Disparities in Early Learning and Development:
Lessons from the Early Childhood Longitudinal Study – Birth Cohort (ECLS-B)

EXECUTIVE SUMMARY

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Executive Summary

Education and business leaders and the public at large have grown increasingly concerned about the achievement gap between children from at-risk backgrounds and their more advantaged peers – a gap that is apparent even among young children.[1-3] To date, much of the research and policy attention on achievement disparities has focused on the preschool years (ages 3-5) leading immediately into the transition to kindergarten,[3-5] or in later elementary school and high school.[6] Research that has explored disparities based on sociodemographic risk factors[ii] at earlier ages has indicated that disparities in cognitive development are evident at 24 months of age, [7-9] with a few studies documenting developmental disparities based on sociodemographic risk within the first year of life.[10-13] Very little research, however, has used nationally representative data to explore whether disparities are found within the first year of life, and whether disparities are evident across a wider range of developmental outcomes.[iii] The data and analyses presented in this brief, however, indicate that disparities are apparent in infancy, with the gap widening in toddlerhood. Policy makers and early childhood professionals therefore need to take into account the entire period from birth to 5 years, including targeted interventions to address the developmental needs of at-risk children ages 0 to 3.

This brief uses a nationally-representative sample of infants born in the year 2001 to examine multiple characteristics that may serve as risk factors for developmental disparities at 9 and 24 months of age.[iv] (See the text box at the end of this brief for more information on the data source.) Three domains of development are examined: cognitive development, general health, and social-emotional development. This brief examines disparities in each of these domains associated with family income,[v] race/ethnicity, home language, and mother's educational attainment. Finally, overlap in these characteristics as well as effects of cumulative risk are examined. In the figures shown below, all findings are statistically significant unless otherwise noted.

Key Findings

➢ **Disparities in child outcomes are evident at 9 months and grow larger by 24 months of age. These disparities exist across cognitive, social, behavioral, and health outcomes.**

  ➢ **Disparities by family income**

  ▪ Infants and toddlers from low-income families score lower on a cognitive assessment than infants and toddlers from higher-income families (see Figure 1).

  ▪ Children from low-income families are less likely than children in higher-income families to be in excellent or very good health at both 9 and 24 months.

  ▪ Children from low-income families are less likely to receive positive behavior ratings at 9 and 24 months than children from higher-income families (see Figure 2).

[ii] Typical sociodemographic risk factors include low family income, low parental education, single parenthood, and teen parenthood.
[iii] As a notable example of analyses of children's abilities in the age span of 0-3 using national data, see Snyder, T. D. (2008). *Child care quality and early academic skill acquisition among preschoolers*. Paper presented at the Head Start National Research Conference, June 23-25, 2008, Washington, DC.
[iv] Throughout the remainder of this brief, 9-month-olds are referred to as infants and 24-month-olds are referred to as toddlers.
[v] Children in families at or under 200% of the federal poverty threshold are compared to children in families above this threshold. Throughout this brief, we refer to the former as children in low-income families and the latter as children in higher-income families.

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Figure 1: Disparities on the Bayley Cognitive Assessment between Higher- and Lower-income Infants at 9 and 24 Months

