IMPLEMENTING DATA EXCHANGE STANDARDS:

A TOOLKIT FOR MIECHV AWARDEES

September 2020

Table of Contents

Disclaimer

INTRODUCTION

In 2018, the Maternal, Infant, and Early Childhood Home Visiting (MIECHV) Program was extended through the Bipartisan Budget Act of 2018 (Pub. L. 115-123) (BBA). As part of this appropriation and reauthorization, the BBA provided new authority for the MIECHV Program to establish data exchange standards. These standards would be used to support federal reporting and facilitate the electronic exchange of data between the MIECHV state agency and other state agencies.[1] By sharing data, MIECHV awardees can address key policy, programmatic, and research questions about the home visiting field that may not be answerable with current data infrastructures.

This toolkit has been developed to support MIECHV awardees[2] that are interested in **implementing data exchange standards** in their state or territory. This toolkit provides considerations, best practices, tips, examples, and exercises across key activities to facilitate the implementation of data exchange standards.

WHAT ARE DATA EXCHANGE STANDARDS?

An initial step for a state or organization to facilitate the sharing of data is to develop data exchange standards. **Data exchange standards** establish a common set of definitions, as well as the structure and format of key variables; these standards set a foundation for sharing home visiting data across data sources and with other agencies. Data exchange standards ensure clear guidelines and expectations for what data are shared and in what format. For instance, when home visiting programs and the state child welfare agency use a standardized variable name and format to store information about a client's identification, the two programs can easily share data on the client across programs.

Establishing data exchange standards can support the coordination of information across home visiting programs and models within a state or territory. Those programs and models may have home visiting data that are housed in different agencies and data systems and may be funded through a variety of funding streams, making it difficult to share data. In addition, data from other state programs with which home visiting programs may interact (i.e., early intervention, child welfare, primary care) are likely stored in different data systems and within different agencies than the home visiting programs. Data exchange standards that are agreed upon across these programs can support easier access to these data to address key policy, program, and research questions that cannot be addressed from only one data source.

The adoption of data exchange standards does not necessarily require that agencies change how they collect or store data. Agencies can also develop data exchange standards by creating data fields in their data systems that transform current data elements into an agreed-upon standard that matches how data are stored in other systems. Alternately, agencies can work with a third party that can take data from each agency and transform the data into an agreed-upon data exchange standard so that data can be matched across sources.

As the step that should take place after the establishment of data exchange standards, making **data**

---

[1] The term "agency" is used to describe an organization or department, whereas the term "program" is used to describe a subunit of a department or agency such as an Individuals with Disabilities Education Act (IDEA) Part C program or a home visiting program. The term "entity" refers to a body or group such as a data governance entity.

[2] For the purposes of this document, "awardee" is used when addressing the entity receiving the MIECHV grant and the entity that would be responsible for implementing data exchange standards. Outside of that usage, "state" is used as the standards would be applied to data at the state level.

interoperable is the process by which data systems can "talk" with one another. Data are considered interoperable when there is a process to automatically exchange or connect data from different programs and services to one another without needing human intervention. For instance, a state could develop a data system that linked data together from its three home visiting models with its child welfare data, to enable program administrators to better understand the needs of (and services being received by) clients.

Figure 1 depicts one example for how information is often collected and stored differently across data sources. A child's date of birth consists of three main components (the day, month, and year). Each component can be stored or defined in different formats (e.g., numerically or as text) or with variations (e.g., one, two, or four digits for numeric values). In addition, a data source may store a child's date of birth differently, depending on the format or variation of data (examples in blue boxes). When programs or services want to make their data interoperable—or shareable across data sources—they may find it logistically difficult to match the same type of information when it is stored in different formats. Data exchange standards can make this process easier by developing an agreed-upon way to standardize the information so that it can be shared across data sources.

FIGURE 1.

Example: How Information May Be Stored across Data Sources
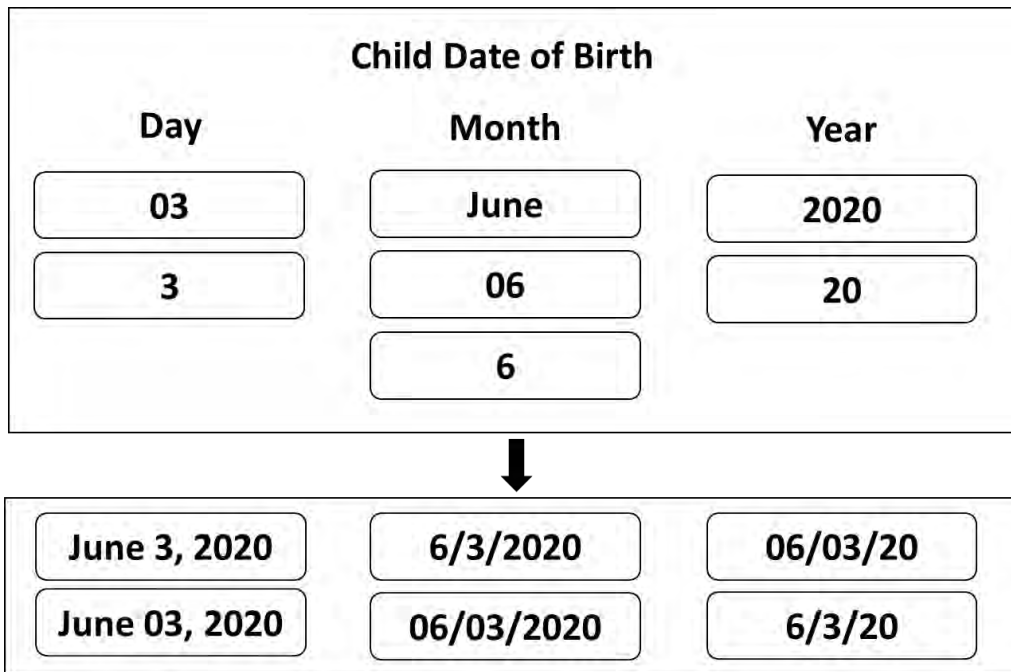
Data sharing is important for multiple reasons. It allows program staff and administrators to benefit from a more comprehensive picture of the children and families being served by home visiting and other early childhood programs beyond home visiting services. It also allows awardees and their state partners to better understand the constellation of services that families access during early childhood. Data sharing can also reduce the burden of data collection for both home visitors and families, as some data might only need to be collected once before being shared across agencies. Additionally, data sharing is important in helping administrators measure short- and long-term child and family outcomes after participating in home visiting.

