



SLDS Issue Brief

Answering Key Questions with an Early Childhood Data System

Introduction

States around the country are developing unified early childhood data systems—systems that link child, personnel, and provider data across multiple programs—and linking those systems to P-20W statewide longitudinal data systems in order to conduct longitudinal analysis. These next-generation data systems are intended to provide the information policymakers need to improve policy; practitioners need to improve practice; and parents/caregivers need to better take advantage of resources available to their children.

In order to build useful systems, states must start with a vision for how they would like the system to be used and, more specifically, a list of essential questions to be answered using the data.

In a series of calls sponsored by the Statewide Longitudinal Data Systems (SLDS) Grant Program, state representatives shared experiences and offered tips for sharing early childhood data. A product of these conversations, *Answering Key Questions With an Early Childhood Data System* is designed to support states working to create or evaluate their current policy questions. This document examines examples of policy questions from states and outlines why those questions are needed, how to create them, and who should be involved in the process.

To build a useful early childhood data system, states must start with a vision for how the system will be used and a list of essential questions the data will answer.

Why Identify Essential Questions?

The goal of state data systems should be to provide important information that is useful to stakeholders to inform their decisions and influence their actions. Linking data across programs can provide much richer information that is more useful to stakeholders, and can reduce data collection and reporting burdens.

In designing linkages, states should start by identifying the key questions that stakeholders, such as practitioners, policymakers, and parents, need answers to in order to support continuous improvement. States that have neglected to ask end users for their needs and wants have ended up building linkages of little benefit to users. These states have spent significant time and expense on information technology (IT) systems that did not lead to the intended impact on child outcomes.

Because data linkages take time, money, and effort to build, states can ensure that these resources are well spent by beginning with a focus on the actual needs of the field as identified by stakeholders. Not only do essential questions identified by end users inform system development, these questions—and the data necessary to answer them—will ideally serve as the basis for developing data sharing agreements across P-20W agencies.

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<http://nces.ed.gov/programs/SLDS>.*





Figure 1. A Seven-Step Process for the Design and Use of Essential Questions

How Are States Going About This Work?

The right sequence of activities is essential to the development of essential questions. The following seven-step process can guide the design of an integrated early childhood data system:

1. Identify key end users

End users are the consumers of the data system, and their input is necessary to design the system effectively. Considering who will use the system should inform every design and technical decision, from what data are included, to the frequency of updates, to the granularity of the data, to how data are accessed, and necessary reports. These systems can serve a broad range of users, including:

- *Educators.* This group includes early childhood teachers, providers, higher education programs that train providers, and specialists from a wide range of programs, including but not limited to home visiting, Head Start, state preschool, child care, special education, foster care, health and mental health services, and the early elementary years.
- *Policymakers, Legislators, and Advocates.* This group includes leaders in both the legislative and executive branches. Within the executive branch, end users should include personnel from the multiple agencies—and frequently, from the multiple divisions within agencies—focused on the education, care, health, and mental health needs of young children. This group also includes advocates focused on the needs of children and, where appropriate, foundations and business groups.
- *Families/Caregivers.* This category can also include organizations that work directly with parents to help them navigate the early childhood system.
- *Researchers.* Researchers have provided incredibly valuable input to this process in multiple states and are often among the most avid consumers of data once they are made available.
- *Program Administrators.* This group includes program-level personnel from state or local agencies who manage the early childhood programs and are responsible for the data in the system. Program administrators are a key early childhood user group as they make many decisions regarding the services to children and families, and need high quality data to support these decisions. Program administrators will vary for different states, but often play a critical intermediate role between policymakers and educators.

Stakeholders are individuals or groups that are directly or indirectly affected by an SLDS.

To ensure the system can be designed and implemented successfully, states should be purposeful in how they prioritize and include stakeholders in the process, assessing each group's unique role and end use of the data. Figure 2 (next page) provides examples of roles and data use priorities for SLDS users.

User	Role	Data Use
Educators	Inform decisions to improve local-level learning environments	Resource allocation, staffing needs, instructional approaches, student placement, curriculum development
Policymakers, Legislators, and Advocates	Inform policy development, revision, and funding decisions	Resource allocation, program evaluation, legislative actions
Families/Caregivers	Support learning and inform decisions about placement in available schools/programs/courses	School/program options, college preparation, academic resources
Researchers	Assess the impact of policies and programs on students and education entities	Research questions, program evaluation, policy evaluation
Program Administrators	Implement policies, improve program effectiveness and efficiency	Program evaluation, resource allocation, staffing needs, community needs, program development, program planning

Figure 2. Examples of Data Use by SLDS Users

2. Identify key questions

Once key end users have been identified, states need to work with those end users to articulate their essential questions. Frequently, states have started with the key questions identified by the Early Childhood Data Collaborative to help start the brainstorming process.