Mean score for all those above 200% poverty → 0

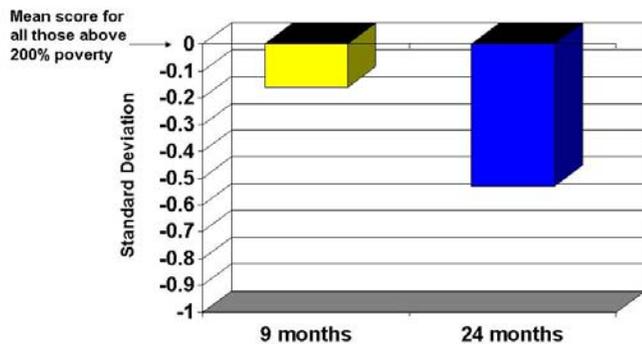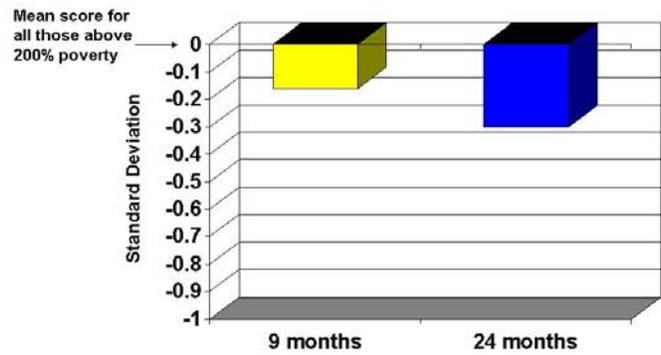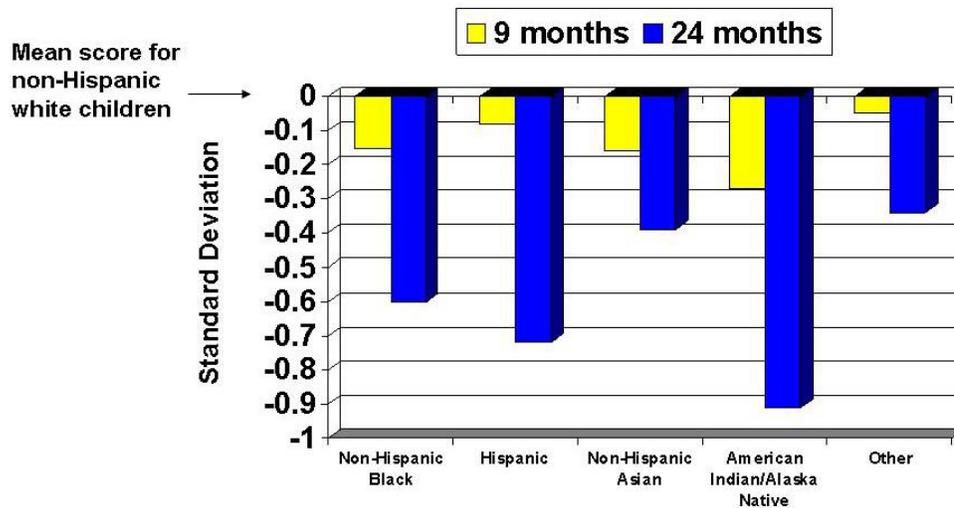Standard Deviation: 0, -0.1, -0.2, -0.3, -0.4, -0.5, -0.6, -0.7, -0.8, -0.9, -1

9 months   24 months

Figure 2: Disparities on the Positive Behavior Index Scores between Higher- and Lower-Income Infants at 9 and 24 Months

Mean score for all those above 200% poverty → 0

Standard Deviation: 0, -0.1, -0.2, -0.3, -0.4, -0.5, -0.6, -0.7, -0.8, -0.9, -1

9 months   24 months

> ➢ **Disparities by race/ethnicity, home language, and maternal education**

- ▪ In general, infants and toddlers from more at-risk backgrounds (i.e., children from racial/ethnic minority groups, whose home language was not English, and/or who had mothers with low maternal education[vi]) scored lower on cognitive and positive behavior ratings and were less likely to be in excellent or very good health than children from more advantaged backgrounds. See Figures 3-5 below for disparities on the Bayley Cognitive Assessment by race/ethnicity, mother's education, home language.

Figure 3: Disparities on the Bayley Cognitive Assessment by Race/Ethnicity at 9 and 24 Months

☐ 9 months ■ 24 months

Mean score for non-Hispanic white children →

Standard Deviation: 0, -0.1, -0.2, -0.3, -0.4, -0.5, -0.6, -0.7, -0.8, -0.9, -1

Non-Hispanic Black   Hispanic   Non-Hispanic Asian   American Indian/Alaska Native   Other


[vi] Low maternal education was defined as having a high school degree or less.

Figure 4. Disparities on the Bayley Cognitive Assessment by Mother's Education at 9 and 24 Months
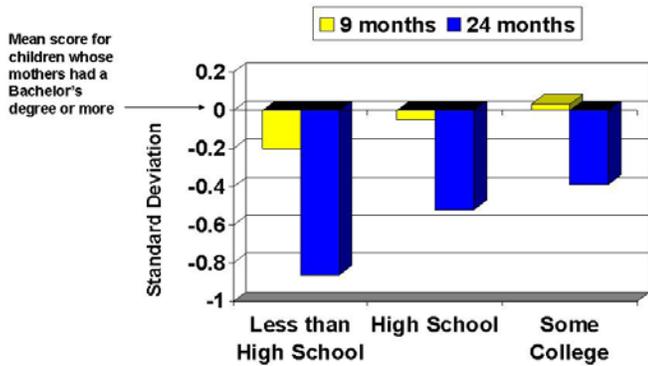
Note: There were not statistically significant differences between the infants with mothers who had a high school degree or some college on the cognitive assessment when compared to infants with mothers who had a Bachelor's degree or more.

