

# Introduction to the Tip Sheet Series



The long-term goal of the State Systemic Improvement Plan (SSIP) and other federal and state early intervention and early childhood education initiatives is improved child and family outcomes. States play a critical role in supporting practitioners in the use of evidence-based practices to improve child and family outcomes. When practitioners implement evidence-based practices as intended (i.e., with fidelity), positive outcomes for children and/or families can be expected. Positive outcomes should not be expected when evidence-based practices are not implemented with fidelity. Therefore, it is essential for states and local programs to collect, analyze, and use data on the extent to which practitioners are implementing evidence-based practices as intended. Having high quality data on implementation, decision-makers can identify implementation successes and challenges and target valuable resources appropriately.

This tip sheet series provides concise guidance for collecting and analyzing high-quality data on the implementation of evidence-based practices. The content was designed for staff of state and local early intervention (IDEA Part C) and preschool programs for children with disabilities (IDEA Part B 619), but it is relevant for anyone evaluating the implementation of evidence-based practices. The tip sheets address topics that state personnel identified in webinars and workshops the Center for IDEA Early Childhood Data Systems (DaSy) and the Early Childhood Technical Assistance Center (ECTA) offered in partnership with the National Center for Systemic Improvement and the IDEA Data Center. The tip

sheets are not intended to be comprehensive; readers are encouraged to consult the resources listed in each tip sheet and to obtain support from federally funded technical assistance centers such as DaSy and ECTA, university partners, and others with evaluation expertise.

Each tip sheet is described and linked below.

- [Key Terms and Definitions](#) defines key terms used in the tip sheets.
- [Tip Sheet 1: What to Measure](#) helps state and local programs develop a clear understanding of what they should measure when evaluating practice implementation. It presents key components of a practice implementation evaluation.
- [Tip Sheet 2: Characteristics of a High-Quality Measurement Tool](#) presents considerations to ensure the measurement tool and data collection approach provide relevant, useful data. Considerations include alignment with the evidence-based practice, reliability and validity, practicality, timing and frequency of administration, and training of raters.
- [Tip Sheet 3: Establishing a Fidelity Threshold](#) outlines considerations and example methods for determining a fidelity threshold.
- [Tip Sheet 4: Summarizing Data for Decision-making](#) presents strategies for aggregating data on practice implementation and includes instructions and calculations for each strategy.

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# Key Terms and Definitions



The following terms are used in the tip sheet series:

- **Practitioner:** Any person who provides services directly to young children and/or their families. Practitioners include but are not limited to early intervention specialists, early childhood special educators, child care providers, teachers, service coordinators, speech-language pathologists, occupational therapists, physical therapists, and psychologists.
- **Program:** A school, local, or regional entity consisting of practitioners responsible for providing early intervention or early childhood special education services.
- **Practices:** The teachable and doable behaviors that practitioners exhibit with children and families that can be used, replicated, and measured for fidelity.
- **Evidence-based practices:** Early childhood interventions or supports that have research documenting their effectiveness. Practices are considered evidence based if they are shown to be effective in multiple research studies.
- **Practice change:** Increase or decrease in the number, frequency, precision, or quality of practices a practitioner implements across at least two points in time.
- **Implementation fidelity:** The degree to which the strategies designed to support practice implementation, such as professional development, monitoring, and supervision, are delivered as intended.
- **Intervention fidelity:** The degree to which an intervention or practice is delivered as the developers intended. Fidelity implies strict and continuing faithfulness to the original innovation or practice. Fidelity can be measured repeatedly to track progress over time.
  - **Note:** This tip sheet series focuses on measuring intervention fidelity; as used in the tip sheets, the term “fidelity” refers to this specific type of fidelity.
- **Fidelity threshold:** A predetermined level or score the practitioner must meet or exceed to demonstrate the evidence-based practice has been implemented as intended.
- **Performance indicator:** An item of information that provides evidence that a certain condition exists or that certain results have or have not been achieved.<sup>1</sup> There are several types of indicators, including those that measure inputs, processes, outputs, and outcomes. Good performance indicators identify specific, observable, and measurable pieces of information and require the use of such terms as “number of,” “percentage of,” “mean of,” or similar phrases.

