What Tools Have States Developed or Adapted to Assess Schools' Implementation of a Multi-Tiered System of Supports/ Response to Intervention Framework?

What Tools Have States Developed or Adapted to Assess Achools' Implementation of a Multi-Tiered System of Supports/Response to Intervention Framework?

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Most states are using a multi-tiered system of supports (MTSS) or response to intervention (RTI) framework for improving the quality of instruction for all students and addressing the needs of students at risk for poor learning outcomes. Supporting educators in using tools to calibrate their MTSS/RTI implementation to the state's expected practices is one way states can help districts and schools acquire and use data to improve MTSS/RTI implementation. This report describes the features of 31 tools that 21 states developed or adapted to assess key MTSS/RTI practices that are informed by the research literature. Most tools assessed broad practices for implementing MTSS/RTI, such as whether schools administer assessments for students in need of intervention. Fewer tools assessed more specific practices for implementing MTSS/RTI, such as whether schools are expected to administer universal screening twice a year with all students. The findings can serve as a resource for state education officials who are interested in selecting or adapting a tool to assess MTSS/RTI implementation and in learning how other states support districts and schools in using these tools.

Why this study?

This descriptive study of the tools and approaches states are using to assess implementation of multi-tiered system of supports (MTSS) and response to intervention (RTI) frameworks in schools addresses a pressing need for the Tennessee Department of Education (TDOE; see box 1 for definitions of key terms). TDOE officials are seeking ways to improve early literacy outcomes through the state's Response to Instruction and Intervention (RTI^2) framework. In 2015 only 43 percent of Tennessee students in grade 3 were reading proficiently. Tennessee's goal is to have at least 75 percent of grade 3 students reading proficiently by 2025. The state's RTI^2 framework, which aims to prevent reading problems from escalating, is used to inform decisions about students' eligibility for special education services based on their limited responsiveness to evidence-based interventions. TDOE officials want to know more about how school staff are implementing RTI^2 practices to understand whether such practices lead to improved reading outcomes.

To learn more about RTI^2 implementation in schools, TDOE and the Regional Educational Laboratory (REL) Appalachia's research and technical support experts are developing a tool to assess RTI^2 implementation. To guide the development of this tool, TDOE officials want to know how other states are assessing implementation of RTI practices. Although the partnership focuses primarily on early literacy, TDOE officials are also interested in learning about tools for multiple academic areas (literacy and math) and grade levels (elementary and secondary). Therefore, this study examined the tools and approaches other states are using to assess MTSS/RTI implementation.

The term *MTSS/RTI* is used here to reflect current policies and practices. To ensure that the study team examined the appropriate implementation assessment tools, the study needed to account for the inconsistent use of terminology across states to refer to tiered systems of support that address academics. Because MTSS and RTI share many core features (see box 1), practitioners may

> For additional information, including background on the study, technical methods, and supporting analyses, access the report appendices at https://go.usa.gov/xdHvJ.

use the terms interchangeably (National Center on Response to Intervention, 2015, n.d.). Some states use the term *RTI* to refer to tiered supports that address academics only, whereas other states use the term *RTI* or the term *MTSS* to refer to an integrated system of supports that addresses both academics and behavior[1] (Arden, Gandhi, Zumeta Edmonds, & Danielson, 2017; Zumeta Edmonds, 2016). Because the current study focuses on tools that assess practices to improve academic outcomes, tools that address only behavior were excluded.

Box 1. Key terms

Assessment tool. As an instrument used to assess implementation of a multi-tiered system of supports (MTSS)/response to intervention (RTI) framework, an assessment tool helps determine how far schools have progressed or advanced through the levels of implementation.

Broad MTSS/RTI practices. MTSS/RTI practices that are considered to be general activities lacking explicit detail that educators can interpret and implement in various ways. This study classifies components and subcomponents as "broad" MTSS/RTI practices.