The Early Childhood Data Collaborative: Key Policy Questions	
1. Are children, birth to 5, on track to succeed at school entry?	6. What public and private funds are spent on early care and education programs?
2. Which children have access to high-quality early care and education programs?	7. What policies and investments lead to a skilled and stable early care and education workforce?
3. Is the quality of programs improving?	8. How prepared is the workforce to provide effective education and care for all children?
4. What program characteristics are associated with positive outcomes for children?	
5. What is the cost of a high-quality program?	

See Key Questions from the States (page 5) for additional examples. Many states have gone through a process with local stakeholders to modify this list based on state-specific needs.

Key questions will generally fall into four categories: Policy, Program/Operational, Research, and Instruction. A state may select one category or multiple categories as needed to meet the needs of the end users. Representative stakeholder groups for those end users should be included in the process of developing key questions. Policy researchers, for example, may be particularly helpful in the development of policy questions.

CEDS Connect is another helpful tool in establishing essential questions.¹ This free resource allows states to see other states' research questions, as well as how they are conducting their analysis.

¹ This tool, available at <https://ceds.ed.gov/connect.aspx>, provides a selection of education data-related components and their alignment to the Common Education Data Standards (CEDS).

3. Identify specific sub-questions

Once states have established participation from stakeholders to determine the key questions in their state, the next step is to develop more specific sub-questions based on the state's local priorities and needs. Sub-questions should be directly aligned with the broader policy questions outlined by the state, but are articulated for specific user roles. Identifying sub-questions creates a level of specificity that allows the state to determine which data should be integrated into the system.

Creating a Sub-question

Key question: What program characteristics are associated with positive outcomes for children?

Sub-question: How does family involvement with the child influence positive child outcomes?

To create sub-questions, states should review their key questions, brainstorming the questions they will need to answer in order to respond to the key question.

4. Identify the data fields that are necessary to answer the question(s)

Once the stakeholders have agreed upon the key questions and sub-questions, states must work with stakeholders to identify the data fields needed to answer those questions. This analysis is often conducted with support from local universities or internal research teams.

Both program and IT representatives should be included in initial conversations with stakeholders about their data needs, and must partner to lead the performance of this gap analysis and the design of data solutions. IT experts serve as critical resources in answering stakeholder questions about what data are currently being collected, as well as the technical challenges to building linkages.

For each element, the level of granularity of data (e.g., daily attendance versus average daily attendance for a time period) and the frequency with which the data will be refreshed from the respective source systems should be decided to answer key questions and respond to the users' needs. These are key data governance decisions that the governance group should consider early in the process. (For more information, refer to the *Early Childhood Planning Guide*, section E.)

5. Identify where (if anywhere) the data in those fields are collected

Once the data necessary to answer the key questions have been identified, agency personnel who manage the data systems that will be linked should conduct an inventory to determine whether, where, and when those data are currently collected. Often used as an initial step when implementing data governance, this gap analysis shows where the state might have data gaps or potential redundant collections.

The CEDS Align tool is a free resource to state teams working to identify what fields exist across programs and agencies.² This tool enables the process to move more quickly and serves to facilitate important discussions around program and agency elements.

6. Identify changes needed for data collection

After completing the gap analysis, the state must determine whether or not to modify and/or expand the data currently collected to address the identified gaps and answer the key questions. The data governance process should be used to ascertain the impact and benefits of making these revisions and/or expansions, and a recommendation should then be taken to leadership for its review and approval. Once leadership has made key decisions about inclusion of current and future data, the state can begin conversations about system design.

7. Identify how to add and link data to answer the key questions

These design options should be prepared by an entity—in-house or contract—with expertise in data systems, but decisions about which gaps to focus on closing should be made with the full engagement of policy stakeholders and driven by the needs of end users, not by which solutions are the cheapest or technologically simplest. These decisions also need to be made in accordance with the state's data governance process.

CEDS can also be used at this step: If a state has created a map using the Align tool, then CEDS Connect allows the state to select "My Map" to see which of the identified elements already exist in the state.

² Available at <https://ceds.ed.gov/align.aspx>; CEDS Align enables programs, agencies, and states to see how their data dictionaries align with CEDS and other dictionaries in the field.

Key Questions from the States

With different intended uses and users, state-identified early childhood key questions will vary across states and evolve based on the needs of the field. While answering most of these questions will require improved access to cross-sector data, the questions an early childhood data system is designed to answer may be very different than the questions of a P-20W system.

Determining areas of focus important to those involved in the process is a critical step in essential question development. In addition to broader Policy, Program/Operational, Research, and Instruction categories, most early childhood questions share common areas of focus: family and health, participation, program quality, child outcomes, and workforce.

The high-level policy questions below were developed by both SLDS and Race to the Top–Early Learning grantees in order to inform development of their early childhood data systems and SLDSs, while maintaining a focus on the early childhood priorities of their end users. These questions can and should serve as examples to states beginning the data sharing process.