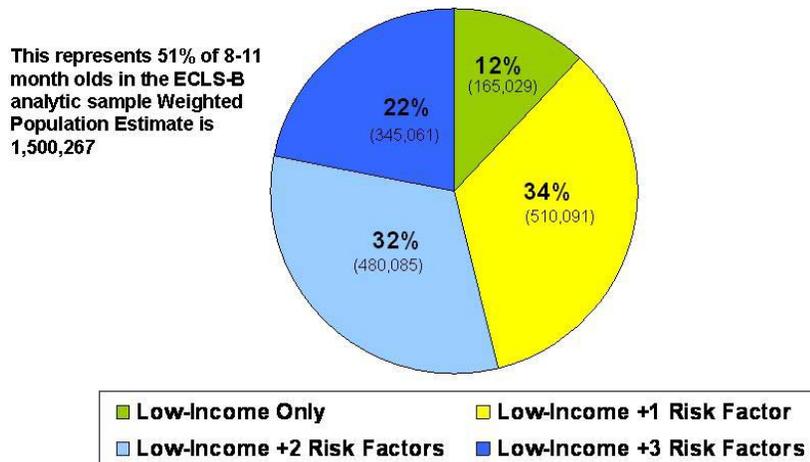**Figure 5. Disparities on the Bayley Cognitive Assessment by Home Language at 9 and 24 Months**
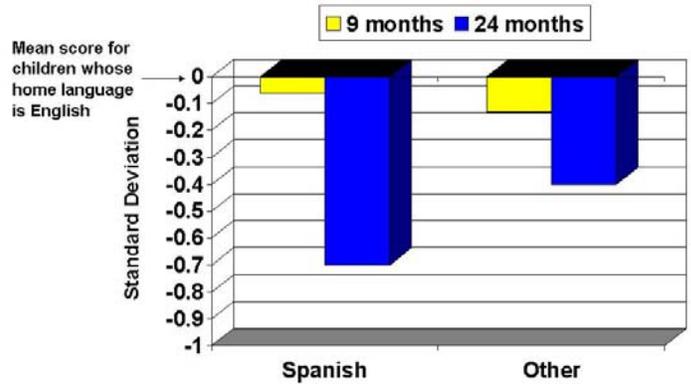
Note: There was not a statistically significant difference between infants from Spanish-speaking homes and infants from English - peaking homes on the cognitive assessment.

➢ **These findings may apply to a significant percentage of American infants and toddlers. Nearly half of all infants and toddlers – approximately 1.5 million children – are in families with incomes below 200% of poverty at 9 and 24 months of age, and many have multiple risk factors.**

- Fifty-one percent of infants and 46 percent of toddlers live in households with incomes at or below 200 percent of the poverty threshold.

- Among these children from low-income households, 89 percent of infants and 88 percent of toddlers have additional risk factors – racial/ethnic minority status, non-English home language, and/or low maternal education (see Figure 6 for distribution of infants).

Figure 6. Percentage of Infants Living At or Below 200% Poverty with Cumulative Risk Factors

This represents 51% of 8-11 month olds in the ECLS-B analytic sample Weighted Population Estimate is 1,500,267

12% (165,029)
34% (510,091)
32% (480,085)
22% (345,061)

☐ Low-Income Only   ☐ Low-Income +1 Risk Factor
☐ Low-Income +2 Risk Factors   ☐ Low-Income +3 Risk Factors

(Population estimates are in parentheses above.)

- ➢ **The most prevalent risk factors are low family income and low maternal education at both 9 and 24 months.**

  - ▪ Of the 34 percent of low-income children at 9 months with an additional risk factor (see Figure 6), 73.5 percent (that is, 25% of the 34% of low-income infants with one additional risk factor) both live in a low-income household and have a mother with low educational attainment. Of the 32 percent of low-income infants with two additional risk factors, 87.5 percent (i.e., 28% of the 32% of low-income infants with two additional risk factors) are living in a low-income household, have a mother with low educational attainment, and are of racial/ethnic minority status. A similar pattern is true for children at 24 months of age.