Component. The framework for key MTSS/RTI practices used in this study is hierarchical (see table 1 in the main text). At the highest level the framework includes four components of MTSS/RTI (administer assessments, offer multiple tiers of instruction and intervention, support data-based decisionmaking, and support infrastructure practices for RTI implementation). These components include more detailed subcomponents or specific aspects (for example, administer universal screening measures). Subcomponents are then broken down into dimensions that help define and measure the subcomponents (for example, use reliable and valid screening tools).

Expected practices. The MTSS/RTI practices that a state requires or recommends for implementing MTSS/RTI according to that state's MTSS/RTI framework.

Key MTSS/RTI practices. The activities and procedures for implementing MTSS/RTI. These practices are informed by the national evaluation of RTI for elementary school reading's rationale for identifying key RTI practice guidelines (Balu et al., 2015); research literature (for example, Gersten et al., 2008) to fully define the practices; other state tools; and expert review (see table 1 in the main text; see appendix B on methods for coding and analyzing key MTSS/RTI practices). The key MTSS/RTI practices are organized by component, subcomponent, and dimension. The study team reviewed the descriptive and correlational research literature and identified practice guidelines that experts recommend, such as administering universal screening at least twice a year to all students, using reliable and valid assessment tools, varying instructional intensity through group size and instruction dosage, monitoring tier 2 students monthly, and monitoring tier 3 students weekly. (See appendix A for a summary of MTSS/RTI key practices.) The team also examined the research literature to identify practices that are critical to all MTSS/RTI models, such as using data to make decisions about instruction and interventions, monitor student progress, align interventions to the core curriculum, and individualize tier 2 and 3 intervention. The team also reviewed state and national tools for assessing MTSS/RTI implementation to identify the practices and how each tool organizes them. Finally, experts in RTI, positive behavioral interventions and supports (PBIS), reading research, and data-based decisionmaking reviewed and vetted the list of key MTSS/RTI practices.

Levels of implementation. The progressive stages of implementing an MTSS/RTI framework. Levels are typically described on a continuum, ranging from not having any practices in place to implementing ideal practices. Ideal implementation refers to implementation based on a state's use of research and best practice evidence to define the practices with the highest likelihood of adjusting instruction to improve student outcomes. Levels of implementation may be described using descriptive labels (for example, not started, emerging/developing, operationalizing, or optimizing) or a numeric scale (for example, 0, 1, or 2).

Multi-tiered system of supports (MTSS). A multi-tiered framework that supports the early identification of students with learning and behavioral challenges. MTSS addresses both academics and behavior, whereas RTI is concerned primarily with academics.

Thus, MTSS is often used as an umbrella term that includes both RTI and PBIS. Multi-tiered generally refers to three tiers that correspond to different intensities of support. Tier 1, or schoolwide support and instruction, is provided to all students, and a majority of students (often 80–90 percent) respond well to this support. Tier 2 supports are more specialized interventions that generally meet the needs of the 5–15 percent of students who do not respond effectively to tier 1 supports. Tier 3 supports are more intensive, individualized interventions that typically meet the needs of the 1–5 percent of students who do not respond effectively to tier 1 or 2 supports. These percentages are considered ideal for implementation of a multi-tiered framework but vary by school context. The MTSS framework includes processes for screening all students, providing tiered instruction and intervention supports, and monitoring students' progress. MTSS is typically associated with general education and providing evidence-based programs to all students (Burns, Jimerson, VanDerHeyden, & Deno, 2016; Zumeta Edmonds, 2016).

Response to intervention (RTI). A multi-tiered framework to address problems early for students at risk for poor learning outcomes. Schools identify struggling learners through universal screening and provide multiple tiers of evidence-based instruction and interventions; monitor student progress and adjust the intensity and nature of those interventions, depending on a student's responsiveness; and, as appropriate, help identify students with learning disabilities or other disabilities according to state and district guidance (Center on Response to Intervention & National Center on Intensive Intervention, 2014).

Specific MTSS/RTI practices. MTSS/RTI practices that describe precise actions in a manner that educators interpret in the same way and that support implementing a practice as expected by a state (for example, specifying how to implement a practice, with whom, or how often). This study classifies dimensions as specific MTSS/RTI practices.