This toolkit provides guidance and recommendations for how MIECHV awardees can work with others in their state to develop data exchange standards as the initial step toward data interoperability.

USING THE TOOLKIT

This toolkit is divided into five sections. Each section corresponds to a key activity designed to facilitate the development of data exchange standards within a state. The toolkit is adaptable to a variety of implementation stages and preferences for approaching the implementation of data exchange standards. *This resource is focused on supporting awardees on implementing, rather than developing, data exchange standards.* Each of the five activities includes:

- ▲ A brief description of the activity's importance
- ▲ A description of what each implementation stage may look like
- ▲ A standalone feasibility exercise to determine how to move to the next implementation stage

Awardees may choose to work through all activities at once or use each section individually. At the end of each section, there is a feasibility exercise worksheet designed to help awardees determine the implementation stage for an activity, identify which structures to support implementation are currently in place within their state, and describe any challenges or barriers that can be discussed with a technical assistance provider. The feasibility exercise will help each awardee determine their support needs and potential next steps. At the end of the toolkit, a template is provided for compiling information across each activity.

Below is a brief description of the five activities for implementing data exchange standards. We recommend that states begin the process by building organizational capacity and forming a strong leadership team. Activities may occur simultaneously or in any order, depending on a state's current stage in the process of creating data exchange standards. Prior to beginning this process, however, awardees should identify data-sharing partners and the rationale for sharing data between programs so that they can more effectively implement each of the following activities:

- ▲ **Organizational Capacity: Identifying Goals and Leadership**. Determining the goals for sharing data, establishing a clear leadership structure, and ensuring capacity for staff to lead this work are important steps in implementing data exchange standards. These steps can be taken by one leader, however, working with a designated implementation team is often a critical element for advancing data exchange efforts. These individuals are responsible for overseeing, monitoring, and making decisions about implementing data exchange standards.
- ▲ **Stakeholder Engagement: Involving a Diversity of Perspectives**. The implementation team may benefit from establishing a process for engaging a diversity of voices from relevant stakeholders (e.g., home visiting model developers, home visitors, families, and other program administrators who oversee early childhood services). Regular communication and feedback-gathering between the implementation team and stakeholders allows for transparency throughout the implementation process.
- ▲ **Governance: Making Decisions about Data Exchange**. One key piece of stakeholder engagement is the development of a data governance structure. The purpose of establishing this structure is to define who will be making decisions about using data and how the data exchange standards will be applied to decisions.
- ▲ **Data Alignment: Establishing Common Data Priorities**. It is critical to ensure that team members understand data exchange standards across a variety of data sources. Leadership will need to establish a set of common priorities with partners so that the standards can be applied to the appropriate data elements (e.g., the standards will be used to easily identify the same individual or family across data sources). Then, leaders will need to examine data across programs and services, determine which data elements are needed to address their goals and priorities, and work with data system vendors to determine the best approach for aligning data and

coordinating data system technology across organizations.

▲ **Contextual Factors: Leveraging the Context**. Although not directly related to establishing data exchange standards, contextual factors that may affect the feasibility of implementation should be considered. The implementation team can evaluate the cost, available resources, and existing mechanisms that can be leveraged to allow data exchange. The financial, political, legal, and social context within a state may also dictate how awardees tailor data exchange standards to meet their needs.
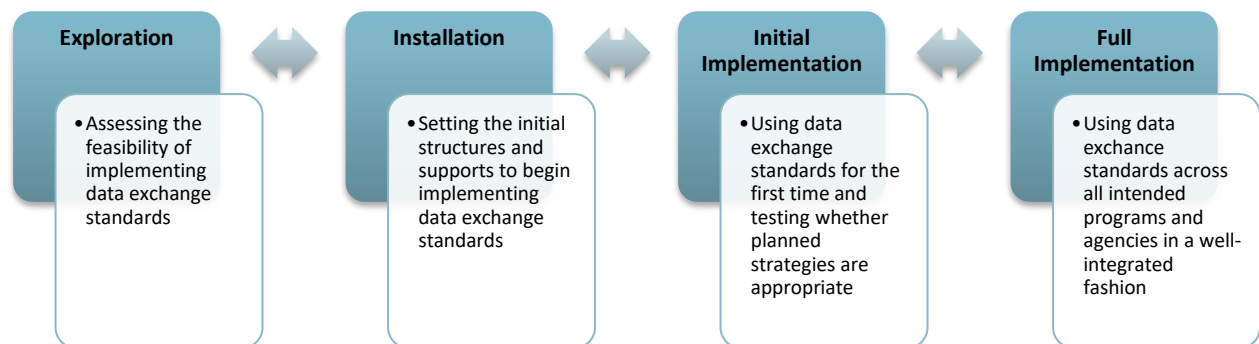
IMPLEMENTATION SCIENCE

Some awardees are unsure where to start, whereas others may be further along in the process across one or more of the activities. Because awardees may be approaching this work from various vantage points, an **implementation science framework** is used to guide MIECHV awardees through this process.

