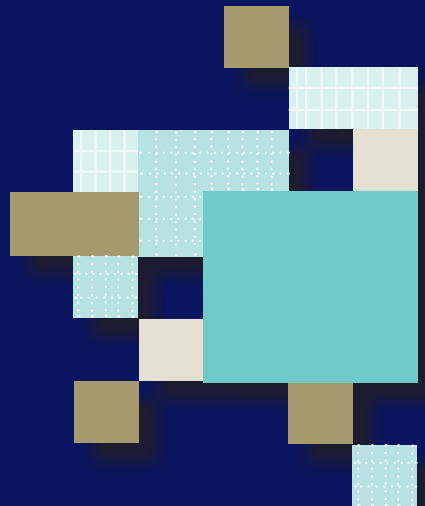# A Look at Maryland's Early Childhood Data System
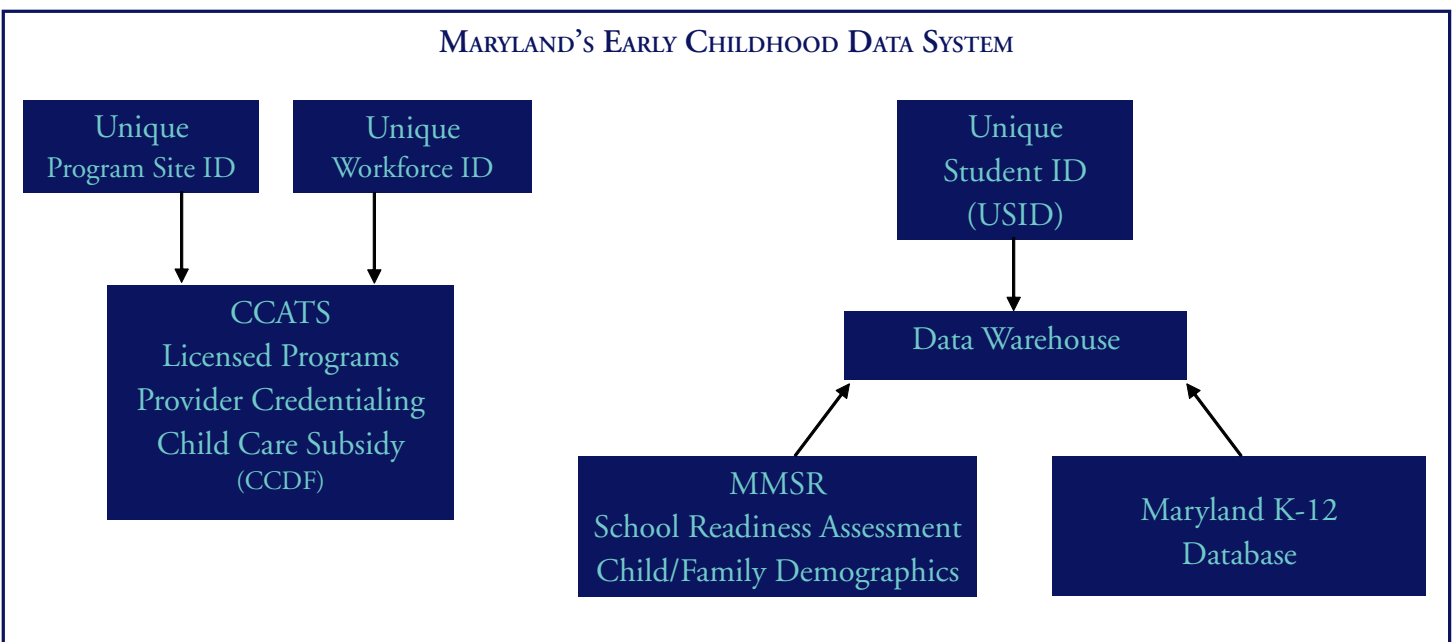
State policymakers and administrators use the Maryland Model for School Readiness (MMSR)—the main component of the state's early childhood data system—to evaluate and promote children's school readiness and later academic success. Information from MMSR is used to improve programs, conduct research, do interagency planning and conduct policy analysis. The system addresses major policy questions including:

- What percentage of Maryland's children is ready for kindergarten and what differences exist across the state?

- How are particular at-risk groups (i.e., poor, minority, English language learners) becoming better prepared for school?