Key Question Focus Areas

Family and Health: Family and health characteristics, including family knowledge of child development, socio-economic status, immunization rates, etc.

Participation: Access to programs and services, transition between programs, duplication, responsiveness of programs, program combinations, and earlier identification practices that contribute to children's greater involvement in quality programs

Program Quality: Measurement of the effectiveness of early childhood programs

Child Outcomes: Definition of success for early childhood programs, how outcomes in the early years impact later performance in school and the workforce

Workforce: Early childhood professional preparation, professional development, and workforce characteristics

Key Questions from the States		
Focus Area	Example End User	Question
Family and Health	Policymakers, Legislators, and Advocates	What is the association between child need/risk and program level? Are high-needs children more likely to be in a particular program level?
	Researchers	Are there subgroups of children for whom the links between measures of child-care quality and child outcomes are stronger? Does a child's level, or pattern, of risk moderate the association between program quality and child outcomes?
	Program Administrators	Which children and families are and are not being served by which programs and services?
Participation	Policymakers, Legislators, and Advocates	How many children are in various Early Childhood and Development programs (access of unduplicated children by type of setting, location, and quality)?
		How many different programs do children attend before entering kindergarten (enrollment stability and overlap)?
	Program Administrators	Which children have access to high-quality early childhood programs and services?
Program Quality	Policymakers, Legislators, and Advocates	What are the definable characteristics of the state's children who are entering grades K-2?
		What are the definable characteristics of our state's Birth-5 programs?
		How well prepared are the state's schools for meeting the needs of entering kindergarteners?
		How much high-quality early care and education programming are children receiving (attendance)?

Key Questions from the States (cont.)		
Focus Area	Example End User	Question
Program Quality (cont.)	Policymakers, Legislators, and Advocates	Is there an association among program level, the individual tiered QRIS components, and concurrent child outcomes?
	Families/Caregivers	Which early care and education programs are of high quality?
	Program Administrators	Does program quality improve over time? What are the barriers to program quality improvement?
		Are program quality levels associated with measures of process quality? Are there meaningful differences between each level?
		How will early childhood education and care quality improve over time?
Child Outcomes	Policymakers, Legislators, and Advocates	What are the education and economic returns on early childhood investments?
		How well prepared are all of our children for kindergarten and K-2, as a whole and by subgroups?
		How many children are on track to succeed during the early childhood years, at school entry, and beyond?
		Is program quality related to future child outcomes? Which tiered QRIS components contribute most to child outcomes?
	Families/Caregivers	What characteristics of programs are associated with positive outcomes for children?
	Researchers	Is there an association among program level, the individual tiered QRIS components, and concurrent child outcomes?
Are there subgroups of children for whom the links between measures of child-care quality and child outcomes are stronger? Does a child's level, or pattern, of risk moderate the association between program quality and child outcomes?		
Workforce	Policymakers, Legislators, and Advocates	What are the definable characteristics of the state's Birth-8 workforce?
		How prepared is the Birth-8 early childhood workforce to provide effective education and care for all children?
		How many early childhood professionals are qualified by meeting specific, established standards to prepare children to succeed at school entry (e.g., core competencies, career-lattice education levels)?
		What are the characteristics of the current workforce (turnover, compensation, diversity, education, etc.)?

Sources: These questions were developed by inter-departmental early childhood teams in Utah, Maine, Rhode Island, Massachusetts, and Wisconsin. The questions have been vetted and approved by leaders of state programs—including Head Start, Medicaid, Health and Human Services, Education, and Early Childhood Advisory Councils—to ensure that the questions reflect the states' needs.

Additional Resources

SLDS Early Childhood Planning Guide

http://nces.ed.gov/programs/slds/pdf/Early_Childhood_Planning_Guide.pdf

SST: Identifying End Users

Available in the Public Domain Clearinghouse at GRADS360.org

Early Childhood Data Collaborative Policy Questions

<http://www.ecedata.org/>

Developing P-20 Questions: Characteristics and Outcomes (WA)

http://www.erd.c.wa.gov/arraslds2009/misc/pdf/characteristics_outcomes.pdf

Prioritizing Early Childhood Data (Webinar)

Recording available at <http://nces.ed.gov/programs/slds/webinars.asp>

Early Childhood Data Use (Webinar)

Recording available at <http://nces.ed.gov/programs/slds/webinars.asp>

Early Childhood Data Use, Part 2 (Webinar)

Recording available at <http://nces.ed.gov/programs/slds/webinars.asp>

Early Childhood Data Use, Part 3 (Webinar)

Recording available at <http://nces.ed.gov/programs/slds/webinars.asp>

SLDS Target Team: Stakeholder Engagement: Stakeholder Engagement Toolkit

http://nces.ed.gov/programs/slds/pdf/target_team_stakeholderland.pdf

CEDS Connect

<https://ceds.ed.gov/connect.aspx>

CEDS Align

<https://ceds.ed.gov/align.aspx>