<sup>1</sup> Brizius, J. A., & Campbell, M. D. (1991). *Getting Results: A Guide for Government Accountability*. Council of Governors Policy Advisors.

Find this list of Key Terms and Definitions for the Tip Sheet Series online: <https://dasycenter.org/evaluating-the-implementation-of-evidence-based-practices-tip-sheet-series/tip-sheet-series-key-terms-and-definitions/>

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# What to Measure

TIP SHEET 1



## Introduction

High-quality state and local systems support the implementation of evidence-based practices through policies, guidance, funding, professional development, coaching, and other activities. The implementation of these practices (referred to here as *practice implementation*) by practitioners working directly with children and families is expected to lead to improved child and family outcomes. This progression is shown in the theory of action below.

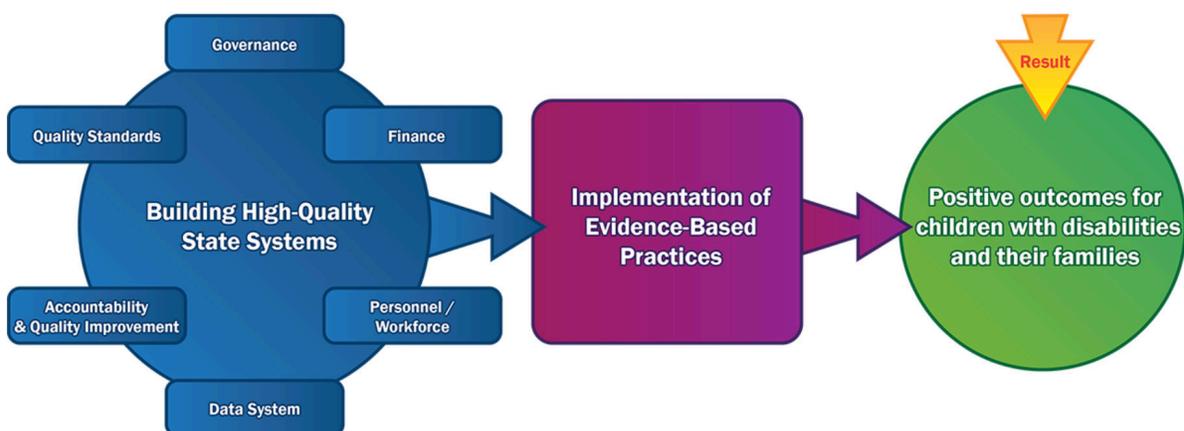
This tip sheet series is for evaluating the implementation of evidence-based practices (represented by the box in the middle of the theory of action). By evaluating practice implementation, states and local programs obtain vital information about (1) the effectiveness of the infrastructure and professional development activities intended to support practitioners in their implementation and (2) whether improved outcomes should be expected.

This tip sheet is designed to help state and local programs develop a clear understanding of what to measure when evaluating practice implementation. This understanding will create a strong foundation for planning and carrying out evaluation activities.

## Evaluating Practice Implementation—Key Components

To design and conduct a high-quality evaluation of practice implementation, consider the following:

- Focus on measuring practices.** *Practices* are the teachable, doable behaviors that practitioners exhibit when working with children and families. Through professional development, practitioners may increase their knowledge of and skills in a particular practice. Measuring participants' knowledge, skills, and confidence is important for evaluating the quality of professional development, but it is not sufficient for evaluating practice implementation. If practitioners' new capabilities do not produce consistent improvements in practices, the targeted child and family outcomes might not be achieved. High-quality evaluations measure practices, not just practitioner knowledge and skills.