Technical adequacy indicators. Validity and reliability are indicators that a tool is technically adequate. *Validity* refers to whether the tool assesses what it is supposed to assess. Types of validity include content validity (whether a tool properly assesses important MTSS/RTI practices) and criterion validity (how well scores on one measure, such as tool ratings, predict scores on another measure, such as student test scores). *Reliability* refers to the extent to which a tool produces similar results under consistent conditions. One type of reliability is internal reliability, which focuses on the consistency of results across items on a tool (for example, tool users who responded one way to items about the administer assessment component tend to respond similarly to other items measuring the same component).

Tool type. The category of instrument used to assess implementation of an MTSS/RTI framework. Types of tools include rubrics, rating scales, checklists, and surveys.

As more states have put MTSS/RTI frameworks in place, studies of implementation have increased. Research on how district and school personnel implement an MTSS/RTI framework can inform interpretations of student outcomes and a framework's success or failure. Implementation research can also inform feedback to staff of state education agencies, districts, and schools for continuous quality improvement (Keller-Margulis, 2012). A well-designed and well-applied MTSS/RTI implementation assessment tool may improve MTSS/RTI implementation, which may in turn support better student outcomes.

This report highlights promising practices for developing a tool to assess MTSS/RTI implementation and describes how other states assess implementation of key MTSS/RTI practices that are well-defined in the literature (Balu et al., 2015; Espin, McMaster, Rose, & Wayman, 2012; Fuchs, Deno, & Mirkin, 1984; Gersten et al., 2008; Haager, Klingner, & Vaughn, 2007; Jimerson, Burns, & VanDerHeyden, 2016). The report is intended to inform TDOE's development and use of a tool to assess implementation of its RTI[2] framework. The report may also be useful for officials in other states who are interested in developing or adapting a tool to assess MTSS/RTI implementation. And it may be relevant to staff of other state education agencies, districts, and schools who are interested in assessing MTSS/RTI implementation to better understand implementation variation and fidelity, to identify areas of support needed to improve practices, and to interpret student outcomes. (For more details about the study, see appendix A. For information on sources, sample, and methods, see box 2 and appendix B.)

Box 2. Data sources, sample, and methods

Data sources. The study team used data from two sources: a website and document review for all 50 states and the District of Columbia[1] and interviews with officials in eight states. Sources for website and document review data included publicly available versions of tools for assessing implementation of MTSS/RTI,[2] text from state education agency MTSS/RTI websites that describes assessment tool characteristics and approaches states use to support tool use, and documents to support tool use (for example, manuals and guidance documents). The study team collected the data from websites from February through May 2018 and verified the information with state personnel.

The study team used preliminary findings from the website and document review to select eight states for an interview to allow a deeper analysis of the assessment tools. The interviews were intended to elaborate on the information gathered from the public data sources and to provide a more nuanced understanding of selected states' approaches to tool development, training, and supports that would be valuable to other states seeking to develop, adapt, or revise their tools. Interview findings are not intended to be generalizable. The interview data were collected in June 2018.

Sample. The study team identified 33 states with MTSS/RTI tools and conducted an in-depth analysis of tools used by 21 of them (see appendix B for details). These tools met the following criteria: publicly available on a state's website or accessible to the public on request, focused on a systems-level assessment of MTSS/RTI (as opposed to focused on a specific component of the framework), and developed by the state or adapted from existing instruments. Tools developed by organizations (for example, the National Center on Response to Intervention's rubric and worksheet) were excluded if no state had modified or adapted them. Fifteen states used tools from organizations or other states without modification, so these were excluded from the in-depth analysis.[3] Research questions 1–3 focus on data from 21 states and their 31 assessment tools that met the inclusion criteria for in-depth analysis.

The study team used an initial set of selection criteria and considered additional factors to identify a sample of eight states for which to study a range of tools and processes. The eight states selected for an interview had at least one assessment tool that met at least three of the following four criteria: the tool assessed RTI practices considered key by RTI experts (Gersten et al., 2008) and the research literature (see appendix A); the tool included items on reading or literacy, because improving literacy was one of the partnership's goals; the tool aligned with TDOE's purpose for districts and schools to assess levels of MTSS/RTI implementation or progress in making improvements; and there was evidence that the state used the tool for its intended purpose (for example, the state offered training on how to use the tool or reported results).