An implementation science framework emphasizes that implementing any new initiative can happen in a series of stages. These stages are not necessarily linear—rather the stages are used as a way of guiding an organization from one step to the next and may require going back to previous stages to ensure successful implementation as more information is learned. Additionally, reaching full implementation typically takes anywhere from 2-4 years, which is important for awardees to consider as they move toward implementing data exchange standards. The implementation process is often divided into four stages: Exploration, Installation, Initial Implementation, and Full Implementation. Figure 2 below provides a graphic depiction of each of the four stages of an implementation science framework, including brief descriptions of what the implementation of data exchange standards looks like at each stage and how they relate to one another.

FIGURE 2.

Implementation Stages of Data Exchange Standards

Exploration	Installation	Initial Implementation	Full Implementation
• Assessing the feasibility of implementing data exchange standards	• Setting the initial structures and supports to begin implementing data exchange standards	• Using data exchange standards for the first time and testing whether planned strategies are appropriate	• Using data exchange standards across all intended programs and agencies in a well-integrated fashion

Note: This image was adapted from guidance provided by the National Implementation Research Network (NIRN). More information on implementation stages can be found at National Implementation Research Network.

Data Exchange Standards Implementation Activities

ORGANIZATIONAL CAPACITY: IDENTIFYING GOALS AND LEADERSHIP

Awardee Highlight

In North Carolina, the MIECHV awardee has partnered with the state Early Childhood Integrated Data System (ECIDS) lead to make home visiting data interoperable with other early childhood data. The implementation team consists of the data system lead and her staff, who have experience with creating data exchange standards and integrating data across agencies, and the MIECHV awardee and her team, who bring expertise about home visiting data.

Prior to beginning this process of creating data exchange standards, the awardee will need to determine their goals for this process. This includes listing out the main reasons for wanting to make data interoperable and identifying the programs or services that would need to be part of this process to make that happen. After the main goals are determined, as is when implementing or developing a new initiative within a state, it is important to identify who will be leading the effort. Without at least one dedicated individual who is championing or advocating for this work at the state level or, better yet, a team of individuals, it can be difficult for implementation to occur. Awardees are encouraged to first establish a strong leadership structure prior to moving forward with other implementation activities. This includes having one or two main point people to lead the effort and work with others on the implementation team.

Implementation Team Characteristics

▲ **Identified point person(s) to lead the effort:** To lead the implementation team there should be one or two people with dedicated time (and funds) to ensure continued progress is made. This person should preferably have some experience working on early childhood data integration efforts or have overseen home visiting data efforts. This person should be responsible for helping ensure that decisions are being made in a timely manner, that the implementation team is meeting on a regular basis to keep the process moving, and that there is ongoing communication with other stakeholders to provide information, answer questions, and solicit feedback.

▲ **Variety of expertise**: In order to develop data exchange standards, it is important to include those who can provide the necessary expertise about the program and the data system. This includes leaders who have the authority to make changes to the data, those with oversight and information about the data and data collection processes and requirements for each program, as well as those who interact daily with the data and understand the specific data variables, coding structures, and databases in which the data are stored. Oftentimes, the needed expertise comes from several different people, which is another rationale for having a leadership team rather than a single individual overseeing this effort.

▲ **Cross-program or agency representation**: The data exchange standards may be applied to programs that exist across agencies; therefore, it is recommended to include leaders from each relevant organization that may be affected by the standards.

▲ **Level of representation**: It is important to think through who to include on the implementation team to effectively represent this work. Since data exchange standards are usually applied statewide across home visiting and other early childhood programs, state-level leaders are often the only level of representation that is part of an implementation team. That is because these individuals may be most familiar with how state systems work and how the data flow from the

local level up to the state and/or federal level. However, there can be a benefit to including leaders at more local levels (e.g., district, county, or city level), especially if they are highly invested or experienced. In addition, it could be beneficial to consider adding in a parent voice to the group, which can bring an added perspective when thinking about how these data will be used, shared, and interpreted and how to more effectively communicate this with the families whose data are being exchanged. Regardless of what levels of representation are included on the implementation team, it is important to engage leaders at all levels in a stakeholder engagement plan (see Stakeholder Engagement for more information).

Implementation Team Roles and Responsibilities

▲ Starting the implementation process by revisiting the original goals set and revising as necessary once the implementation team is in place. It is important that all implementation team members, as well as other stakeholders as needed (see Stakeholder Engagement), come to consensus on the goals and priorities for creating data exchange standards.

▲ Setting a plan and timeline for how the data exchange standards will be developed, defined, tested, and finalized. It is important to note that this could take multiple years.

▲ Creating a process for making decisions about the implementation of the data exchange standards, including how regularly the team will meet and how decisions will be made across individuals and the organizations or agencies they represent.

