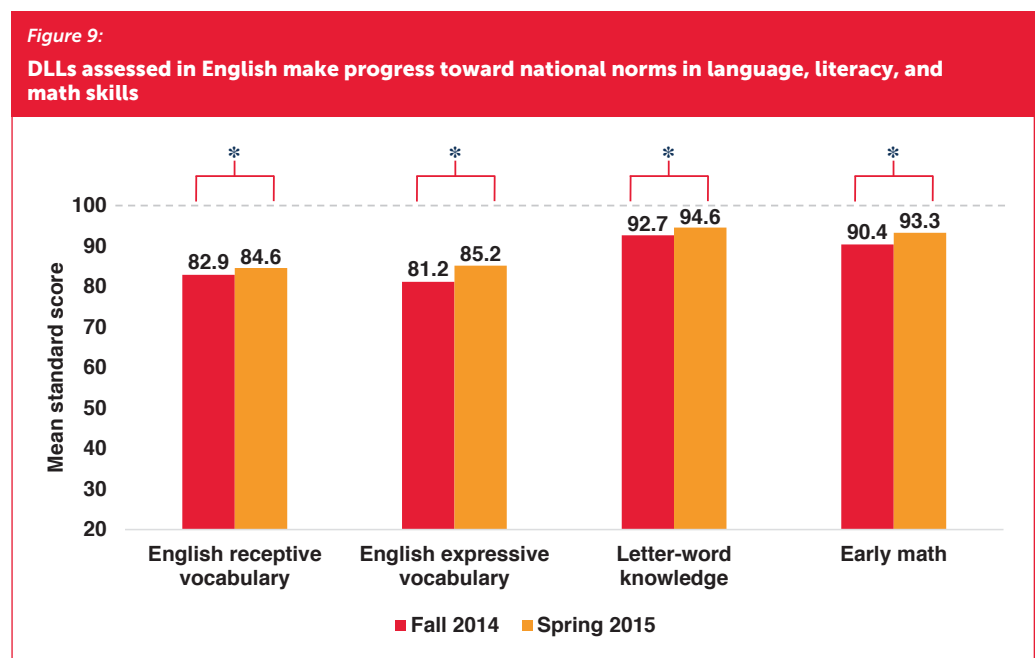
Most DLLs (66 percent) are completing their first year of Head Start, whereas 39 percent are completing their second year. More than half (55 percent) were 4 years old, and the rest were 3 years old, at the start of the program year.

The majority of DLLs live with both of their biological or adoptive parents (72 percent). Half (50 percent) live in households where no parent has completed high school. Fifty-seven percent live with at least one parent who is working full time, and 23 percent live with at least one parent who is working part time. More than three-quarters of DLLs live at or below the federal poverty threshold (79 percent).

## DLLs' cognitive skills

**About half of DLLs (53 percent) demonstrate sufficient English ability to be assessed in that language in both the fall and spring.** That is, their receptive and expressive language skills, as demonstrated on a language screener, suggest they can be fairly assessed in English. About one-quarter do not have sufficient English ability in either fall or spring and are assessed in Spanish at both times (24 percent). Another 22 percent change their language of direct assessment during the program year. That is, their English ability improves enough during the program year to allow them to move to an English assessment.

**DLLs lag behind English-speaking children of the same age in English receptive vocabulary and English expressive vocabulary in the fall and spring.**<sup>27</sup> However, across the year, DLL children assessed in English make progress toward national norms, gaining 1.7 standard score points and 4.0 standard score points, respectively, on these vocabulary measures (Figure 9).<sup>28</sup>



Source: Fall 2014 and Spring 2015 FACES Direct Child Assessment and Fall 2014 Parent Survey.

Note: Statistics are weighted to represent all children enrolled in Head Start in fall 2014 and who were still enrolled in spring 2015.

This figure presents outcomes for all DLLs assessed in English, regardless of language used most often at home (Spanish or an Other language). One exception is English expressive vocabulary. Children who most often use Spanish at home received the conceptual expressive vocabulary measure, so their skills are not reflected in the English expressive vocabulary bars.<sup>29</sup>

\*Asterisk indicates that the difference between the fall and spring scores is statistically significant at the  $p \leq .05$  level.