Other factors considered were tool development processes (whether a state developed a tool or adapted an existing tool); technical merits of the tool (whether it had been pilot tested and assessed for validity and reliability); state resources (dedicated technical assistance centers, federal grants); and TDOE staff's interest in learning more about specific states' tools. The states selected for interviews were Florida, Kansas, North Carolina, Oregon, Pennsylvania, Vermont, Wisconsin, and Wyoming (see appendix B for details and appendix C for the interview protocol). In each selected state the study team identified a respondent who was most knowledgeable about how the state adapted or developed its assessment tool, trains intended users of the tool, and uses results from the tool. Interview data answer research question 4 and provide examples to supplement the website and document review findings for research questions 1–3.

Methods. Trained study team members used structured protocol forms in Quick Base™ (a secure cloud database) to record information from the website and document review (see appendix B). For all 50 states and the District of Columbia the study team documented information about the presence or absence of tools for assessing MTSS/RTI implementation; states verified the accuracy of this information as of May 11, 2018. The study team completed a structured protocol form for each of the 31 assessment tools to code information about the tool's characteristics, development process, and MTSS/RTI practices assessed. State personnel examined the findings from the website and document review for accuracy and made revisions.

Three study team members examined the website and document review data and used an iterative process to develop and revise coding schemes for each open-ended protocol item.[4] A senior study team member consulted and offered feedback on each iteration of the coding schemes. Each study team member served as the primary coder for one-third of the 21 items from the website and document review; a secondary coder reviewed all codes assigned by the primary coder. Discrepancies were resolved by consensus. (See appendix B for methods for coding and analyzing key MTSS/RTI practices.) For research questions 1–3, descriptive statistics, including frequencies, ranges, and cross-tabulations, were computed to analyze the website and document review data.

Two study team members conducted the interviews using a semi-structured interview protocol (see appendix C) that was tailored for each state according to the findings from the website and document review (see appendix B). The interviews were audio-recorded with the interviewee's permission. Following the interviews, three study team members read the interview notes, discussed emerging themes, and identified key topics for a state analysis document. This document was the primary source for coding and analysis, and state personnel reviewed and confirmed the accuracy of the data (see appendix D for key takeaways from the state analysis documents). Two study team members collaboratively developed a coding scheme. One study team member served as the primary coder, and the other reviewed the coding for accuracy.

Notes

1. The study sample did not include five states because state personnel chose not to participate in the study or did not verify the data collected for their respective states.

2. State personnel in one state verified that their state used an online digital portfolio tool that was not publicly accessible.

3. This study is intended to inform state officials who want to develop or adapt an implementation assessment tool to customize it to their state's MTSS or RTI framework, as opposed to using an existing tool without modifications. The names of tools from other organizations that states are using without modifications are included in appendix B. Five states both developed or adapted tools and used existing tools without modifications.

4. For each open-ended item, two members of the study team independently reviewed all responses. One member developed an initial coding scheme, and then both members collaborated to revise and refine the coding scheme. For each item the primary coder for that item used the revised coding scheme to code the data, and the secondary coder reviewed the appropriateness of the applied codes. The two study team members discussed any cases where the coding scheme was difficult to apply and modified the coding scheme as needed.

Research questions

This study addressed four research questions to understand the tools and approaches that states are using to assess MTSS/RTI implementation:

1. What types of tools do states use to assess MTSS/RTI implementation to ensure that districts and schools implement practices consistently and as expected?

2. What processes do states use to develop or adapt these assessment tools?

3. Do states use the tools that they developed or adapted to assess key MTSS/RTI practices?

4. What approaches do the eight states selected to participate in interviews use to support districts and schools in using the assessment tool?

Findings

This section describes the findings for each research question in turn.