- How do prior experiences such as prekindergarten and Head Start affect a child's readiness for kindergarten?

- How predictive is kindergarten readiness of later academic success?

- How can kindergarten readiness information guide teachers' classroom instruction and professional development?

The heart of the early childhood data system is the focus on school readiness. The MMSR collects individual-level information about the state's kindergartners, including family demographics, type of care received before kindergarten (e.g., Head Start, family child care), and kindergarten readiness status in seven areas of development including physical development and health, language, math and social development.

Information in the system is also used by educators to coordinate kindergarten instruction, curriculum and assessments and to communicate his or her progress to parents. A unique child identifier links information in the data system and the state's K-12 database. The identifier allows the Maryland State Department of Education to evaluate how each child's level of readiness at kindergarten relates to later academic performance.

Another part of the data system, the Child Care Automated Tracking System (CCATS), includes information on all of the state's licensed programs serving children ages 0 to 5, including child-care centers, family child care, Head Start and state funded nursery schools that provide a variety of early care and education for children age 5 and younger. The tracking system collects information on licensing, registration, childcare subsidy information and program rating scores and will support the state's new Quality

MARYLAND'S EARLY CHILDHOOD DATA SYSTEM

Unique Program Site ID →
Unique Workforce ID →
CCATS
Licensed Programs
Provider Credentialing
Child Care Subsidy
(CCDF)

Unique Student ID (USID) → Data Warehouse

Data Warehouse ← MMSR School Readiness Assessment Child/Family Demographics

Data Warehouse ← Maryland K-12 Database

Rating and Improvement System (QRIS), scheduled for implementation in 2011.[1] CCATS also contains information on the early childhood workforce, using a unique workforce identifier. CCATS collects workforce credentials, training, education, professional development, and wages and bonuses. Currently, neither provider nor program identifier information is linked to information on children in the MMSR database. Data in CCATS and MMSR, however, have been linked for particular research studies. Researchers have also linked MMSR data and child protective services data for specific studies.

GOVERNANCE

The Maryland Department of Education governs all early care and education programs in the state, including Head Start, public prekindergarten and child care. This allows better coordination of data among various programs. The department's Project Advisory Council provides guidance on the development and implementation of improvements to the early childhood data systems. The state Department of Information Technology also oversees a vetting process for all newly proposed data systems, including the current planned enhancements to the CCATS child care data system.

HISTORY OF THE SYSTEM

In 1995, the state Department of Education began developing a model system to evaluate and support children's learning in kindergarten. Called the Maryland Model for School Readiness, it used the commercially available Work Sampling System (WSS) to align child developmental evaluation with curriculum, learning standards and instruction. The program began as a pilot in 1997 in seven school districts.

The importance of tracking school readiness grew in response to a new state approach to evaluating agencies. In 1999, the legislative bipartisan Joint Committee on Children, Youth and Families selected "Children Entering School Ready to Learn" as the main measure of success for state investments in early childhood and, in 2000, the Department of Budget and Management began using this information for budgeting decisions. As a result, the 40-member Maryland Leadership

in Action Program team was convened in conjunction with the Maryland Subcabinet for Children, Youth and Families to increase school readiness of Maryland's children through a five-year plan. When the plan was established, only 49 percent of the state's children were "fully ready" for kindergarten. The new goal was ambitious: 75 percent of all kindergartners ready for school by 2007-2008. To track progress the state needed a school readiness assessment to measure the skills and behaviors of all children entering publically funded kindergarten.

The department selected and modified the already piloted Work Sampling System (WSS) to align with the Maryland Model for School Readiness curriculum content standards for prekindergarten and kindergarten. The program requires that all children receive a portfolio assessment during the first quarter of their kindergarten year. Teachers' assess children's learning through developmental guidelines, checklists and children's work samples. Children are evaluated in seven areas of learning (i.e., social, cognitive) with the first evaluation occurring at the end of the first quarter of the school year, in early November. Children's care in the year before kindergarten (e.g., Head Start, family child care) is tracked, as well as demographic information. Teachers first administered the statewide assessment in the 2001-2002 school year.[2]

Development of the state's Child Care Automated Tracking System (CCATS) began in 2003, with the system launched in 2007. Maryland is currently rolling-out an expanded Quality Rating and Improvement System (QRIS) supported by CCATS, which will include information on staff in all licensed family- and center-based child care.