▲ Making decisions about which stakeholders will be engaged throughout the implementation process and how they will be engaged.

▲ Monitoring and managing the implementation process, including how to receive feedback from key stakeholders throughout the process.

▲ Ensuring the security and privacy of the data.

▲ Successfully leveraging existing or potential supports, resources, or political support for implementation.

Implementation Stages

Using the implementation science framework, below are examples of what it may look like for an awardee to be at each implementation stage of building organizational capacity. These are not meant to be prescriptive of what it *should* look like to be at each stage, but instead provide some guidance and examples to help awardees determine their current stage of implementation.

Exploration	Installation	Initial Implementation	Full Implementation
There may be one or a few key leaders interested in implementing the data exchange standards, and there may be some initial goals discussed for sharing data. At this stage, these individuals may want to explore whether they or others can be a part of an implementation leadership team and revisit and revise their original goals as needed.	There is a clear leader or leaders that oversee a team to develop data exchange standards in the state. These leaders may hold initial planning meetings to determine short- and long-term activities and goals.	The implementation leaders are actively working to implement data exchange standards in the state. They coordinate meetings across key stakeholders, communicate about the effort, and are making plans for implementation. They may take time to reassess periodically whether they are functioning successfully.	The implementation leaders have clearly defined roles and responsibilities, implementation steps, and protocols for moving the work forward. They respond to needs or challenges as they arise and provide vision for the work of implementing data exchange standards.

Organizational Capacity: Identifying Goals and Leadership Worksheet

Getting to the Next Stage of Implementation: Feasibility Exercise

Awardees are encouraged to complete this worksheet with other state leaders. This exercise can also be used as a framework for discussion with a technical assistance provider or other support staff.

In what implementation stage is your state? ❑ Exploration ❑ Installation ❑ Initial Implementation ❑ Full Implementation	What is the rationale for selecting this stage?
What can be done to reach the next stage of organizational capacity? In other words, what are some next steps or goals for your specific state context?	How can these goals be accomplished over time? *Goals for the next 6 months:* *Goals for the next 1-2 years:* *Goals for the next 3-5 years:*
What structures, supports, or resources **are already in place** to support building organizational capacity?	What structures, supports, or resources **need to be in place** to support building organizational capacity?
What are potential roadblocks in moving to the next implementation stage? 1. 2. 3.	What are potential solutions to these roadblocks? 1. 2. 3.

STAKEHOLDER ENGAGEMENT: INVOLVING A DIVERSITY OF PERSPECTIVES

Developing data exchange standards to promote data interoperability affects data across programs, organizations, and individuals. Therefore, it is important to consider how relevant stakeholders can be involved in the process of defining and implementing data exchange standards. Having stakeholders involved throughout the process encourages buy-in and support and can help with ongoing communication and rollout of these data exchange standards. In addition, stakeholders should be considered a critical piece to helping shape and inform how decisions are made when developing data exchange standards, and their feedback should be solicited along the way. Stakeholder engagement requires 1) identifying the relevant stakeholders and 2) establishing how stakeholders will be engaged.

Awardee Highlight

In Oklahoma, state partners have worked hard to engage home visiting stakeholders throughout the process of making data interoperable. For instance, the Oklahoma Partnership for School Readiness, which is helping to make home visiting data interoperable with other early childhood data, convened a large group of stakeholders, including home visitors, researchers, and state agency personnel, to learn more about their data needs.

Identifying Stakeholders

Stakeholders will have an interest in what data are affected by the standards, how the data will be used and interpreted, and whether the implementation of standards has implications for their work. A diverse set of voices will ensure that data exchange standards incorporate the perspectives of all relevant stakeholders and represent the children and families being served. For instance, stakeholders can include families, local implementing agencies (LIAs), state agency leadership, program managers, data vendors (i.e., those who own and operate the data system), home visiting model developers, and legislators. These stakeholders can also represent a variety of levels from the local to the state level. It is critical to involve and engage a range of stakeholders throughout the process, not only at the beginning of the implementation process.

The following table offers examples of the types of stakeholders that may be important to engage. It lists important perspectives to have at the table and lists examples at different levels. Please note that this is not an exhaustive list, and there may be other perspectives or individuals that should be engaged based on the specific state context.

Stakeholder Perspective	Program Level	District/County/Region Level	State Level
Familiarity with home visiting services or other services offered to children and families	*Home visitors or home visiting directors; social workers; social service providers or directors*	*Community health directors or commissioners; district health and human service directors*	*Agency leaders at state departments of health, human services, social services, education, or child welfare; home visiting models*
Familiarity with home visiting or other social services data	*Local program data managers and program director*	*Regional program directors and data managers*	*Statewide program directors and data managers, home visiting models*
Familiarity with data security and privacy	*Program data managers; compliance officers*	*Regional data managers or compliance officers, district legal counsel*	*Statewide data managers or compliance officers; state legal counsel*

Stakeholder Perspective	Program Level	District/County/Region Level	State Level
Familiarity with data systems that store data on children and families	*Program directors; data managers; compliance monitors*	*Regional data managers and their vendors*	*Vendors that store data for programs across the state; data mangers for state systems like an early childhood integrated data system (ECIDS), home visiting models or their data vendors*
Family perspective	*Families that receive or have received home visiting services or other social services*	*Regional family consortiums or parent groups*	*Statewide family consortiums or parent groups*
Community or external partners	*Community programs that partner with programs*	*Community non-profits that serve a wide geographic area*	*Children and family advocacy groups*

Note: The content in the table was adapted from a stakeholder table developed for the North Carolina K-3 Formative Assessment Consortium. For more information, see K-3 Formative Assessment Consortium.