Twenty-one states developed or adapted a total of 31 tools to assess implementation of a multi-tiered system of supports/response to intervention framework

In addition to the 21 states that developed or adapted an existing tool to assess implementation of MTSS/RTI practices, 10 states used tools developed by another state or an organization without modifications, 7 states used tools that were in development or under revision, and 6 states were not using a tool.[2]

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2. Five states were dropped because state personnel chose not to participate or did not verify the data collected and summarized by the study team, one state developed a tool that was not publicly available, and one state was using only a general tool that did not meet the criteria for in-depth analysis (see appendix B).

Of the 21 states that developed or adapted an existing tool to assess implementation of MTSS/RTI practices, 16 states developed a new assessment tool, and 6 states adapted an existing tool (1 state that developed a new tool and adapted an existing tool is counted in both groups).

Seven of the eight state officials interviewed reported that their state had developed a tool, five of them because there were no existing tools that aligned with their state's MTSS/RTI framework at the time. One interview respondent explained that the state had developed a tool that directly matched the state's RTI components so that results from the tool would be most useful for informing implementation planning. Respondents in two other states that had developed new tools cited a desire for greater specificity than available tools offered. For example, one state developed a literacy tool to help ensure that schools were integrating research from the Report of the National Reading Panel as well as implementing RTI practices.

Six states adapted existing tools: Florida's Self-Assessment of MTSS Implementation (SAM; two states); Michigan's Reading Tiered Fidelity Inventory (R-TFI; one state); the National Center on Response to Intervention Fidelity of Implementation Rubric (one state); and the School Implementation Scale (Erickson, Noonan, & Jenson, 2012; two states). The interview respondent in one state that had adapted Florida's SAM reported that the adaptation included adding examples of evidence that could justify the ratings for each item on the tool, requiring tool administration by district MTSS personnel, developing more extensive scoring guidelines for each component to determine initial versus full implementation, and using an expert panel to ensure that the language in the tool was consistent with the state's MTSS framework.

Of the 21 states, 7 offered multiple tools for use by districts and schools. Of the 21 states included in the study, 14 had one tool, 5 had two tools, 1 had three tools, and 1 had four tools that met the inclusion criteria. States used multiple tools for different reasons. Two states used distinct tools to focus separately on reading and math, two states used more than one tool to target elementary and secondary grade levels separately, two states used multiple tools to assess the perspectives of administrators and staff, and one state used multiple tools to assess implementation at both the district and school levels.

All 21 states designed tools to assess implementation at the school level, although grade levels varied. All 21 states had at least one tool designed to assess implementation of MTSS/RTI practices at the school level, but the grade levels that the tools were designed to address varied. Ten states did not specify the grade levels addressed by their tools, two states specified grades K–12, one state specified preK–12, and one state specified grades K–8. Two states had tools that were intended for use at the elementary school level only, and two states had separate tools for the elementary and secondary levels. Three states had tools designed for use at both the district and school levels. Interview respondents in other states explained that collecting information at the school level provided information about individual schools and could be aggregated to the district level.

Since all 21 states had at least one tool designed to assess school-level implementation, all of these states included school personnel among those who were intended to administer the tool. More than a quarter of the 31 tools (29 percent) were intended for use by a team whose members would work collaboratively to arrive at consensus scores. States varied in whether they provided guidance about recommended or required team members. Most frequently, recommended or required team members represented a range of positions (for example, from general education and special education teachers to administrators and reading and math specialists). In addition to including school-level personnel, six states included personnel such as trained state or district facilitators or coaches to guide tool administration.

Of the 31 tools that states developed or adapted, 13 were rubrics, which describe explicit practices for each level of implementation and help users identify next steps toward ideal implementation

States used four types of assessment tools: rubrics, rating scales, surveys, and checklists.

- *Rubrics.* Of the 31 tools, 13 (42 percent) were rubrics, which were used in nine states (43 percent). A rubric articulates the expectations for MTSS/RTI implementation by establishing coherence across levels and providing clear, specific descriptions of practices for each level of implementation as schools progress toward ideal implementation. (See appendix D for images of a rubric and rating scale and for examples of tool types by level of implementation.) Rubrics describe, rather than judge, levels of MTSS/RTI implementation (Brookhart, 2013) at the district or school level.