In 2006, the child care subsidy program was transferred from the Department of Human Resources (DHR) to the State Department of Education and the state began tracking information on approximately 25,000 children receiving these services. Support from a 2009 federal research grant enabled the state to link information on children in child care subsidy programs with their kindergarten readiness to better understand the correlation between child care experiences and child development.

VERTICAL AND HORIZONTAL LINKAGES

The Maryland Model for School Readiness has been linked to the K-12 data system since 2007, using a Unique Student ID (USID). This link allows the state to analyze kindergarten readiness information with future academic performance. Beginning with the 2010-11 school year, students who entered kindergarten in 2007 with a Unique Student ID will have completed third grade, allowing, for the first-time, the analysis of kindergarten readiness with academic performance on state standardized reading and math tests. Recent legislation required the addition of a unique identifier for teachers into the data system. This will help provide information on how public school teachers may contribute to child progress throughout K-12. Future plans include linking the CCATS early care data system and the MMSR data through the use of a shared child and workforce ID.

The Child Care Automated Tracking System, CCATS, also links with the child protective services database, Child Information Services (CIS), to help with abuse and neglect investigations and screen current and potential childcare providers. Ultimately, the state would also like to link to other early childhood data through a user-friendly reporting system. Reports will provide summaries to staff and may include data from Head Start, program accreditation, and information from the state's Child Care Resource and Referral database.

Other linkages are driven by local needs. Some localities in Maryland have local databases that extensively track information on children from prekindergarten through K-12. Montgomery County and Baltimore City have systems that include additional assessment information on children from prekindergarten through third grade. In addition, several local education agencies have performed more detailed tracking of the academic success of children that once attended Judy Centers. Judy Centers, supported by schools receiving Title I funds, provide comprehensive services to children through third grade. Information on children's readiness from the MMSR, as well as academic progress from the state's K-12 data system is used to improve the effectiveness of Judy Centers.

DATA ACCESS, REPORTING AND USE

Each year, the Maryland State Department of Education issues a report on the impact of early childhood programs on school readiness. *Children Entering School Ready to Learn,* provides information on children's development for

MARYLAND'S EARLY CHILDHO

1995	**1997**	**1999**	**2000**	**2001-2002**
Maryland State Department of Education begins developing a model system to evaluate and support children's learning in kindergarten.	Work Sampling System (WSS), a commercially available assessment, is implemented as a pilot program in kindergarten classrooms in a limited number of districts.	• Legislative bi-partisan Joint Committee on Children, Youth and Families selects "Children Entering School Ready to Learn" as the main measure of success for state investments in early childhood. • Maryland General Assembly directs the department of education to implement a state-wide assessment to measure the skills and behaviors of all public school kindergarteners.	Maryland State Department of Budget and Management selects the percent of state's children ready for school as a performance indicator for budgeting decisions.	Teachers first administer the statewide kindergarten assessment, including data entry into MMSR database.

the entire state and by each county.[3] The information is also broken down by race/ethnicity; gender; type of prior care (e.g., Head Start, family child care); participation in programs such as special education services and programs for English language learners (ELL); and children eligible for free and reduced meals. The kindergarten assessment data indicates the degree to which the achievement gap has been narrowed between low-income and middle/upper income families and how children's prior experiences at age 4 (e.g., home care, Head Start) correlate with their readiness for kindergarten. The report does not link information about child performance to individual teachers or specific early childhood program sites.