Engaging and Communicating with Stakeholders

Although it is important to engage and communicate with a range of stakeholders during this process, not all engagement has to be at the same level for each group. Using guidance from *Engaging Stakeholders in Home Visiting Data Integration Efforts*, below is a table that helps awardees to identify which stakeholders will play various roles in the engagement process and how frequently they will be engaged.[3] This engagement includes developing a communication plan which provides information about what should be communicated to or received from each stakeholder group, how to give or receive this information, and when this communication should occur. This can be adapted for each stakeholder group and can vary from sending an email or newsletter to soliciting input via a survey or meeting. Included in the grid below is an example of how this could be filled in for the home visitor stakeholder group, both for the information that can be communicated and information that can be received.

Stakeholder	What information should I communicate with or receive from this stakeholder?	How will I give or receive this information?	When (and how often) will I get this information?
Home visitors	*Communicate* - *The goals of the data exchange standards* - *The timeline for the work* - *How their roles may be affected* *Receive* - *How the standards may help their work or add additional work* - *How to best protect data*	*Email newsletters, social media blasts, regularly scheduled meetings* *Targeted surveys and focus groups*	*Every quarter* *Twice a year*

---

[3] Adapted from *Engaging Stakeholders in Home Visiting Data Integration Efforts*.

Implementation Stages

Using the implementation science framework, below are examples of what it may look like for an awardee to be at each implementation stage of stakeholder engagement. These are not meant to be prescriptive of what it *should* look like to be at each stage, but instead provide some guidance and examples to help awardees determine their current stage of implementation.

Exploration	Installation	Initial Implementation	Full Implementation
The implementation team identifies the different types of stakeholders that should be a part of this process, including how and when they should be involved.	Initial outreach is done with all stakeholders, explaining the proposed work and letting stakeholders know the implementation team will be updating them and asking for feedback throughout the process. The modes and frequencies by which stakeholders will be consulted are identified.	Regular meetings with different groups of stakeholders are set up to provide information and solicit feedback about how data exchange standards will be established. Decisions that need to be made based on input from stakeholders are identified prior to moving forward with establishing data exchange standards.	The implementation team has met with all key stakeholder groups, and there is a clear process for ongoing engagement. There is an understanding of what each stakeholder group, including the implementation team, brings to the project.

Additional Resources

There are many resources that have been developed around engaging stakeholders. The following recommended resources may further help the implementation team to engage stakeholders.

- ▲ Early Childhood Integrated Data Systems Toolkit (see Stakeholder Engagement section):
- ▲ Engaging Stakeholders in Home Visiting Data Integration Efforts

Stakeholder Engagement: Involving a Diversity of Perspectives Worksheet

Getting to the Next Stage of Implementation: Feasibility Exercise

Awardees are encouraged to complete this worksheet with other state leaders. This exercise can also be used as a framework for discussion with a technical assistance provider or other support staff.

In what implementation stage is your state? ❑ Exploration ❑ Installation ❑ Initial Implementation ❑ Full Implementation	What is the rationale for selecting this stage?
What can be done to reach the next stage of stakeholder engagement? In other words, what are some next steps or goals for your specific state context?	How can these goals be accomplished over time? *Goals for the next 6 months:* *Goals for the next 1-2 years:* *Goals for the next 3-5 years:*
What structures, supports, or resources **are already in place** to engage stakeholders?	What structures, supports, or resources **need to be in place** to engage stakeholders?
What are potential roadblocks in moving to the next implementation stage? 1. 2. 3.	What are potential solutions to these roadblocks? 1. 2. 3.

GOVERNANCE: MAKING DECISIONS ABOUT DATA EXCHANGE

A data governance structure is a group of individuals who make decisions about how to use and share data, including how data exchange standards will be applied. When developing data exchange standards, it is important to consult or work closely with an existing state data governance entity or entities. As an initial step, awardees should determine if their state already has a state-level data governance entity. States that are currently working on data integration efforts may already have a governance structure in place, but awardees may not be part of this effort. This may be because the data governance entity is comprised only of agencies or stakeholders that are contributing data to an integrated data system, and awardees are not part of this process yet. For some states, this was a result of data integration efforts beginning with specific early care and education programs such as pre-k or subsidized child care due to grant or funding requirements. Alternatively, it is possible that there is agency level leadership, such as a Department of Health Commissioner, who is part of a state-level data governance entity and represents home visiting, but the awardee is not aware of this.

If a state has an existing data governance entity, it is recommended that awardees reach out to that entity or to their agency leadership to determine if it is feasible to join and if the awardees' goals for data exchange standards matches that of the data governance entities. If a state-level data governance entity does not exist or it is not feasible to join an existing data governance group given differences in goals and priorities or restrictions with the data, awardees should consider forming an entity to support this work in developing data exchange standards. For instance, awardees may be part of a statewide home visiting consortium or could create one that, in part, could oversee the development of data exchange standards and data interoperability efforts. The decision to join an existing data governance entity or to form a new entity should be determined by the goals and priorities set by the implementation team, the availability of data governance entities in the state, and the feasibility and accessibility of the data itself.

