

2 Effective Use of Data

Creating Unified Data Systems that Support State Early Learning and Development Goals for Children and Families

Creating unified early learning and development data systems is at the top of many state policy agendas, with more than half of EC 2010 state team discussions focusing on the topic and 38 state Early Childhood Advisory Council (ECAC) plans stating that development of a “unified data system” is a priority. Addressing this core system element offers state ECACs a concrete task on which state leaders can begin or continue to focus on building cross-system relationships, plans, and agreements.

There is a growing understanding that a unified data system is critical to continual improvement of an early learning and development system that must take into account the needs of all children and families, target services to those most in need, coordinate services, and measure impact. First and foremost, data system experts recommend that state leaders determine what questions to answer before designing an integrated system. The [Data Quality Campaign](#) (DQC) provides guidance to states as they develop unified education data systems that provide information on building systems extending beyond K-12, to include “P-20.” While states define this term differently, the most expansive approach includes data from birth through postsecondary education and the

workforce. As part of this effort, the [Early Childhood Data Collaborative](#) (ECDC) working group of the DQC has defined [10 Fundamentals of Coordinated Early Care and Education Systems](#) to help states integrate data collected by systems serving children birth through age 5. The ECDC has also suggested a set of key questions state data systems should be able to answer. A survey of 48 states and the District of Columbia found that no state could yet answer these questions and that only one had the capacity to link data on children and programs across multiple early care and education systems.³⁶

In recent years, states have made major strides in building longitudinal data systems that track student information in their education systems. In part, this is because the federal focus on education reform has been accompanied by a significant federal investment in state data system capacity. The U.S. Department of Education’s Institute of Education Sciences (IES) has awarded \$500 million in [Federal Statewide Longitudinal Data System](#) (SLDS) grants to 41 states and the District of Columbia to support education agencies to “design, develop, and implement statewide, longitudinal data systems to efficiently and accurately manage, analyze, disaggregate, and use

individual student data.”³⁷ The SLDS grants are cooperative agreements between states and the IES National Center for Education Statistics (NCES) that require grantee participation in conferences and technical assistance to maximize peer-to-peer learning.³⁸ Much of this federal support has come through 2009 [American Recovery and Reinvestment Act](#) (ARRA) funds, and ARRA State Fiscal Stabilization Funds. This act explicitly authorized states to add preschool and postsecondary institution data systems integration to move toward “P–20” capacity as required by the America Creating Opportunities to Meaningfully Promote Excellence in Technology, Education, and Science (COMPETES) Reauthorization Act.

At the same time, many states seek to develop better data systems to track early care and education systems. Leaders are working to integrate various data systems, including licensing, subsidy, and quality improvement systems. Since 2007, the Administration for Children and Families, Office of Planning, Research and Evaluation (OPRE) has helped **Maine, Maryland, South Carolina, and Virginia** by awarding [Child Care State Research Capacity cooperative agreements](#) that enhance the quality of child care data systems. The agreement goals are to improve the collection, analysis, and interpretation of Child Care and Development Fund (CCDF) data; develop or improve analytic linkages with other state and local data systems (e.g., CCDF and Temporary Assistance for Needy Families [TANF]); and encourage collaboration among state policymakers and research institutions. Also, states are developing data systems that meet a federal requirement to report on child and family outcomes for federal early intervention and early childhood special education programs for infants, toddlers, and preschool age children with disabilities (Part C and Part B, Section 619 of IDEA), starting in 2005.³⁹ Some states have been

awarded [Technical Assistance on State Data Collection IDEA General Supervision Enhancement Grants](#) through the Federal Office of Special Education Programs (OSEP) to adapt their data systems to meet requirements.