----- The dotted line indicates national norms.

**DLLs who most often use Spanish at home perform behind Spanish-speaking children of the same age on Spanish receptive vocabulary. These children perform better than Spanish-speaking children of the same age on conceptually scored expressive vocabulary.**<sup>30</sup> In the fall and spring, DLLs assessed in English who most often use Spanish at home score about one standard deviation below conceptually scored norms in Spanish receptive vocabulary (85.2 and 84.0, respectively), but score above norms in conceptually scored expressive vocabulary (104.4 and 105.1, respectively). They do not make progress in any vocabulary skills during the year.

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**DLLs lag behind English-speaking children of the same age on literacy and math skills, but they make progress during the year.** DLLs make progress toward national norms in the areas of letter-word knowledge and early math, gaining 1.9 and 2.9 standard score points, respectively, in these areas (Figure 9).<sup>31</sup> However, they do not make progress in early writing during the year.

### **DLLs' social-emotional skills**

**On average, teachers' reports show improvement in DLLs' social-emotional skills during the program year.** Teachers' reports show that DLLs have better social skills in the spring of the Head Start year than they did in the fall (18.4 versus 15.6 on the 24-point scale) and demonstrate more positive approaches to learning (2.1 versus 1.8 on the 3-point scale). DLLs also exhibit fewer total problem behaviors in the spring than in the fall (2.9 versus 3.6 on the 28-point scale).<sup>32</sup>

**DLLs improve their performance on a measure of executive function over the Head Start program year.** They are more likely to inhibit their initial impulse and respond correctly across more trials on the pencil tapping task by the end of the Head Start year. They are able to do so 58 percent of the time in the spring compared to 37 percent of the time in the beginning of the year.

### **DLLs' physical health status<sup>33</sup>**

**Based on parent report, the majority of DLLs have "excellent or very good" health in the spring (69 percent).** Parents' report of DLL children's health status does not change between fall and spring.

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## SUMMARY AND IMPLICATIONS

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The purpose of this brief is to describe child and family characteristics and children's development and progress during the Head Start program year. We find that Head Start children and families have a wide range of strengths and needs. These findings provide insight on areas that could be targeted for support and improvement. This includes areas where children do not make progress during the program year.

Head Start children (including DLLs) make progress during the program year in most cognitive outcomes. However, in both the fall and spring, these children still perform lower on language, literacy, and math measures, on average, than children of the same age nationally. The exception is conceptually scored expressive vocabulary, where DLLs who most often use Spanish at home score above norms. More support for Head Start children's (including DLLs) early writing skills may be warranted as children do not make progress in this area during the program year. Additionally more support for children's home language may also be merited, as DLLs who most often use Spanish at home do not make progress in their Spanish receptive vocabulary during the program year.

The findings also highlight differences in children's outcomes and progress by program exposure. Children in their first program year make more progress toward norms than children completing their second year on most cognitive measures, including English expressive vocabulary, letter-word knowledge, and early math. Children in their second program year, however, start the year already performing closer to others of the same age on cognitive measures than those in their first year do. Therefore, children in their second program year may have less room for change relative to their same-age counterparts nationally. Among children in their first program year, findings by age are mixed. It is unclear why this may be and future research may want to explore the classroom experiences of first- versus second-year children in relation to growth or how teachers may differentiate instruction in mixed-age classrooms.

Children show growth in their social skills, exhibit more positive approaches to learning, and have stronger executive function skills across the program year, regardless of their age or length of time in the program. Notably, 3-year-olds in their first program year show greater gains in social skills during the year than 4-year-olds in their first program year. From FACES 2014 data alone, we are unable to determine if these gains are related to something beyond children's maturation.

On average, parents report children to be in excellent or very good health; there are no differences in these reports across the year, including among DLLs, and regardless of children's program exposure or age. About one-third of Head Start children are overweight or obese in both fall and spring of the program year, highlighting another area of need.

