Investigating the Pathway to Proficiency from Birth through 3rd Grade

IMPORTANCE
There is evidence that early exposure to stressful circumstances, environmental hazards and less than optimal early learning environments negatively affect early cognitive and socio-emotional development, that these influences are cumulative and that the effects persist over time. Low-income children and children growing up in poor neighborhoods experience these conditions at higher rates than children from more affluent circumstances which contribute to the well-documented disparities in educational outcomes. Even though the connection between early childhood exposures and success in school is well documented, school personnel have little direct information about the cumulative risk profile of their own students as they enter kindergarten and advance through the primary grades.

Longitudinal data is important to improve educational effectiveness. Ohio is a leader in designing integrated student record systems to track children from kindergarten through college and career. However, the first five years of a child’s life, which are known to be vitally important for educational success, are currently invisible to these data systems. The incorporation of records from early childhood is particularly challenging. Early childhood education occurs in many settings, such as public preschools, Head Start Centers, private and non-profit pre-schools, and child care centers — all with great variation in record keeping formats and requirements. Additionally, social service and health records, which contain vital information about early stressors and environmental exposures, are also currently contained in disparate systems.

Understanding the relationship between early childhood experiences, kindergarten readiness and students’ academic progress through the 3rd grade is critical as Ohio schools work toward achieving the “third grade reading guarantee.” Children who are not proficient readers in third grade and have grown up in poverty experience the highest rates of school drop-out, making it crucial to provide educational experiences for children who are at risk of not reaching this milestone even before they enter kindergarten. However, it is likely that children with multiple family and environmental risk factors are also missing out on high quality early learning programs. This project will demonstrate how linked early childhood data and primary school data can aid communities in addressing barriers to achieving the third grade guarantee for all children even before they enter kindergarten.

BACKGROUND
The purpose of this project is to address pressing developmental and educational research questions concerning kindergarten readiness and third-grade reading achievement by drawing upon shared data between LEAs and a broad range of agencies that serve young children. The project will link student records data from K-3rd grade with early childhood experiences as reflected in administrative records from child care, early education, health and social service providers, along with measures of conditions in the child’s housing and neighborhood. The data will be analyzed to examine how early childhood risk factors and programs affect school readiness and student progress in grades 1-3. The results of this work will be particularly timely with respect to informing state-level interests concerning school readiness (both its antecedents and its consequences) and third-grade reading achievement.
RESEARCH DESIGN

This is a retrospective and prospective longitudinal study of all children entering kindergarten in the Cleveland Metropolitan School District (CMSD) in 2007 through 2010. The sample selection point for identifying the cohorts is children enrolling in CMSD kindergarten during four academic years. (See the Cohort Based Study Design figure on front for details.) The anticipated collective size of these four cohorts is approximately 13,500 students.

Early childhood records for these children back to birth (from ages 0-5) will be retrieved retrospectively from the Childhood Integrated Longitudinal Data System (CHILD system) maintained at Case Western Reserve University. These records will be linked prospectively with student records (including assessments, enrollment and attendance information) provided by CMSD through the end of the school year in 2013, at which time the students will have completed 3rd grade.

DATA

The two major data sources are CMSD student records and records related to early childhood experiences from the CHILD System. These two data sources will be linked using probabilistic matching methods based on a number of identifiers such as students’ and parents, names, addresses, birthdates, race and other demographic variables. The variables in this study can be divided into the following categories:

- Early childhood risk factors are factors that have been associated with family or environmental stress or instability. For this study they include young parental age, low maternal education, single parent family structure, signs of poor maternal and child health, child abuse and neglect, out of home placements, family financial distress indicators, neighborhood disadvantage and disorder, residential instability and housing distress.
- Early childhood programs and services are expected to be protective, preventive or compensatory. For this study they include home visiting services, out of home childcare quality indicators, pre-school type and enrollment and indications that the child has a medical home.
- Pre-K-3 educational progress includes attendance and assessments such as KRA-L, STAR, NWEA MAP and Ohio Achievement Assessments.

RESEARCH AIMS

Using this research design and data, this project has four specific aims:

1) To assess the practicality of linking early childhood and K-3 student records and potential usefulness of the resulting information to local schools;
2) To determine how individual, family and environmental risk factors in early childhood interact with participation in early childhood education programs to influence kindergarten readiness;
3) To estimate the effects of early childhood risk factors, experiences and kindergarten readiness on student progress over grades 1 to 3; and
4) To identify child-level indices, including kindergarten readiness and reading-growth trajectories, that in their combination accurately predict reading proficiency in third grade.

Suggested Citation