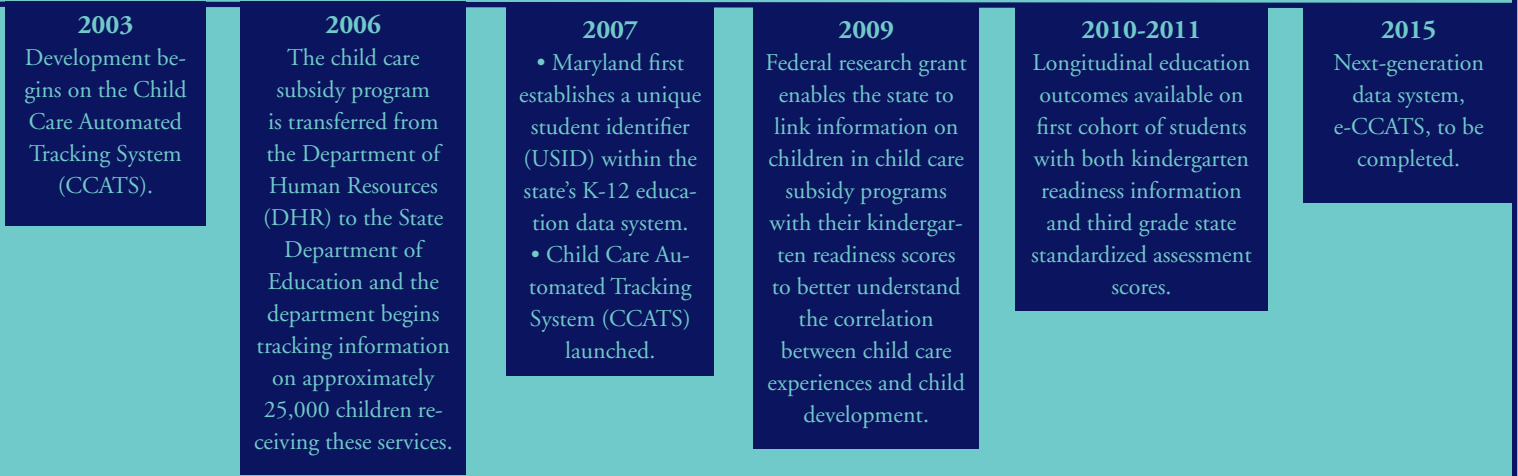At the school district and in the classroom MMSR Kindergarten Assessment data are used to:

• Inform the development of the district comprehensive master plan, a plan to address student achievement.

• Enhance curriculum and training in specific areas, based on the aggregate readiness scores in the seven domains.

• Create individualized instruction based on a child's level of progress across the various developmental domains.

• Promote better communication between school staff and families, by using MMSR results to communicate a "whole child" approach to development that includes both academic as well as social skills.

• Increase collaboration and coordination among early childhood programs.

The CCATS system also provides regular reports to the Maryland General Assembly, including information on child care capacity, the number of centers in each jurisdiction, the number of subsidy vouchers provided and number of children served, and information on complaints and enforcement. Lawmakers also receive additional reports on the number of children in licensed or accredited programs and basic information on the location of children served by various programs.

A recent survey of early childhood providers will provide information for the next generation of reports for the future e-CCATS system, described below. Reports will be better designed to guide continuous program improvement.

OOD DATA SYSTEM TIMELINE

2003	2006	2007	2009	2010-2011	2015
Development begins on the Child Care Automated Tracking System (CCATS).	The child care subsidy program is transferred from the Department of Human Resources (DHR) to the State Department of Education and the department begins tracking information on approximately 25,000 children receiving these services.	• Maryland first establishes a unique student identifier (USID) within the state's K-12 education data system. • Child Care Automated Tracking System (CCATS) launched.	Federal research grant enables the state to link information on children in child care subsidy programs with their kindergarten readiness scores to better understand the correlation between child care experiences and child development.	Longitudinal education outcomes available on first cohort of students with both kindergarten readiness information and third grade state standardized assessment scores.	Next-generation data system, e-CCATS, to be completed.

In general, access to data and reports is based on user roles, including the level of oversight of children and operations. Teachers receive information about the children in their classroom. School administrators receive group information about the children in their school. And legislators and other policymakers receive information about groups of children at the jurisdiction or state level.

NEXT STEPS

The state is currently developing a next-generation data system, e-CCATS, scheduled to be completed in 2015. The new system will improve data collection, streamline data flow and data entry, and provide faster and more flexible reporting, including publically available reports. The state also intends to link more expansive early childhood information such as data from Head Start programs to K-12 information through the unique student identifier. Finally, the Maryland State Department of Education plans additional links of child, program and workforce data, which will help address additional policy questions about:

- **Access** – How many children in low-income families have high quality programs available to them?

- **Training and Credentialing** – What teacher training and experiences produce the best results for children?

- **Resource Management** – Are state investments to improve the quality of programs affecting children's academic success?