State EC 2010 teams spent considerable time discussing how to move toward unified data systems that start from different developmental points and depend on state context. Some are working on core components and linkages across early care and education and Part C and Part B, Section 619 services. This means finding solutions that link in Federal Head Start and Early Head Start data and outcomes data required by IDEA. States are also considering how to make child care subsidy, licensing, quality initiative, and workforce data more useful. Some states are thinking about how to link to other state data systems with relevant data and how to secure buy-in from those agencies. Many state teams discussed a goal of connecting early care and education data to K-12 data systems, which raised concerns about maintaining privacy under the requirements of [Family Educational Rights and Privacy Act](#) (FERPA) about child information. Representatives from several states discussed the usefulness of integrating primary health care data with early learning systems to better address the needs of the whole child as well as questions about complying with privacy stipulations in the [Health Insurance Portability and Accountability Act](#) (HIPAA).⁴⁰ Some EC 2010 state team members wanted more direction from leadership across federal agencies to clarify federal data requirements and privacy provisions and to more strongly encourage state data system coordination.

Innovative efforts described in EC 2010 discussions and the subsequent exploration of related issues for this report include:

- Assessing current state data capacity to describe children, families, programs, and progress.
- Investing in state data capacity to inform planning, policy, and continuous program improvement.
- Leveraging federal investments in state education longitudinal data system capacity to include early childhood and workforce data.

Assessing State Data Capacity to Describe Children, Families, Programs, and Progress

At EC 2010 some state teams spent considerable time evaluating their current data systems and what they wish to improve. Some state activities include:

Determining current data capacity and options for integration: For example, Nevada’s Head Start Collaboration and Early Childhood Systems Office commissioned an analysis of state early learning and development program data capacity by the Nevada Institute for Children’s Research and Policy within the University of Nevada-Las Vegas. The [study](#) cast a wide net, looking at health, mental health, early care and education, child welfare, human and social services, and demographics data. The researchers made recommendations for next steps and cost projections for state consideration.⁴¹

Tapping data capacity in a neutral agency: Several states have established an agency on information technology that manages multiple data systems. This can allow states to maintain technology expertise in one place and have a neutral party collect data from multiple agencies.⁴² For example, **Colorado** is [planning](#) to integrate data systems across 23 programs in five state agencies under the auspices of the Governor’s [Office of Information Technology](#), created by

legislation and headed by a Cabinet-level official. A subcommittee is working on a “universal application” for use by all agencies and programs related to early care and education.⁴³

South Carolina has a neutral state government “service” agency, the SC Budget and Control Board’s [Office of Research and Statistics](#). The office manages the state’s integrated data warehouse and has developed cutting edge Web-based “data cube” technology. The data warehouse uses unique



GUIDING QUESTIONS FOR STATE EARLY CARE AND EDUCATION SYSTEMS FROM THE EARLY CHILDHOOD DATA COLLABORATIVE

State early care and education data systems should be able to answer:

- Are children, birth to age 5, on track to succeed when they enter school and beyond?
- Which children have access to high-quality early care and education programs?
- Is the quality of programs improving?
- What are the characteristics of effective programs?
- How prepared is the early care and education workforce to provide effective education and care for all children?
- What policies and investments lead to a skilled and stable early care and education workforce?

Source: Data Quality Campaign, Early Childhood Data Collaborative, Can Your State Answer These Questions? http://www.dataqualitycampaign.org/survey/issues/Early_Childhood, (n.d.).

identification numbers to link information across multiple datasets and organizations. A “cube” is a pre-aggregated database accessible through Web technology that allows users to “slice” into the data and create ad hoc analyses and maps. Users may also drill into the data with appropriate permissions. The system seeks to be FERPA- and HIPAA-compliant by implementing data policies and system safeguards to protect individual privacy. The Department of Social Services has utilized this technology to improve its child care system data analysis. Through this service agency, the department seeks permission to expand one of its cubes to include linkages to Medicaid, mental health, and disability data systems.⁴⁴

Building and Using State Data Capacity to Inform Planning, Policy, and Continuous Program Improvement

Several leading states have made significant inroads into developing their data capacities, but no one state has a fully “unified data system” with the capacity to track services for children from birth through age 8. Many states still work with systems set up to collect data that simply complies with federal reporting requirements. States are considering how best to include children’s backgrounds into data systems that better understand differential impacts of programs (e.g., whether they live in English Language Learner [ELL] families and other demographic factors). At EC 2010, members of the ECDC presented a framework⁴⁵ to help state agencies transform agency culture by moving from:

1. Compliance-driven data efforts to improvement-driven data systems.
2. Fragmented and incomplete data efforts to coordinated data systems.
3. “Snapshot” data to longitudinal data systems.