- *Rating scales.* Of the 31 tools, 6 (19 percent) were rating scales. Five states (24 percent) used a rating scale only, and one state (5 percent) used a rating scale in combination with a survey. A rating scale lists ideal MTSS/RTI practices and allows the district-or school-based observers to indicate the degree to which they observe each practice at the district or school level of implementation (for example, not in place, purpose-building, infrastructure, initial implementation, full implementation). Rating scales differ from rubrics reviewed for this study in not describing each level of implementation but providing a description of the ideal practice instead.

- *Checklists.* Of the 31 tools, 4 (13 percent) were checklists. Among the three states that used checklists, two states (10 percent) used a checklist only, and one state (5 percent) used two checklists (an implementation readiness checklist and a process implementation checklist) in combination with surveys. A checklist presents a list of ideal MTSS/RTI practices with a place for district- or school-based observers to mark whether each practice is present or absent. Checklists do not describe levels of implementation for each ideal practice.

- *Surveys.* Of the 31 tools, 8 (26 percent) were surveys. Among the five states that used surveys, three states (14 percent) used 1 or more surveys only,[3] one state (5 percent) used one survey in combination with a rating scale, and one state (5 percent) used 2 surveys in combination with checklists. States used 2 surveys to address different subject areas (math and reading), grade levels (elementary and secondary), and intended users (administrators and instructional staff). A survey collects information from a sample of specific individuals (for example, teachers) who report their perceptions of whether or to what degree they use ideal MTSS/RTI practices or to what degree these practices are present or absent in their school. A survey may include a numeric or categorical rating scale or yes or no response options. Survey findings represent individual self-report of implementation practices. This differs from other types of implementation assessment tools—rubrics, rating scales, and checklists—that require district or school teams or representatives to assess district or school implementation practices.

A tool's format and whether evidence is required to justify ratings have implications for how objectively the tool can assess implementation of expected practices

Of the 31 tools, 15 (48 percent) were designed to assess the practices in place to meet specific levels of implementation. All 13 rubrics and 2 of the 8 survey instruments were designed to assess expected MTSS/RTI practices for each level of implementation.[4] (See appendix D for details on what each tool is designed to assess and whether evidence to justify ratings is requested.) Because rubrics explicitly list the practices for various levels of implementation along a continuum—such as not started, emerging/developing, operationalizing, and optimizing—tool administrators should be able to assess levels of implementation more objectively and determine next steps for progressing toward ideal implementation (U.S. Department of Education, 2014). Rubrics have the potential for improving implementation because they "make expectations and criteria explicit, which also facilitates feedback and self-assessment" (Jonsson & Svingby, 2007, p. 141).

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3. One state had 1 survey, and two states had 2 surveys each.
4. For the two survey instruments, response options for each item articulated expected practices along an implementation continuum.

The remaining 16 tools (52 percent)—all 6 rating scales, all 4 checklists, and 6 of the 8 surveys—were designed to assess levels of implementation only against an ideal practice. Unlike rubrics, rating scales, checklists, and most surveys do not describe the practices for each level of implementation. Therefore, tool administrators must use their judgment to determine the extent to which their district or school is implementing an ideal practice.

Of the 31 tools, 16 (52 percent) requested that users provide evidence to justify their scores, but the practice varied by tool type. Some states tried to bolster the objectivity of tool ratings by asking users to justify ratings with evidence. A majority of rubrics (77 percent) and rating scales (67 percent) and half of checklists (50 percent) requested evidence, but none of the surveys did. One state's rating scale included prompts about school-based evidence, such as a description of the procedures used, to establish the quality of instruction and intervention. Other tool documents requested that schools submit artifacts, including coaching plans and master schedules, to substantiate ratings.