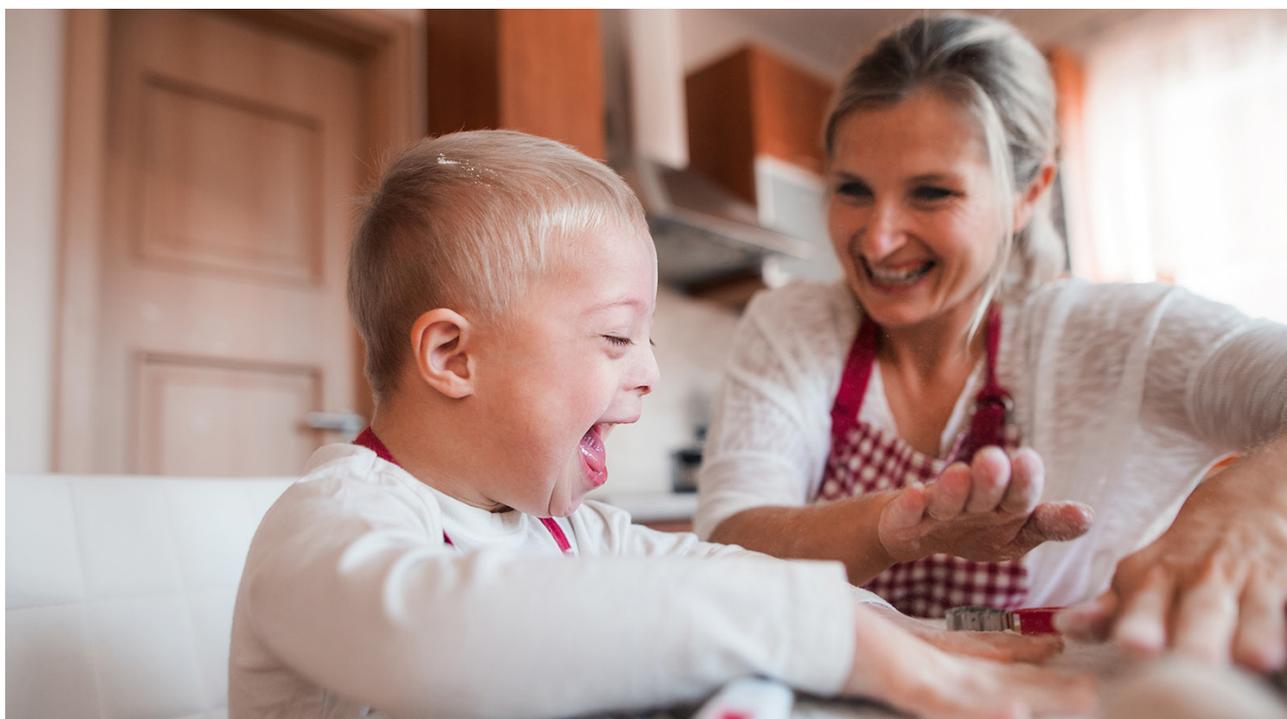
- **Clearly define and operationalize practices.**

Before selecting a tool to measure practice implementation, articulate the specific behaviors practitioners should exhibit to implement a practice with fidelity. Operationalizing a practice requires clearly and objectively describing the behaviors required to adequately implement the practice. To outline the components of a practice that are essential for acceptable implementation and to define how acceptable (and unacceptable) implementation of each component looks in practice, consider developing a Practice Profile (<https://implementation.fpg.unc.edu/sites/implementation.fpg.unc.edu/files/NIRN-Education-PracticeProfilePlanningTool.pdf> National Implementation Research Network, 2018).

- **Assess practice change.** *Practice change* refers to increases or decreases on measures of practice implementation across at least two time points. Incremental improvements in practice implementation can indicate that improvement strategies are working and highlight areas where practitioners need more support. Regular

assessment of practice implementation allows programs and organizations to make adjustments in practice in a timely manner. Typically, practitioners demonstrate positive change in their practice before they reach full fidelity.

- **Assess intervention fidelity.** *Intervention fidelity* (referred to here as “fidelity”) indicates that a practitioner is implementing the evidence-based practice (or *intervention*) in such a way that developers intended so improvements in family and/or child outcomes can be expected. Key components of fidelity are adherence to the practice, quality of delivery, and dosage (i.e., the amount of the intervention delivered to children or families). Fidelity is measured by evaluating a practitioner’s implementation of the practice according to a set of criteria and then comparing the results with a predetermined level or *fidelity threshold*.<sup>1</sup> Assessing fidelity is critical to understanding child and family outcomes, because when outcomes are achieved and fidelity is high the inference is that the practices are producing the desired outcomes.