Some activities that states are pursuing to help inform planning, policy, and continuous improvement are:

Determining how to collect and use child development assessment data appropriately:

Use of assessment data is a contentious issue.⁴⁶ Assessment data should be used to inform families and early educators, identify developmental concerns for individual children, and help programs improve.⁴⁷ However, different purposes may call for different assessment tools. According to the National Research Council, responsible use of assessment for young children requires the strongest standards of evidence in three areas, “the psychometric properties of the instruments used in the assessment system; the evidence supporting the appropriateness of the assessment instruments for different ethnic, racial, language, functional status, and age group populations; and the domains that serve as the focus of the assessment.”⁴⁸ Investment in training on how to administer assessments and interpret the results is also critical to implementation.⁴⁹

At least 25 states have universal kindergarten readiness assessment, with programs in development in several others.⁵⁰ For example, **Maryland’s** Model for School Readiness (MMSR) initiative was designed to assess school readiness of kindergarteners; differences among counties and children with at-risk characteristics; what services they may have had prior to school entry; and whether kindergarten readiness is predictive of later academic success.⁵¹ The state selected the customized Work Sampling System to assess children’s development and readiness in kindergarten. Work Sampling is based on portfolios of children’s work as well as teacher assessment. Children are evaluated in seven areas of learning that are aligned with content standards for prekindergarten and kindergarten starting at the

end of the first quarter of the kindergarten school year. The MMSR has documented a shrinking achievement gap between children in lower and higher income families as well as differences between children who enter having attended the state's Judy Centers (profiled in Section 3) or not.⁵² The 2011–12 MMSR annual report showed that 68 percent of ELLs could be considered school-ready, up from 35 percent in 2001–02.⁵³ The state has consciously decided not to link child performance data to individual early care and education sites or teachers. Assessment data are used to inform the early care and education community on how to adjust their programs to improve the outcomes on all or specific domains of learning.⁵⁴ Also, there are [online resources](#) to help K-12 teachers analyze and use the data from assessments to improve their classroom practice.

More recently, **Washington** has piloted a kindergarten assessment system for the 2010-11 school year. The [Washington Kindergarten Inventory of Developing Skills](#) (WaKIDS) model has three components: time for the kindergarten teacher and family to meet before the child enters kindergarten; assessment using nationally validated tools of child development in four domains (social or emotional, literacy, cognitive, and physical); and time for kindergarten teachers to meet and share information with early childhood care providers. **Delaware** plans to employ ECAC funds to transform their kindergarten readiness assessment pilot into a comprehensive process that will use multiple readiness indicators.

Building capacity to enter and use assessment data to improve early childhood program practice: Some states use assessment data to strengthen diverse local early care and education programs. They are exploring how assessment data can be used to target technical assistance and reward improvements. According to the National

Early Childhood Accountability Task Force report, assessment data alone ought not to be used to hold individual agencies accountable for child outcomes. Training on appropriate use and supports must be built into new systems.⁵⁵