When developing or adapting assessment tools, 12 states sought input from multiple sources, 8 conducted pilot studies of the tools, and only 1 provided technical adequacy information

Best practices in developing assessment tools include obtaining input from multiple perspectives and the research literature when conceptualizing the tool, conducting pilot or field testing to ensure that the items and instructions are clear to potential users, establishing technical properties to confirm that the tool is producing reliable and valid information, and engaging in an iterative revision process throughout tool development (Colton & Covert, 2007).

Of the 21 states, at least 12 gained input from multiple sources during tool development.[5] These sources included internal state experts and staff, such as state-funded technical assistance centers (12 states); outside experts, such as university researchers (11 states); school representatives (6 states); district representatives (5 states); and the research literature (3 states). Eight states conducted pilot tests or small-scale trial runs to examine how potential users might navigate the tools (for example, whether people understood the terminology).[6]

Despite the importance of establishing a tool's validity and reliability, signaling that a tool generates information users can trust, only one state had publicly available information about the tool's technical adequacy.[7] That state produced a technical manual that describes the process for addressing the tool's validity and reliability through pilot testing. To establish criterion validity, the developers correlated scores on the tool with student behavioral and academic outcomes. To ensure content validity, indicating that the tool properly assessed important MTSS/RTI practices, the state extensively reviewed related research and instruments; convened an expert review panel of district-, state-, and national-level experts on MTSS/RTI and positive behavioral interventions and supports (PBIS); and conducted cognitive interviews with district personnel. The developers examined internal reliability by calculating Cronbach's alpha coefficients, a statistical measure indicating whether users respond similarly to a set of items assessing the same MTSS/RTI component. By including items about key MTSS/RTI practices, developers can assure users that the tool is accurately assessing an MTSS/RTI framework. One interview respondent explained that limited staff capacity had precluded examining the tool's technical adequacy but that the state had recently applied for a federal grant to support this type of research.

Interview respondents typically reported using federal funding to support tool development and use

Five of the eight state respondents interviewed reported that funding from the U.S. Department of Education's Office of Special Education Programs supported development of the assessment tool. Respondents explained

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5. Four states did not provide information about the resources used to develop the tools.
6. This count is based on publicly available information as well as information provided by states that was not publicly available during the data verification process.
7. The state's name is suppressed to meet the respondent's request for anonymity.

that developing a state-specific tool and supporting its use required considerable time and resources. These five respondents reported that their state received Title VI Part B grant funds under the Individuals with Disabilities Education Act of 2004 (Public Law 108–446) or from the State Personnel Development discretionary grants. Three respondents were uncertain of their state's funding sources.

Some interview respondents explained that their state may fund one or more technical assistance centers to carry out a larger initiative focused on implementation of an MTSS, RTI, or PBIS framework. The center may be charged with developing and supporting use of a tool to assess implementation progress. Specific state-funded centers include the Florida Problem Solving/Response to Intervention Center, the Oregon Response to Instruction and Intervention Center, and the Wisconsin Response to Intervention Center. In funding a center, the state is signaling the importance of the MTSS/RTI framework by providing a dedicated resource to help school and district staff implement the practices and use the tools.

Two interview respondents reported supporting a small group of districts and schools through a federal discretionary grant. One respondent explained that after the grant ended, the state no longer had the capacity and resources to sustain the same types of supports. Staff at schools that were not part of the grant did not have access to the same level of technical assistance and support from coaches, and state staff did not have the capacity to sustain the initiative or expand it to more schools.

Tools vary in whether they assess broad or specific practices

Most tools (81 percent) include the broad practice of administering assessments, and fewer tools (48 percent) include the specific practice of administering universal screening at least twice a year. According to best practices, an assessment tool should include key components, subcomponents, and dimensions associated with the expectations for program implementation (Breitenstein et al., 2010). The study team assessed the 31 tools for 4 components, 8 subcomponents, and 24 dimensions that map to key MTSS/RTI practices described in the literature and that are considered promising practices (table 1).

This study classifies components (dark blue rows in table 1) and subcomponents (light blue rows in table 1) as "broad" MTSS/RTI practices that capture general activities lacking explicit detail for implementing MTSS/RTI. It categorizes dimensions (white rows in table 1) as "specific" MTSS/RTI practices that describe more detailed and precise actions for implementing an MTSS/RTI framework. All 31 tools were assessed for their coverage of the key MTSS/RTI practices listed in table 1.