- ➢ **The more risk factors a child has, the wider the disparities across outcomes.**

  - ▪ Disparities grow larger with the number of cumulative risk factors at both 9 and 24 months (see, for example, Figure 7).

Figure 7. Disparities on the Bayley Cognitive Assessment Among Those At or Below 200% Poverty at 9 and 24 Months, by Cumulative Risk
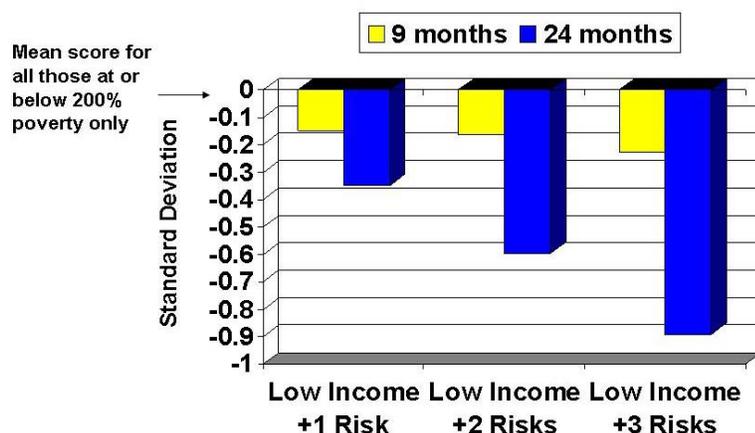
Note: There were no significant differences between the low-income +1 risk group and the low income only reference group on the cognitive assessment for infants or for toddlers.

Implications

- ➢ **Start Early** – Meaningful differences are being detected as early as 9 and 24 months; this speaks to the need to intervene early in children's lives to address the gaps in development. In particular, research suggests that interventions should be high-quality, comprehensive and continuous for children ages 0 to 3 as well as ages 3 to 5.

- ➢ **Target Low-income Children** – As income is the most prevalent risk factor at 9 and 24 months, children in low-income households should be the main targets of early interventions aimed at improving children's health and well-being.

- ➢ **Engage and Support Parents** – Given that maternal education is also noted as a prevalent risk factor, early childhood interventions should include a parental education component. A promising avenue is to promote the education of parents of infants and toddlers about issues related to early childhood development. In addition, interventions that support parents in their own educational attainment and/or income self-sufficiency are also pertinent.

➢ **Improve the Quality of Early Care Settings** – Research indicates that (1) most infants and toddlers, especially those who are from low-income households, are cared for in home-based settings; and (2) high-quality early care and education has the potential to moderate the effects of demographic risk factors for young children. In particular, it is important to ensure a safe, supportive and stimulating environment for young children. Two promising ways to address the quality of early care environments would be to focus on curriculum development and professional development within both home-based and center-based settings that serve infants and toddlers.

ABOUT THE DATA SOURCE USED IN THIS BRIEF

The data used for this brief were obtained from the Early Childhood Longitudinal Study – Birth Cohort (ECLS-B), gathered by the National Center for Education Statistics within the U.S. Department of Education. The ECLS-B is a nationally representative longitudinal study of approximately 11,000 children born in 2001. Data for this brief were collected at the 9- and 24-month data wave. Analyses of the 9-month sample were limited to children aged 8-11 months and analyses of the 24-month sample were limited to children aged 22-25 months.

In order to produce national estimates, person-level weights constructed for the ECLS-B were used for the analyses. The weights account for the probability of sampling the child in a given household, and adjust for the probability of sampling the child from among all eligible children in a given domain.

Analyses were used to compare characteristics of infants/ toddlers in the sample on indicators of cognitive mastery, general health, and social emotional development. Findings discussed in the brief are statistically significant at the .05 level unless otherwise noted. The magnitudes of differences in average scores, using the most advantaged infants/toddlers as the reference group, are presented in terms of standard deviations.

The cognitive mastery indicators included both an age-normed composite score on an adaptation of the Bayley cognitive assessment. One indicator of the infant/toddler's general health was included. This indicator was based on parent/caregiver report of children's overall health with responses ranging from excellent to poor. Indicators of social-emotional development included a composite score on an index of positive behaviors (9- and 24-month analyses) and an observational assessment indicating whether the child displayed a secure attachment to their primary caregiver (24-month analyses only).

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