For example, **Pennsylvania Early Learning Network** integrates child-level assessment information with information about the children's background, the structure of the program, and information about its teachers and aides. These efforts are intended to improve quality and provide feedback about young children participating in programs sponsored by the Office of Child Development and Learning (OCDEL). Like Maryland, which uses the [Work Sampling System](#) for preschool-aged children, Pennsylvania has selected the [Ounce Scale](#) for infants and toddlers. Children receive a unique identifier that is linked to a K-12 unique identifier, allowing long-term follow-up for children participating in these programs. The state prekindergarten program, state-funded Head Start, child care centers with three and four star ratings in [Pennsylvania Keys to Quality](#) (the state quality rating and improvement system [QRIS]), and Part C and Part B, Section 619 of IDEA services are included. The next phases will bring in family child care at 3- and 4-star rating levels and at state-sponsored home visiting programs such as the Nurse Family Partnership program. Pennsylvania's Keys to Quality program has regional offices that manage training for early care and education providers about entering assessment and other data into the system.⁵⁶ The data system will generate reports designed to meet the needs of a variety of constituencies, including parents, to better understand their child's development; providers and teachers, to access program and child-level data; administrators, to inform technical assistance decisions; and policymakers, to track statewide aggregate data trends.⁵⁷



TEN FUNDAMENTALS OF COORDINATED STATE EARLY CARE AND EDUCATION DATA SYSTEMS

1. Unique statewide child identifier.
2. Child-level demographic and program participation information.
3. Child-level data on the full range of child development collected using appropriate instruments and for the purpose of program improvement.
4. Ability to link child-level data with K–12 and other key data systems.
5. Unique program site identifier with the ability to link with children and the early care and education workforce.
6. Program site data on structure, quality, and work environment.
7. Unique early care and education workforce identifier with ability to link with program sites and children.
8. Individual early care and education workforce demographics, education, and professional development information.
9. State governance body to manage data collection and use.
10. Transparent privacy protection and security practices and policies.

Adapted from: Early Childhood Data Collaborative,
<http://www.dataqualitycampaign.org>, (n.d.)

Colorado has a statewide assessment system called **Results Matter** that promotes assessment of child learning and developmental progress, collection of family outcomes information, and the use of child and family outcomes data to inform program and policy decisions. Assessment using one of a set of approved tools is required for children participating in Colorado's Preschool Special Education and state pre-kindergarten program. This system is used for federal OSEP child and family outcomes reporting as well as for other state purposes. Participation is optional for School Readiness Quality Improvement Program sites, Family Child Care Homes, Child Care Centers, Early Head Start, Head Start, and Charter School Preschool Programs. **Professional development resources** are available to assist practitioners conducting the assessments.

Linking child-, family- and provider-level data to guide policy and target technical assistance to improve provider quality: **South Carolina** has used **support from the OPRE** to build child care and early education research capacity and to create a system of linked data sets on children birth to age 6 with child-, family-, and provider-level data that includes subsidy, licensing, QRIS, SNAP, and TANF data. Using cutting edge technology, the data system has unique identifiers at the child and provider levels.⁵⁸ The goal is to understand how quality improvement efforts are working in early care and education programs utilized by low-income working parents. The state is already using the data to target use of ARRA dollars for child care and early education providers who are struggling the most to meet licensing health and safety regulations.⁵⁹

Using data to inform families and the public: States use data they collect in different ways to inform families and the public. For example, 23 states now have statewide QRIS systems for their

child care and early education programs, and many more are in the pilot phase or in development. These initiatives provide public information about a set of standard quality indicators that help them choose the best care for their children. In six states (**New Mexico, North Carolina, Oklahoma, Oregon, Pennsylvania, and Tennessee**), 60 percent or more of state child care centers participate in the state QRIS.⁶⁰ States use public service announcements, brochures, web sites, and certificates to post at child care sites to inform parents about the QRIS and what it means for their children.⁶¹

The **Maryland** MMSR initiative makes the assessment [data publicly available](#) by county. It also presents the data according to various demographic and background factors, including race or ethnicity, limited English proficiency status, whether children qualify for free and reduced price lunches, whether children are receiving special education, and participation in prior child care settings or special programs.