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## **HEAD START FACES**

This research brief draws on data from the Head Start Family and Child Experiences Survey (FACES 2014). FACES provides information at the national level about Head Start programs, centers, and classrooms, and about the children and families that Head Start serves. This brief is part of a series of reporting products describing data from the 2014–2015 round of FACES 2014. Other FACES 2014 products describe the study’s design and methodology and the characteristics of Head Start children in fall 2014 (Aikens et al. 2017c; Tarullo et al. 2017); the characteristics of DLL Head Start children and their families at the beginning of the program year (Aikens et al. 2017b); the characteristics of classrooms, teachers, centers, and programs serving Head Start children and families in spring 2015 (Moiduddin et al. 2017, Alamillo et al. 2018); and changes in Head Start children’s family environments and developmental outcomes across the program year (Aikens et al. 2017a).

Head Start is a national program designed to promote children’s school readiness by enhancing their social-emotional, physical, and cognitive development. The program provides educational, health, nutritional, social, and other services to enrolled children and their families. Head Start places special emphasis on helping preschoolers develop the reading, language, social-emotional, mathematics, and science skills they need to be successful in school. The program also seeks to engage parents in their children’s learning and to promote progress toward the parents’ own educational, literacy, and employment goals (ACF 2018). Head Start works to achieve these objectives by providing comprehensive child development services to economically disadvantaged children and their families through grants to local public agencies and to private nonprofit and for profit organizations.

## **METHODS**

For FACES 2014, we selected a sample of Head Start programs from the 2012–2013 Head Start Program Information Report, with two centers per program and two classrooms per center. Within each classroom, we randomly selected 12 children for the study. In total, 176 programs, 346 centers, 667 classrooms, and 2,206 children (in 60 programs) were study participants in spring 2015. More information on the study methodology and measurement in FACES 2014 and tables for findings presented here are available in the FACES 2014–2015 Data Tables and Study Design report (Aikens et al. 2017a). The data tables include sample sizes and standard errors. In addition, this brief contains a set of appendix tables with descriptive data on child and family demographic characteristics by DLL status that are not included in the 2014–2015 data tables. The sample used for this brief includes 1,921 children who were enrolled in Head Start in fall 2014 and were still enrolled in spring 2015.<sup>34</sup> All findings are weighted to represent this population. For all comparisons throughout the brief, all cited differences are statistically significant at the .05 level and lower. Some differences, although statistically significant, are very small and may not always be practically meaningful (for example, those with a difference smaller than 5 percentage points or an effect size smaller than .25).

## **MEASURES OF CHILDREN’S COGNITIVE DEVELOPMENT**

To assess children’s cognitive skills, FACES directly administers norm- and criterion-referenced measures of language, literacy, and mathematics to the children. The assessment battery measures English and Spanish receptive vocabulary using the Peabody Picture Vocabulary Test, Fourth Edition (PPVT-4; Dunn and Dunn 2006) and the Receptive One-Word Picture Vocabulary Test–4: Spanish-Bilingual Edition

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(ROWPVT-4: SBE; Martin and Brownell 2012a). The Expressive One-Word Picture Vocabulary Test-4th Edition, both the English and the conceptually scored Spanish-Bilingual Editions (EOWPVT-4 and EOWPVT-4: SBE; Martin and Brownell 2010, 2012b), measure children's expressive vocabulary. The assessment battery measures children's letter-word knowledge, early writing, and early math skills in English by using the Letter-Word Identification, Spelling, and Applied Problems subtests from the Woodcock-Johnson Tests of Achievement, Third Edition (WJ III; Woodcock et al. 2001). Standard scores have a mean of 100 and standard deviation of 15.

For the purposes of conducting the direct assessment, we use data from the parent consent form on the language the child uses most often at home and the child's performance on the language screener to determine his or her language path. The direct assessment includes four language paths: assessed in English, primarily assessed in English, primarily assessed in Spanish, and assessed in English, shortened assessment battery.

The direct child assessment begins with two subtests from the Preschool Language Assessment Survey 2000 (*preLAS* 2000; Duncan and DeAvila 1998), Simon Says and Art Show. We use the *preLAS* as a warmup for children who most often use English at home. For children who most often use a language other than English at home, we use it as a language screener to determine whether they should be assessed in English, primarily assessed in English, primarily assessed in Spanish, or administered an abbreviated assessment battery that includes English vocabulary and height and weight measurements.