Roles and Responsibilities of a Data Governance Entity

- ▲ Establishing policies for using data, including processes and procedures for keeping data secure.
- ▲ Ensuring data regulations and requirements are being met.
- ▲ Overseeing efforts related to data such as creating or making recommendations regarding data exchange standards.
- ▲ Ensuring data exchange standards are aligned to the overall purpose and goals of promoting data interoperability.

Awardee Highlight

In Minnesota, their Early Childhood Longitudinal Data System (ECLDS) had an existing data governance structure that sets policies and makes decisions about data interoperability. As part of integrating home visiting data into the ECLDS from Ramsey County, the ECLDS governance body was expanded to include home visiting stakeholders to be part of this decision-making entity.

Data Governance Membership and Structure

Members of a data governance structure are often those who are owners or contributors of data. Often there are several levels within a data governance entity or body, which can be thought of as a pyramid. At the top level, there is state-and agency-level leadership, who are the policy and decisionmakers. The next level down typically includes the program managers and data stewards, who oversee the program on a daily basis. Lastly, the base of the structure is typically made up of those who can implement those data exchange standards such as information technology staff or data vendors. In general, this data governance structure can be thought of as a method to escalate decisions

to the top levels of data governance, while those at the base of the structure are the implementers of the decisions.

Although this is a typical data governance structure, states should determine what structure works best for them. In addition, this structure can be informed by external stakeholders whose voices are essential to the process (e.g., families, home visiting model developers, researchers). Sometimes these stakeholders can even be part of the data governance entity. When developing a data governance entity, it is important to take the state context (see Contextual Factors section below) into account to determine who would be best to participate in this group.

Implementation Stages

Using the implementation science framework, below are examples of what it may look like for an awardee to be at each implementation stage of data governance. These are not meant to be prescriptive of what it *should* look like to be at each stage, but instead provide some guidance and examples to help awardees determine their current stage of implementation.

Exploration	Installation	Initial Implementation	Full Implementation
The implementation team identifies whether there are existing data governance structures and whether home visiting data are included depending on the goals for sharing data as determined by the team. The implementation team begins to start conversations about whether existing structures can incorporate home visiting or whether new structures need to be developed.	Key home visiting stakeholders are included in initial conversations with either existing governance structures or with a group of individuals that will serve as the governance board. Initial principles, processes and decisions for what the structure will be and how data exchange standards will be defined and monitored.	The governance body begins to meet and starts to make decisions about how to define data exchange standards. During this time, the governance structure may evaluate whether the current processes for making decisions are working and whether the appropriate voices are a part of the governance body.	The governance body has clear and functioning processes, ideally in written form. They meet regularly and are able to make decisions regarding the use of home visiting data. They are knowledgeable about the data exchange standards and how they may apply to the use and sharing of data.

Additional Resources

There are many resources available about establishing a data governance body. The following resources provide more information related to governing early childhood administrative data.

- ▲ Including Home Visiting Programs in Early Childhood Data Governance Bodies
- ▲ Early Childhood Integrated Data Systems Toolkit (see Data Governance section)
- ▲ Early Childhood Data Governance in Action! An Introduction
- ▲ Early Childhood Data Governance in Action! Initial Steps to Establish Data Governance
- ▲ How Policymakers can Support Early Childhood Data Governance
- ▲ Data Direction 1: Creating and Managing a Data Governance Entity

Governance: Making Decisions About Data Exchange Worksheet

Getting to the Next Stage of Implementation: Feasibility Exercise

Awardees are encouraged to complete this worksheet with other state leaders. This exercise can also be used as a framework for discussion with a technical assistance provider or other support staff.

In what implementation stage is your state? ❑ Exploration ❑ Installation ❑ Initial Implementation ❑ Full Implementation	What is the rationale for selecting this stage?
What can be done to reach the next stage of establishing a data governance body? In other words, what are some next steps or goals for your specific state context?	How can these goals be accomplished over time? *Goals for the next 6 months:* *Goals for the next 1-2 years:* *Goals for the next 3-5 years:*
What structures, supports, or resources **are already in place** for establishing a data governance body?	What structures, supports, or resources **need to be in place** for establishing a data governance body?
What are potential roadblocks in moving to the next implementation stage? 1. 2. 3.	What are potential solutions to these roadblocks? 1. 2. 3.

DATA ALIGNMENT: ESTABLISHING COMMON DATA PRIORITIES

One of the initial steps to creating data exchange standards is to align the data of interest across home visiting programs and with other programs serving young children and their families. First, awardees and other state partners will need to come to a consensus on common priorities around data needs and data interoperability. This will help awardees and their state partners identify which data elements need to be standardized to allow for this exchange of information. For instance, states that are interested in learning more about the number and types of services that young children receive would want to align data elements related to child identification, child participation, child enrollment, and child eligibility. However, it is important to note that not all data elements that a program or model collect need to be aligned. Instead, the implementation team should determine which data are critical to standardize and how these data align with the team's goals and objectives. Awardees will need assistance in examining data across programs and services, determining which data elements are needed to address their goals and priorities, and working with data system vendors to determine the best approach for aligning and sharing data. One way to begin this step is to start with aligning a small subset of data elements of interest to test out the process and to make any adjustments or refinements as needed.

Awardee Highlight
In Virginia, Early Impact Virginia (EIV), which is the organizing body for their state home visiting, created a crosswalk to align home visiting data across all of their models. They first identified the data each model collects and then completed a data alignment activity to determine what data were similar across models and which data were best to standardize in order to make their home visiting data interoperable.