Children's Access to Programs

Currently, a pilot program is evaluating the collection of child-level enrollment data for a select group of childcare providers. The department plans to expand the collection of information on individual children enrolled in programs to include childcare centers, nursery schools and Head Start programs. Ultimately, information on children enrolled in programs will be linked with both information on the characteristics of the staff in those programs and information about the quality of the site. These links will allow the state to understand which children have access to high-quality programs. With the additional link to the state's K-12 education database, the state will have a growing understanding of how participation in different types of early childhood programs is associated with a child's preparation for kindergarten and later academic success.

Provider Training and Credentialing

Additional data on workforce experience, education and training will increase the state's understanding of the current workforce. Plans are underway to include additional information on work experiences and positions held, including the ages of children cared for; a record of professional training experiences; and post-secondary education obtained by teachers. When linked to information on children enrolled in programs, the state will better understand how early childhood staff credentials and experience affect children's later academic success.

State Investments in Quality

A current data system tracks state funds for programs to gain state or national accreditation or improve their curriculum. This information will be included in the new e-CCATS system. The database will also be linked to provider and child information. These links will ultimately provide additional information to the state about how investments to improve program quality impact children's academic progress.

ADVICE FOR OTHER STATES

Similar to other states, Maryland's greatest challenge in building an early childhood data system is overcoming the disparate "legacy" databases supporting various early childhood programs. For example, early intervention services funded by the Individuals with Disability Education Act (IDEA) currently use a different child identifier than that used in the MMSR and K-12 systems.

Additionally, in order to gain comprehensive information on child experiences that influence school readiness, the state will need to address data privacy and governance challenges resulting from linking to relevant information (e.g., child health, juvenile justice) outside of early care and education.

Maryland's experience provides several lessons that can help guide the process of early childhood data systems building in other states.

- **Data Use.** Teachers and policymakers use assessment data to improve instruction and early childhood services. Care should be taken to develop systems for this purpose.

- **Addressing Quality.** Initiatives to build quality and access may be limited by current data capacities. Thus, efforts to improve quality may drive improvements to the state's data system. For example, Maryland's expanded Quality Rating and Improvement System must be able to track multiple programs and relevant staff credentials; this may facilitate the implementation of unique identifiers for workforce and program sites.

- **Two-Way Flow of Information.** Consider how data flowing "downstream" from K-12 to early childhood can be used to improve programs. For example, longitudinal information on children that attended Judy Centers was used to implement program changes that erased the gap in literacy skills between English Language Learners (ELL) and other kindergarteners. When planning how data will be used, prioritize a two-way flow of information.

- **Assessments.** A large-scale assessment of child progress is a critical ingredient in Maryland's early care and education accountability system and may be a cornerstone of other states' early childhood data efforts.

- **Stakeholder Engagement.** Involve users in system design and engage stakeholders in all steps of the process – from planning to system testing. Ensure that user input about system requirements, and especially reporting needs, is detailed and explicit, so that the resulting system meets user expectations.

Notes

1. Currently, providers who receive subsidy monies for children in their care are part of the QRIS system and received tiered reimbursement for services, depending on their quality rating. Participation in the optional rating system is encouraged through the use of higher reimbursement rates for programs with higher quality ratings.

2. Providers in some prekindergarten programs also voluntarily use this instrument to evaluate child development at the end of the year. The prekindergarten version of the WSS aligned with the state's prekindergarten learning standards.

3. Although readiness data is also tracked by school attended and is provided to local school systems, it is not published at this level.

A Look at Maryland's Early Childhood Data System
by Jennifer M. Stedron

This is part of a series of case studies that document states' progress toward building and using early childhood data systems. The case studies include information on key policy questions driving the work; governance structures; current or planned linkage efforts within early childhood and with K-12, postsecondary and the workforce; and strategies and challenges to building and using comprehensive early childhood data systems.

This document was produced in partnership with The Early Childhood Data Collaborative.

Supporting state policymakers' development and use of early childhood data systems

The Center for the Study of Child Care Employment at UC Berkeley

Council of Chief State School Officers

Data Quality Campaign

National Center for Children in Poverty at Columbia University's Mailman School of Public Health

National Conference of State Legislatures

National Governors Association Center for Best Practices

Pre-K Now, a campaign of the Pew Center on the States