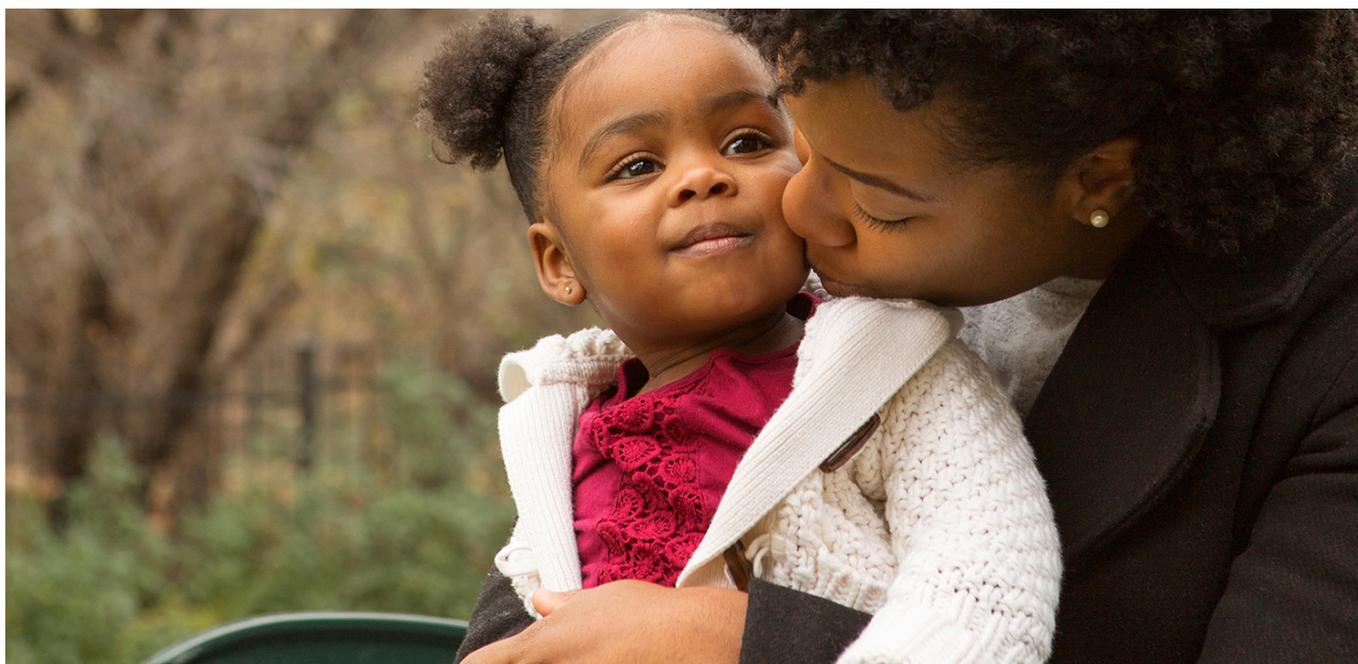


<sup>1</sup> See [Tip Sheet 3](#) for more information on fidelity thresholds.

- **Assess implementation fidelity.** *Implementation fidelity* is the degree to which strategies designed to support practice implementation, such as professional development, monitoring, and supervision, are delivered as intended and provides information that can help explain changes in *intervention fidelity*. This tip sheet series focuses primarily on evaluating *intervention fidelity*, but it is important also to collect information on whether the activities and supports designed to improve practices, such as training and coaching, occurred as intended.