How Data Can Be Aligned

The goal of implementing data exchange standards across early childhood programs is to ensure that data are defined and stored similarly so that they can later be matched or easily linked together to allow for data interoperability. There are multiple ways to do this; below is an example of how data may be collected and stored by different data sources and how the data exchange standards can be applied to ensure that data match across sources.

For example, a client's name may be collected and stored in different ways, depending on the program and data system requirements. For instance, one program may collect the client's name as one data element (e.g., first name, last name), while another program may collect these same data as two separate data elements (e.g., [1] first name, [2] last name). Then, a third program may collect the data as three different data elements and also collect the client's middle name (e.g., [1] first name, [2] middle name, [3] last name). The table below describes an example of how the same type of information from different programs may be collected and stored differently in each data source.

Data Source	Data Element Descriptions	Data Element Variable Name	Example Data
Home Visiting Program 1	Client First Name Client Last Name	firstname lastname	Bob Smith
Home Visiting Program 2	Client Full Name	client_name	Bob Smith
Social Services Program 1	Client First Name Client Middle Name Client Last Name	client_first client_middle client_last	Bob Edward Smith

Awardees should consider conducting a data alignment exercise across data elements of interest to determine how best to align data across programs.[4] By aligning data, awardees can:

▲ Identify whether many or most data sources are already using a commonly accepted format;
▲ Determine whether data are stored in such a way that a data exchange standard can be applied or if changes need to be made to how data are stored or collected; and
▲ Understand the feasibility of implementing data exchange standards across different variables.

For instance, in the example in the table above, each of the three programs store data about the client's name in a different format. To align the data for these three programs to an agreed upon standard (e.g., two variables called first_name and last_name), changes need to be made to match the standard. As a reminder, often these changes can be made in how the data are stored, rather than collected. Although some data exchange standards may result in required changes to data collection, many may not. The following table describes the types of changes that would need to be made for each data source, should they move forward with the two-variable approach using first_name and last_name.

Data Source	Data Element Descriptions	Data Element Variable Name	Changes to be Made
Home Visiting Program 1	Client First Name Client Last Name	firstname lastname	- Rename variables from firstname to first_name - Rename variables from lastname to last_name
Home Visiting Program 2	Client Full Name	client_name	- Separate data in client_name into two variables for first and last name - Rename variables to first_name and last_name
Social Services Program 1	Client First Name Client Middle Name Client Last Name	client_first client_middle client_last	- Rename variables from client_first to first_name - Rename variables from client_last to last_name - Will not need to transfer client_middle data element

Implementation Stages

Below are examples of what it may look like for an awardee to be at each implementation stage of aligning data using the implementation science framework. These are not meant to be prescriptive of what it *should* look like to be at each stage, but instead provide some guidance and examples to help awardees determine their current stage of implementation.

Exploration	Installation	Initial Implementation	Full Implementation
The implementation team is focused on inventorying the data that should be aligned and determining which data may be adapted to the data exchange standards.	The implementation team begins the process of determining what data can be aligned with the data exchange standards, how the data must be adapted to meet the data exchange standards, and what the timeline or cost may be to conduct this activity.	The implementation team works with data owners or data system vendors to align data elements across data sources using the data exchange standards. Testing and quality-checking are critical to identify adjustments to strategies or implementation.	The implementation team has successfully aligned data elements across data sources and has a clear process for how to align new data sources.

---

[4] For more information about how to inventory data at the state level, see *Identifying Home Visiting Data to Integrate with Other Early Childhood Data*.

Additional Resources

The following resources can assist states when determining which data elements may be important to include when developing data exchange standards. These resources provide both suggestions for common data elements as well as guidelines for how to approach developing data exchange standards to align data.

- ▲ The Pew Home Visiting Data for Performance Initiative: Phase II Final Report on Feasibility Study
- ▲ National Information Exchange Model
- ▲ Office of the National Coordinator for Health Information Technology (ONC) Interoperability Standards Advisory (ISA)

Data Alignment: Establishing Common Data Priorities Worksheet

Getting to the Next Stage of Implementation: Feasibility Exercise

Awardees are encouraged to complete this worksheet with other state leaders. This exercise can also be used as a framework for discussion with a technical assistance provider or other support staff.

In what implementation stage is your state? ❑ Exploration ❑ Installation ❑ Initial Implementation ❑ Full Implementation	What is the rationale for selecting this stage?
What can be done to reach the next stage of aligning data? In other words, what are some next steps or goals for your specific state context?	How can these goals be accomplished over time? *Goals for the next 6 months:* *Goals for the next 1-2 years:* *Goals for the next 3-5 years:*
What structures, supports, or resources **are already in place** to support data alignment?	What structures, supports, or resources **need to be in place** to support data alignment?
What are potential roadblocks in moving to the next implementation stage? 1. 2. 3.	What are potential solutions to these roadblocks? 1. 2. 3.

CONTEXTUAL FACTORS: LEVERAGING THE CONTEXT

Awardees will want to understand the many contextual factors that may facilitate or hinder data exchange. Understanding the cost, resources, and mechanisms that may need to be leveraged to allow data exchange standards to be established to promote data interoperability will be an important step for awardees. The financial, political, legal, and social context of a state may also dictate how awardees tailor data exchange standards to meet their needs.

When working to develop data exchange standards, it is important to first think through the various types of factors that may hinder or facilitate the establishment of data exchange standards. For example, what is the state political climate around standardizing data? How does this work fit into the broader early care and education data integration work in the state? Are there enough resources (both human and financial) that can support defining data exchange standards and making needed changes to the data or data systems to allow for standardization of data? What are the budget and resource considerations?