Following the *preLAS*, all children are administered the PPVT-4 to measure English receptive vocabulary. Children who most often use English or an Other (non-Spanish) language at home take the EOWPVT-4 to measure English expressive vocabulary. Children who most often use Spanish at home take the EOWPVT-4: SBE to measure conceptual expressive vocabulary. In addition, children who most often use Spanish at home take the ROWPVT 4: SBE to measure Spanish receptive vocabulary regardless of their performance on the *preLAS*. Thus, children who most often use Spanish at home receive the receptive vocabulary component of the battery in English (PPVT-4) and Spanish (ROWPVT-4: SBE).

Following administration of these vocabulary measures, children who most often use Spanish at home and who make more than 12 errors on the *preLAS* are routed to the Spanish language cognitive assessment (primarily assessed in Spanish). Similarly, children who make more than 12 errors on the *preLAS* and who most often use a language other than English or Spanish at home are routed out of the cognitive assessment following administration of the English vocabulary measures and are weighed and measured for height (assessed in English, shortened assessment battery). Children who make 12 or fewer errors on the *preLAS* and who most often use Spanish at home receive the remainder of the cognitive battery in English (primarily assessed in English). Children who make 12 or fewer errors on the *preLAS* and who most often use a language other than English or Spanish at home receive the cognitive assessment battery in English (assessed in English). Children who most often use English at home are administered the cognitive assessment battery in English, regardless of their scores on the *preLAS* (assessed in English).

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### **MEASURES OF CHILDREN'S SOCIAL-EMOTIONAL DEVELOPMENT**

Teachers report on children's cooperative classroom behavior or social skills and their problem behaviors in the classroom using items from the Behavior Problems Index (Peterson and Zill 1986), the Personal Maturity Scale (Entwisle et al. 1997), and the Social Skills Rating Scale (Gresham and Elliott 1990). Teachers also rate children's approaches to learning with the Early Childhood Longitudinal Study–Kindergarten Approaches to Learning Scale (U.S. Department of Education 2002). A pencil tapping task (Blair 2002; Diamond and Taylor 1996; Smith-Donald et al. 2007) captures children's executive function in the direct child assessment. In the pencil tapping task, children are asked to inhibit the natural response to imitate the adult assessor exactly (or to tap repeatedly) and instead to keep in mind that the rule is to do the opposite of what the assessor does. Reported scores reflect the percentage of times the child tapped correctly. They can take on any value from zero to 100, with higher scores indicating better skills on the task. The task is only administered to children ages 4 and older at the time of the direct assessment.

### **MEASURES OF CHILDREN'S PHYSICAL HEALTH AND DEVELOPMENT**

FACES measures children's health and physical development in several ways. Parents provide ratings of their child's overall health status (excellent/very good, good, or fair/poor). During the one-on-one assessment, we also measure each child's height and weight to support analyses of obesity, overweight, normal weight, or underweight status.