## Resources

- Data Decision-Making for Program-Wide Implementation. (ECTA, 2018). [http://ectacenter.org/~pdfs/sig/5\\_2\\_data\\_decisions.pdf](http://ectacenter.org/~pdfs/sig/5_2_data_decisions.pdf)
- Key Considerations for Reaching and Maintaining Implementation/Practice Fidelity. (ECTA, 2018). [https://ectacenter.org/~pdfs/sig/4\\_4\\_key\\_considerations\\_for\\_fidelity.pdf](https://ectacenter.org/~pdfs/sig/4_4_key_considerations_for_fidelity.pdf)
- Practice Profiles (Lesson 3). (National Implementation Research Network [NIRN], 2018). <https://implementation.fpg.unc.edu/resources/lesson-3-practice-profiles>
- Measuring Implementation Fidelity. (NIRN, 2005). <https://nirn.fpg.unc.edu/sites/nirn.fpg.unc.edu/files/resources/NIRN-NASHMPD15thConference-02-2005.pdf>



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# Characteristics of a High-Quality Measurement Tool



TIP SHEET 2



## Introduction

Collecting high-quality data is essential for determining whether practitioners are implementing a practice as intended. This tip sheet provides guidance for assessing the quality of tools that measure practitioners' implementation of evidence-based practices – the behaviors practitioners exhibit when working directly with children and families.

A tool is the instrument or protocol used to collect data on practice implementation (e.g., a checklist, rating scale, observation form, list of interview questions, or document review form). A tool contains multiple items (such as individual questions or topics). Fidelity may be measured with a single tool or a combination of tools (for example, an observation protocol and a log for documenting when practices were conducted with children and/or families). Also, a tool can measure several fidelity components (e.g., adherence, quality of delivery, dosage).

Some practice developers design a tool to measure implementation while they are conducting research to form an evidence base for the practice. However, an associated research-based tool does not exist for many practices. If no tool is available for a particular evidence-based practice, you can develop one with experts in the practice and in evaluation tool development. Use the information below to evaluate the quality of existing tools or as a checklist for developing your own.

## Characteristics of a High-Quality Tool

A high-quality tool to assess the implementation of evidence-based practices:

- Is **aligned** with the selected evidence-based practices. For instance, if you are implementing specific evidence-based social-emotional practices, the tool should measure implementation of those practices.
- Provides **valid** information. The tool provides accurate information on implementation of the practices.
- Is **reliable**. The tool produces consistent information across users, settings, activities, and time points. Item wording and instructions must be clear and complete to achieve reliability.
- **Captures variation** across time points and practitioners with different levels of implementation skill. The tool must be sensitive enough to detect when practitioners have improved their implementation and how practitioners differ in how well they implement the practices.
- **Provides a meaningful fidelity threshold score** that indicates whether practitioners have reached a level of implementation that is sufficient for achieving targeted child or family outcomes. A typical practice implementation tool has multiple items that together produce a summary score. A threshold score is a predetermined score that indicates whether a practitioner has reached fidelity. (See [Tip Sheet 3](#) for more information on fidelity thresholds.)
- Is **practical**. The tool can be used with the staffing and resources available. However, a practical tool that is not reliable and valid will not produce meaningful data.
- **Provides information useful to practitioners**, such as areas of strength and areas for improvement to move toward, reach, and maintain fidelity. An ideal tool provides information that practitioners, administrators, and others can use to improve practice.

## High-Quality Administration of a Tool

Additional considerations for improving data quality and usefulness include:

- **Timing/frequency of administration.** Use the tool sufficiently often to measure incremental improvement (practice change) and the maintenance of fidelity over time. Consider more frequent assessments as practitioners work to achieve fidelity so as to increase or change supports for practitioners who are not making adequate progress. Once practitioners reach fidelity, frequency can be reduced to periodically assess fidelity maintenance.
- **Instructions and training for raters.** Provide training and supporting resources (e.g., written protocols and guidance) to all those who are collecting data on practice implementation and ensure they have the knowledge, skills, and resources to produce

accurate data. For self-assessments, provide clear instructions on how the assessment should be conducted. Clear instructions and thorough training will help improve the tool's reliability.

- **Communicating the purpose of data collection.** Clearly conveying the purpose of data collection and the usefulness of data for practitioners and programs can increase motivation and commitment to high-quality data.