Pennsylvania's OCDEL translates multiple data sources to keep families and the wider public informed about early childhood. The state's Early Learning Network provides [information to parents](#) about their children's development and progress in selected state early care and education programs. OCDEL also produces an annual [Risk and Reach report](#) by county. The report compares the number of children affected by 10 risk factors for school failure and the number currently served in licensed early care and education or home visiting programs. OCDEL indicates the goal of this report is to: "1) track progress in reaching all children who can benefit most from early education; 2) help communities better understand their early childhood programming needs, particularly in counties with high risks; 3) educate lawmakers on Pennsylvania's progress in early

childhood education; and 4) inform future decisions regarding early childhood education investments, policies, and practices."⁶²

All states are required to make annual public reports to their local programs on child and family outcome indicators (Part C only) included in their state Performance Plan as required under Part C and Part B of IDEA.

Leveraging Federal Investments in State Education Longitudinal Data System Capacity to Include Early Childhood and Workforce Data

The ARRA SLDS grantees are creating P-20 data systems that connect early childhood data to K-12, postsecondary, and labor data. There is great variation in states' decisions on what programs, participants, and populations form the "P" in a "P-20" system, creating a wide range of activities in early childhood data. **Illinois** provides one example of a P-20 data system planning process.⁶³ The state legislature passed the P-20 Longitudinal Data Systems Act in 2009, requiring the ECAC/IL Early Learning Council to develop recommendations about establishing a unified data collection system for public early childhood education and development programs to be coordinated with the SLDS. ECAC Data Work Group members thought about who data system "end-users" would be and how to make the data useful. The Illinois ECAC application outlined a plan to use \$600,000 of the awarded federal funds to work with a consultant over three years to design a system that would enable data collection on children from birth to age 5 who receive state or federally funded early childhood services, the programs they are in, and the practitioners working in those programs. The data system,

which will provide varying levels of user access to system information, is expected to integrate current data systems (e.g., early childhood care and education, health, child welfare, etc.).⁶⁴

Some specific activities reported in state SLDS and ECAC plans include:

Developing Memorandums of Understanding (MOUs) to share data between child-serving agencies: To lay the groundwork for integrated data systems, states may need to develop partnerships and MOUs between agencies to ensure responsible data-sharing with appropriate data privacy, confidentiality, and security measures that protect personally identifiable information. For example, **Missouri** included plans to develop an MOU to share data between state agencies and local Head Start and Early Head Start grantees in the state ECAC proposal.⁶⁵ The **Arkansas** Department of Education (ADE) has a data sharing arrangement with the Arkansas Department of Human Services as part of their SLDS ARRA grant. ADE will gain access to data on a range of state-funded programs (including those in public and private early care and education settings as well as some in state-funded home visiting programs) collected by the Department of Human Services.⁶⁶

Attaching a unique student identifier to early childhood datasets: State early childhood data systems often lack fundamental elements necessary for implementing an SLDS. The Early Childhood Data Collaborative has a list of 10 fundamentals of coordinated state early care and education data systems, which includes the ability to track data using a unique student identifier (see *Ten Fundamentals of Coordinated State Early Care and Education Data Systems*, p. 30). Several states are working on this issue. According to their SLDS plan, the **Maine** Department of Education will use a student identifier number for all children in

early childhood programs administered by the Maine Department of Human Services.

Including data from programs serving children birth to age three: **Illinois** is planning to add data to the current preschool-grade 12 longitudinal data system on programs serving infants and toddlers through the state Prevention Initiative for Programs Offering Coordinated Services to At-Risk Children and Their Families (funded through the state's Early Childhood Block Grant).⁶⁷ **Maine** is piloting a program that tracks child participation in Early Head Start, Head Start, and a local birth to age 5 Educare program; and will connect that information to the SLDS.

Linking data on the early care and education workforce to the SLDS: **Pennsylvania** plans to add data on early childhood educators already collected through the state Early Learning Network to its teacher education system so that characteristics of these educators can be better understood. **Illinois'** ECAC plans to work with a consultant to design a system that integrates data on practitioners in programs for children birth to age 5.

States are **creating unified data systems** that meet early learning and development system goals by:

- Assessing current state data capacity to describe children, families, programs, and progress.
- Investing in state data capacity to inform planning, policy, and continuous program improvement.
- Leveraging federal investments in state education longitudinal data system capacity to include early childhood and workforce data.