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## ENDNOTES

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- <sup>1</sup> We use the term DLL to refer to children whose primary home language is not English. For this definition, we include children who are from homes where a language other than English is spoken and their parent or guardian primarily uses that language when speaking to them. This may differ from definitions used in other studies.
- <sup>2</sup> Reported characteristics of children and families were primarily collected during fall 2014. In some instances, parents did not complete a parent survey for the first time until the spring. Characteristics draw on spring 2015 data in those instances.
- <sup>3</sup> The estimates of cognitive ability, social-emotional skills, and physical health in this brief are reported from tables in the FACES 2014–2015 Data Tables and Study Design report that focus on changes from fall to spring of that year (Aikens et al. 2017a). Tables focusing on fall-spring changes only include cases with valid data on the measure in both the fall and the spring. In particular, children who change their language of direct assessment between fall and spring are not included in the description of cognitive skills in this brief. For example, only children with a Woodcock Johnson III Letter-Word score in both fall and spring are included in the tables showing changes in those scores between fall and spring.
- <sup>4</sup> For all comparisons throughout the brief, we conducted t-tests to assess whether any differences were statistically significant. All cited differences are statistically significant at the .05 level and lower. Some differences, although statistically significant, are very small and may not always be practically meaningful (for example, those with a difference smaller than 5 percentage points or an effect size smaller than .25). We flag any such differences throughout the brief using endnotes.
- <sup>5</sup> In this brief, the group of children who were assessed in English comprises (1) children who most often use English at home, (2) children who most often use a language other than English or Spanish at home and who made 12 or fewer errors on the direct assessment language screener—and therefore were assessed in English, and (3) children who most often use Spanish at home and who made 12 or fewer errors on the direct assessment language screener—and therefore were primarily assessed in English, with some Spanish measures also administered. For more information on children’s language paths in the direct assessment, see the box on measures of children’s cognitive development at the end of the text section of this brief. For more information about children who were primarily assessed in Spanish or children who received an abbreviated assessment battery, see the FACES 2014–2015 Data Tables and Study Design report (Aikens et al. 2017a).
- <sup>6</sup> Of those children still enrolled in Head Start in spring 2015, only 8 percent of all children completing a second year are 3 years old. Therefore, we do not compare 3-year-olds completing their first year to all children completing their second year at the beginning of the program year.
- <sup>7</sup> Tables with descriptive data on child and family demographic characteristics by DLL status are an Appendix to this brief. These tables are not included in the FACES 2014–2015 Data Tables and Study Design report (Aikens et al. 2017a).
- <sup>8</sup> Household income is not used to estimate eligibility for Head Start. Head Start qualifying criteria are based on family (not household) income, and there are other (non-income) ways to qualify for the program. The federal poverty threshold for a family of four in 2013 was \$23,834.
- <sup>9</sup> Most children, regardless of language most often used at home, have sufficient English ability to be assessed in English at the beginning and end of the Head Start year. More children are assessed in English (78 percent versus 77 percent) or primarily assessed in English (15 percent versus 10 percent) in the spring than in the fall, and fewer children are primarily assessed in Spanish (7 percent versus 12 percent) or receive a shortened direct assessment battery (meaning they are administered the PPVT-4 and EOWPVT-4 and have their height and weight measured—0.1 percent versus 0.5 percent).
- <sup>10</sup> Each of these gains, although statistically significant, may not be considered practically meaningful. Effect sizes were smaller than .25 as measured by Hedges’ g. Although the exact score points that can be considered meaningful will differ by measure based on the range of scores across children, in general, a difference of three to four score points would be needed to be practically meaningful.
- <sup>11</sup> For information about children who are primarily assessed in English and who most often use Spanish at home, see the FACES 2014–2015 Data Tables and Study Design report (Aikens et al. 2017a).
- <sup>12</sup> According to the Centers for Disease Control and Prevention, a child is considered to be overweight when his or her BMI is at or above the 85th percentile and below the 95th percentile for his or her age and gender, and obese if his or her BMI is at or above the 95th percentile for his or her age and gender.
- <sup>13</sup> Prior program exposure refers to children’s participation in preschool Head Start and does not include Early Head Start.