## Resources

- Practice Improvement Tools: Using the DEC Recommended Practices (ECTA, n.d.). <http://ectacenter.org/decrp/>
- Fidelity Assessment (Module 7). (NIRN, n.d.) <https://implementation.fpg.unc.edu/module-7>



Find this Tip Sheet online: <https://dasycenter.org/evaluating-the-implementation-of-evidence-based-practices-tip-sheet-series/tip-sheet-2-characteristics-of-a-high-quality-measurement-tool/>

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# Establishing a Fidelity Threshold



TIP SHEET 3

## Introduction

A fidelity threshold score is important for understanding whether practitioners are implementing practices sufficiently to achieve intended child and family outcomes. A threshold score is a predetermined level on a fidelity tool that distinguishes between practitioners not demonstrating and those demonstrating adequate practice implementation. This enables you to identify practitioners who may need more support and practice to reach fidelity and those whose support could be reduced. Using a fidelity tool repeatedly can also identify practitioners whose practice implementation has drifted from acceptable to unacceptable levels over time.

Some practices have associated fidelity tools with thresholds that the developer established while conducting research to form the evidence base for the practice. Unfortunately, many evidence-based practices do not have such a research-based fidelity threshold score. If you are using a tool that does have an associated fidelity threshold score, use that threshold; if you are using an existing fidelity tool without a threshold score, work with the tool developer to determine an appropriate threshold score.

This tip sheet offers considerations for selecting a fidelity threshold when one has not been provided. Use the resources listed or consult with evaluation or research experts for additional guidance.

## Where to Start?

Before you begin:

- **Start with a high-quality fidelity tool.** A fidelity threshold score will be useful only if the associated tool provides accurate and reliable information on practice implementation.
- **Assemble a team of experts.** When there is no established fidelity threshold, deciding where to set the threshold requires professional judgment. The best decision-makers have deep knowledge of the intended implementation of the practice and how the practice contributes to intended outcomes. They can be practice developers and other content experts or practice experts from your organization who understand the practice and have experience supporting practitioners in their implementation. For example, state or local program directors, training providers, coaches, and experienced practitioners can provide valuable input on selecting a meaningful threshold score.

## Guiding Questions

There are many approaches to establishing threshold scores. Answering the following questions will help you select the best approach for your state or organization:

- **How many fidelity levels do you need?** A common approach is to use a single threshold to indicate two results: The practitioner reached the fidelity threshold or did not reach it. Another option is to set multiple threshold levels, such as “does not meet fidelity,” “meets fidelity,” and “expert,” to identify practitioners needing more support and those who might serve as

coaches or mentors. This decision depends on your goals for the fidelity assessment and how you plan to use the results.

- **Are some practice components more important than others?** If so, consider giving more weight in the scoring to items related to the more important practice components. Or if your expert team believes that certain practice components are essential to producing the desired outcomes, designate particular items or sections of the tool as “must pass” in order for practitioners to reach fidelity. These approaches account for differences in the importance of various program components for achieving targeted outcomes, but they require more complex calculations.
- **How will you address variation in a practitioner’s scores across items on the fidelity tool?** It may not be reasonable to expect a competent practitioner to score in an acceptable range on every item. A typical approach is to use a threshold score that represents an average acceptable score across all items. This means that a practitioner can receive a high score on some items and a low score on others, but the scores overall indicate acceptable fidelity of implementation. If your team believes that a low score on particular items would not be acceptable, consider the greater weighting or “must pass” options above.



- **Does your fidelity tool have subsections with multiple items for different practice components or domains?** If so, you may want to identify threshold scores for each component or domain. This will help you determine if practitioners are reaching fidelity on all or only some practice components.

## A Process for Identifying a Threshold Score

Once your team has preliminary answers to the guiding questions above, use a continuous improvement process to develop, refine, and finalize a fidelity threshold score (or scores).

- **Identify an initial fidelity threshold score.** Have your experts review the items on the fidelity tool and envision how a practitioner with the minimum level of acceptable practice implementation would score. With this hypothetical practitioner and your answers to the guiding questions in mind, have the experts identify a minimally acceptable total score (e.g., 78 out of 100).
- **Make adjustments.** Review the initial threshold score. Set the threshold high enough that the acceptable level of fidelity is likely to have a meaningful impact on outcomes but low enough that all competent practitioners (not just the most expert) can achieve fidelity.
- **Conduct a pilot test.** Have experts use the fidelity tool and the proposed threshold to score implementation of several practitioners. Then determine if the fidelity scores match the experts’ professional opinion about whether practitioners are implementing the practice in a way that will produce intended outcomes. Revise, retest, and reflect until the experts agree the threshold can distinguish between sufficient and insufficient levels of implementation.