Examples of Contextual Factors to Consider

There are a variety of contextual factors that may affect the success and progress of developing and adopting data exchange standards within the state. State implementation leaders will need to carefully consider what could facilitate or hinder the process at every step of the implementation process. The following are examples of potential contextual factors to consider:

Awardee Highlight

In Utah, they are developing an ECIDS within their Department of Health, which includes home visiting data. Utah has worked closely since the beginning of the data integration process with state agency leadership and legal counsel to determine how to make their home visiting data interoperable with other early childhood data while adhering to the state and federal regulations. By taking into account these legal contextual factors from the beginning of the data integration process, Utah was successful in making their home visiting data interoperable with other early childhood data.

- ▲ **Financial**
  - o Funding to cover positions that may be dedicated to implementing data exchange standards.
  - o Cost of using a specific data system or vendor to support the use of data exchange standards when necessary.
- ▲ **Political**
  - o Support from legislators or policymakers.
  - o Legislative mandates related to state-level data and/or data interoperability.
  - o Timing of legislative processes that may affect state-level data.
- ▲ **Legal**
  - o Federal, state, and local regulations, laws, or mandates that affect the use or sharing of data.
  - o Documents, forms, or agreements that are used to protect the use or sharing of data.
  - o Access to legislative counsel at the local or state level.
- ▲ **Social**
  - o Public support for using and sharing data on young children and families.
  - o Past engagement or involvement of the general public to use and share data on young children and families.

Implementation Stages

Using the implementation science framework, below are examples of what it may look like for an awardee to be at each implementation stage of leveraging contextual factors. These are not meant to be prescriptive of what it *should* look like to be at each stage, but instead provide some guidance and examples to help awardees determine their current stage of implementation.

Exploration	Installation	Initial Implementation	Full Implementation
The implementation team begins to think about relevant contextual factors that may affect the data exchange standard work. Any roadblocks should be identified.	The implementation team develops strategies for leveraging contextual factors to support the work or for addressing contextual factors that may be barriers.	The implementation team starts to use supports and resources and implements strategies to either leverage or address contextual factors. The team continues to identify if there are new or unanticipated or barriers or if new opportunities have emerged.	The implementation team has a clear idea of which contextual factors facilitate the process and which hinder implementation. For any hindrances, the implementation team has a clear strategy for addressing and solving the challenges. Factors that facilitate the process are leveraged as much as possible.

Contextual Factors: Leveraging the Context Worksheet

Getting to the Next Stage of Implementation: Feasibility Exercise

Awardees are encouraged to complete this worksheet with other state leaders. This exercise can also be used as a framework for discussion with a technical assistance provider or other support staff.

In what implementation stage is your state? ❑ Exploration ❑ Installation ❑ Initial Implementation ❑ Full Implementation	What is the rationale for selecting this stage?
What can be done to leverage contextual factors in the state? In other words, what are some next steps or goals for your specific state context?	How can these goals be accomplished over time? *Goals for the next 6 months:* *Goals for the next 1-2 years:* *Goals for the next 3-5 years:*
What structures, supports, or resources **are already in place** to leverage contextual factors in the state?	What structures, supports, or resources **need to be in place** to leverage contextual factors in the state?
What are potential roadblocks in moving to the next implementation stage? 1. 2. 3.	What are potential solutions to these roadblocks? 1. 2. 3.

Implementation Summary Table

The summary table below is designed to help awardees understand which implementation stage they are in across all activities related to implementing data exchange standards. It is recommended awardees complete the summary table by using the below steps:

1. Review each of the key activity summaries related to developing data exchange standards and the associated stages of implementation for each activity. Examples of what it may look like for an awardee to be at each stage of implementation are provided as guidance for each of the key activities, but these should not be taken as prescriptive steps. Awardees may have a different implementation process.
2. Record examples and information about what may be happening in the state to identify which implementation stage the awardee or state feels best matches their current status.
3. Next, based on the information recorded in the sections above, indicate which implementation stage is being met for each activity using the table below. Although the awardee may be conducting a few tasks in later implementation stages within an activity, the awardee may choose to still identify with an earlier implementation stage for that activity because there are still some key next steps that need to be conducted within an earlier stage before being able to move to the next level.
4. After completing the table below, or while going through the activities and feasibility exercises for each of the activities, it is recommended that the awardee reach out to a technical assistance provider to discuss the results and troubleshoot any identified barriers to getting to the next stage of implementation.

Implementation Activity	Exploration	Installation	Initial Implementation	Full Implementation
Organizational capacity				
Stakeholder engagement				
Governance				
Data alignment				
Contextual factors				

Using the feasibility exercises, identify at least three next steps to move to the next stage of implementation. This can be steps within just one of the activities, or steps across multiple activities.

1.

2.

3.

Conclusion

This toolkit is designed to support MIECHV awardees who are interested in developing data exchange standards to promote data interoperability in their states. When developing data exchange standards, there are several key activities that are important for awardees to conduct to facilitate the development of these standards. These activities include assessing and developing organizational capacity to complete the work, engaging stakeholders, establishing or enhancing data governance, addressing data privacy and security considerations and regulations, aligning data, and considering contextual factors in the state. This toolkit can help start the process of working through each of these key activities to ensure awardees and their state partners are successful in developing data exchange standards to promote data interoperability.