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- <sup>14</sup> Both of these differences, although statistically significant, may not be considered practically meaningful. Effect sizes were smaller than .25 as measured by Hedges' *g*.
- <sup>15</sup> All but two of the reported differences over time for a group, or differences in change between groups—although statistically significant—may not be considered practically meaningful. Effect sizes were smaller than .25 as measured by Hedges' *g*. The exceptions are the significant difference in fall-spring change of letter-word knowledge for: (1) all children completing their first program year, and (2) between children completing their first program year and children completing their second program year.
- <sup>16</sup> Aside from the letter-word knowledge and early math differences for 3-year-olds in their first program year and the early math difference between 3-year-olds and 4-year-olds in their first program year, all other reported differences, although statistically significant, may not be considered practically meaningful. Effect sizes were smaller than .25 as measured by Hedges' *g*.
- <sup>17</sup> All differences, although statistically significant, may not be considered practically meaningful. Effect sizes were smaller than .25 as measured by Hedges' *g*.
- <sup>18</sup> Each of these differences, although statistically significant, may not be considered practically meaningful. Effect sizes were smaller than .25 as measured by Hedges' *g*.
- <sup>19</sup> The difference in problem behaviors, although statistically significant, may not be considered practically meaningful. The effect size was smaller than .25 as measured by Hedges' *g*.
- <sup>20</sup> We do not examine spring 2015 executive function or change in executive function by age of children in their first program year because most 3-year-olds were not 4 years old at the time of the fall direct assessment.
- <sup>21</sup> The differences in approaches to learning for all children in their second year and 4-year-olds in their first year, although statistically significant, may not be considered practically meaningful. The effect sizes were smaller than .25 as measured by Hedges' *g*.
- <sup>22</sup> The difference in the increase in social skills for 3-year-olds in their first program year compared to 4-year-olds in their first year, although statistically significant, may not be considered practically meaningful. The effect size was smaller than .25 as measured by Hedges' *g*.
- <sup>23</sup> While none of the groups' total problem behaviors changed significantly over the program year, we did compare the change between groups. There is one significant difference favoring children in their second program year over 4-year-olds in their first program year (a 0.3-point decrease in problem behaviors, versus a 0.2-points increase in problem behaviors out of a possible 28 points). This difference, although statistically significant, may not be considered practically meaningful. The effect size was smaller than .25 as measured by Hedges' *g*.
- <sup>24</sup> According to the Centers for Disease Control and Prevention, a child is considered to be overweight when his or her BMI is at or above the 85th percentile and below the 95th percentile for his or her age and gender, and obese if his or her BMI is at or above the 95th percentile for his or her age and gender.
- <sup>25</sup> The difference, although statistically significant, may not be considered practically meaningful because the difference was less than 5 percentage points.
- <sup>26</sup> DLLs assessed in English includes (1) children who most often use a language other than English or Spanish at home and who made 12 or fewer errors on the direct assessment language screener and (2) children who most often use Spanish at home and made 12 or fewer errors on the direct assessment language screener (primarily assessed in English). DLLs assessed in Spanish includes children who most often use Spanish at home and who made more than 12 errors on the direct assessment language screener (primarily assessed in Spanish). For more information on children's language paths in the direct assessment, see the box on measures of children's cognitive development at the end of the text section of this brief.
- <sup>27</sup> English receptive vocabulary (with the PPVT-4) is assessed for all children in FACES (including all DLLs), but English expressive vocabulary (with the EOWPVT-4) is assessed for only those children who most often use English or a non-English language other than Spanish at home. Children who use Spanish most often at home have their expressive vocabulary measured with the EOWPVT-4: SBE, which is also presented in this brief.
- <sup>28</sup> Differences between fall and spring scores, although statistically significant, may not be considered practically meaningful. The effect sizes were smaller than .25 as measured by Hedges' *g*.
- <sup>29</sup> For additional information beyond what is described in this brief about children who are primarily assessed in English and who most often use Spanish at home, see the FACES 2014–2015 Data Tables and Study Design report (Aikens et al. 2017a).

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- <sup>30</sup> The EOWPVT-4: SBE allows for conceptual scoring. That is, it provides prompts in both English and Spanish and accepts responses in either language, including responses in various Spanish dialects. We refer to scores derived from this measure as reflecting children's conceptual expressive vocabulary.
- <sup>31</sup> Differences between fall and spring scores, although statistically significant, may not be considered practically meaningful. The effect sizes were smaller than .25 as measured by Hedges' g.
- <sup>32</sup> The difference in problem behaviors, although statistically significant, may not be considered practically meaningful. The effect size was smaller than .25 as measured by Hedges' g.
- <sup>33</sup> In the area of physical health and development, we only examine DLLs' general health status. We do not examine other developmental outcomes, such as BMI.
- <sup>34</sup> In fall 2014, 2,462 children participated in FACES; by spring 2015, 2,206 of those children were still enrolled in Head Start. The sample included in this research brief is smaller because it excludes children who did not have at least one completed parent survey and either one or both of the following: (1) a fall and spring direct assessment; (2) a fall and spring teacher child report.

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Kopack Klein, A., N. Aikens, L. Malone, and L. Tarullo. "A Year in Head Start: Findings from FACES 2014 on Children's Progress Toward School Readiness During the 2014-2015 Program Year." OPRE Report 2018-80. Washington, DC: Office of Planning, Research, and Evaluation, Administration for Children and Families, U.S. Department of Health and Human Services, 2018.

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