## Resources

- Establish Fidelity Thresholds and Set Scores for “Adequate Fidelity” in the Evaluating Special Education Programs: Resource Toolkit. (Center to Improve Project Performance [CIPP], 2016) <https://osepideasthatwork.org/evaluating-special-education-programs-resource-toolkit>
- Fidelity Assessment – Process Development section of the Guide to Developing, Implementing, and Assessing an Innovation, Volume 3 (Installation Permanency Innovations Initiative Training and Technical Assistance Project [PII-TTAP], (2016) [https://www.acf.hhs.gov/sites/default/files/cb/guide\\_vol3\\_installation.pdf](https://www.acf.hhs.gov/sites/default/files/cb/guide_vol3_installation.pdf)

The process of setting a fidelity threshold score is called “standard setting” in the assessment field. Two resources are:

- How to Set a Cut Score. (Nora Vandi, 2015). [http://www.fisdap.net/blog/how\\_set\\_cut\\_score](http://www.fisdap.net/blog/how_set_cut_score)
- A Primer on Setting Cut Scores on Tests of Educational Achievement (Michael Zieky & Marianne Perie, 2006). [https://www.ets.org/Media/Research/pdf/Cut\\_Scores\\_Primer.pdf](https://www.ets.org/Media/Research/pdf/Cut_Scores_Primer.pdf)



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# Summarizing Data for Decision-making

TIP SHEET  
4



## Introduction

Data on practice implementation can be used to improve practice. Decision-makers at different system levels need different kinds of information. For example, local program personnel make decisions about the supervision, supports, and resources practitioners need to implement practices with fidelity and therefore require data at the practitioner level. State administrators and other state-level stakeholders need data summarized at the program or regional level to identify variation in programs' successes and challenges to provide appropriate supports where needed.

Decision-makers at all levels need information that they can understand and act on. Too much data can be overwhelming and counterproductive. A useful strategy for analyzing data on practitioners' implementation of evidence-based practices is to collapse data collected at the local level on individual practitioners into concise data summaries. The goal is to represent all practitioners or programs involved in the improvement efforts in a single or a few data points to provide meaningful and actionable information for decision-makers.

## Strategies for Summarizing Data

The following strategies can help states and programs summarize data for decision-makers:

- **Use summary scores.** A typical practice implementation tool has many items to measure

multiple components of an evidence-based practice that can be combined into one summary score. A coach or program administrator may examine performance on the individual items to identify practitioners' strengths and areas for improvement. For decision-makers at the program, regional, or state levels, summary scores are often more useful to detect patterns across practitioners and organizational units such as schools, programs, and regions.

- **Summarize by practice area or domain.** Many tools provide subscale scores in addition to a total score for the entire tool. These subscale scores can provide valuable insight into each component of the practice and highlight areas of strength or need at a more global level than individual items. Subscale scores can be aggregated across programs and practitioners to indicate variation in implementation of the various components that make up the practice.
- **Aggregate data.** Aggregating or rolling up summary or component scores for individual practitioners to higher organizational units (e.g., program, state) facilitates the use of data for decision-making at various system levels. Figure 1 illustrates how a single set of data (from practitioner-level fidelity measures) can be summarized at different levels for different purposes.

Table 1 presents example methods for aggregating data on practice implementation.

Figure 1: Data Aggregation Example—Practitioner Fidelity Scores

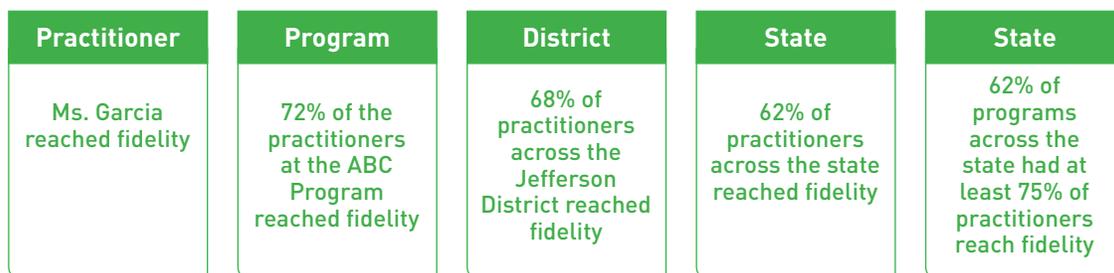


Table 1: Example Methods for Aggregating Data on Practice Implementation

Aggregation Method and Data Summary Example	Considerations	Calculation
<p><b>Percentage of practitioners with improved scores</b></p> <p><i>Scores on the Home Visiting Rating Scales-Adapted and Extended (HOVRS-A+) increased between the fall and spring assessments for 72% of the practitioners.</i></p>	<p>Can provide a sensitive measure of small increments of progress, but small improvements might not be meaningful. Consider developing criteria for designating scores as “improved” (e.g., increase of 5 points, category change from “emerging” to “partially implementing”).</p>	<p>1. Calculate change for each practitioner across 2 time points:  <b>Time 2 Summary Score minus Time 1 Summary Score</b></p> <p><i>Note that a positive score means that practitioners’ performance improved; a negative score indicates performance declined.</i></p> <p>2. Calculate the percentage of practitioners with a positive score:  <b># of practitioners with positive score/total # of practitioners with a score</b></p>
<p><b>Percentage of practitioners meeting fidelity threshold</b></p> <p><i>64% of teachers were implementing the family engagement practices with fidelity.</i></p>	<p>May take time to see increases in the percentage of practitioners meeting fidelity; use in conjunction with the above approach to assess progress toward fidelity</p>	<p>1. Determine whether each practitioner met the threshold.</p> <p>2. Calculate the percentage of practitioners meeting the fidelity threshold:  <b># of practitioners that met fidelity/total # of practitioners with a fidelity score</b></p> <p>3. Compare this percentage with other time points to see if it is increasing over time.</p>
<p><b>Percentage of programs meeting performance indicator for practitioner fidelity</b></p> <p><i>60% of programs had at least 75% of practitioners meeting fidelity of implementation of the Pyramid Model by May 2018, as measured by the Teaching Pyramid Observation Tool.</i></p>	<p>Need to establish performance indicator for the percentage of practitioners implementing with fidelity (e.g., 75% of practitioners within a program meet fidelity by May 2018).</p>	<p>1. Determine whether each practitioner met the threshold.</p> <p>2. Calculate the percentage of practitioners meeting the fidelity threshold for each program:  <b># of practitioners from the program that met fidelity/total # of practitioners from the program with a fidelity score</b></p> <p>3. Calculate percentage of programs where percentage of practitioners reaching fidelity meets the performance indicator (e.g., 75%):  <b># of programs that met performance indicator (e.g., 75% of practitioners reaching fidelity)/total # of programs</b></p>

## Using and Sharing Data

With actionable data on practice implementation, decision-makers can identify successes and challenges and make adjustments to achieve intended outcomes. To get the most from your data:

- **Discuss the findings.** Bring people together to discuss data on practice implementation. Ask questions: What patterns do you see? Are the results what you expected? What are the implications of the findings for our work?
- **Engage stakeholders.** Stakeholders, particularly practitioners and families, provide important perspectives on practice implementation and can help identify next steps toward achieving desired changes.
- **Display data in engaging ways.** Use charts, infographics, and other data visualization techniques to increase engagement and understanding

## Resources

- Learning Lab: Exploring Coaching for Practice Change; Session 4: Data Decision-Making and the Implementation of Practice-Based Coaching. (ECTA, 2017) <http://ectacenter.org/~calls/2017/learninglab.asp#session4>
- Data Meeting Protocol (IDEA Data Center, 2018). <https://ideadata.org/resources/resource/1758/data-meeting-protocol>
- The DaSy Center's Data Visualization Toolkit: <http://dasycenter.org/data-visualization-toolkit/>
- The DaSy Center's Data Culture Toolkit: <https://dasycenter.org/data-culture-toolkit/>



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