Nearly all tools (97 percent) included at least one of the four key MTSS/RTI components (considered "broad" MTSS/RTI practices). The four components are administering assessments (81 percent), offering multiple tiers of instruction and intervention (77 percent), supporting data-based decisionmaking (74 percent), and supporting infrastructure practices for RTI implementation (39 percent; see table 1). Of the 31 tools, 9 (29 percent) addressed all four components. All tools included at least one key MTSS/RTI subcomponent, which is a practice that defines or describes the components in measurable ways (also considered "broad" MTSS/RTI practices). For example, most tools defined the assessment component by including the practices of administering universal student screening (90 percent) and progress monitoring (87 percent), and at least 77 percent of the tools included explicit expectations for offering tier 1 instruction (90 percent) and tier 2 and 3 interventions (84 percent and 77 percent).

Fewer tools included dimensions (considered "specific" MTSS/RTI practices) that describe specific practices within subcomponents. For example, while 90 percent of tools included the subcomponent of administering universal screening measures, fewer tools included dimensions that reflect more explicit practices associated with an MTSS/RTI framework, such as screening at least twice a year (48 percent) or screening all students (65 percent; Deno, 2016; Fuchs et al., 1984; Fuchs, Fuchs, Hamlett, & Stecker, 1991; Gersten et al., 2008;

Table 1. Percentage of tools with each multi-tiered system of supports/response to intervention key practice, by component, subcomponent, and dimension

Key practice	Percent of tools
ADMINISTER ASSESSMENTS	81
Administer universal screening measures	90
Establish end-of-year benchmarks	13
Administer at least twice a year	48
Use reliable and valid screening tools	52
Include all students	65
Administer progress monitoring measures	87
Administer progress monitoring measures monthly at tier 2 and weekly at tier 3	29
Use reliable and valid progress monitoring tools	39
OFFER MULTIPLE TIERS OF INSTRUCTION AND INTERVENTION	77
Offer tier 1 instruction	90
Use evidence-based programs	45
Tie to standards-based curriculum	61
Address differentiation of instruction	68
Offer tier 1 to all students	74
Offer tier 2 intervention	84
Require consideration of group size and dosage	29
Tie to core curriculum	42
Use evidence-based interventions	45
Provide individualized instruction	52
Offer tier 3 intervention	77
Require consideration of group size and dosage	29
Tie to core curriculum	29
Use evidence-based interventions	32
Provide individualized instruction	48
SUPPORT DATA-BASED DECISIONMAKING	74
Establish data rules	74
Use tier 2 and 3 progress monitoring data to determine responsiveness to interventions	39
Use multiple sources of data to inform decisions	42
Use analysis of tier 2 and 3 progress monitoring data inclusive of slope of improvement or progress toward attainment of a goal	52
SUPPORT INFRASTRUCTURE PRACTICES FOR MTSS/RTI IMPLEMENTATION	39
Establish building-level implementation teams	87
Allocate time for teams to meet	26
Evaluate individual student progress using screening and progress monitoring data	29
Use a problem-solving approach for decisionmaking	71
Offer coaching to support implementation (for example, to understand data)	39

MTSS/RTI is multi-tiered system of supports/response to intervention.

Note: Dark blue rows are components, light blue rows are subcomponents, and white rows are dimensions. The percentage of tools at the component level refers to tools that include all subcomponents for a given component. The percentage of tools at the subcomponent level does not necessarily include all the dimensions.

Source: Authors' in-depth analysis of tools from the website and document review in 2018.

see table 1). Similarly, to operationalize the component practice of offering multiple tiers of instruction and intervention, 84 percent of tools incorporated the subcomponent practice of "offer tier 2 intervention," whereas only 45 percent addressed the more specific dimension of using evidence-based interventions with tier 2 students (Denton, Vaughn, & Fletcher, 2003; Stoiber & Gettinger, 2016). A similar pattern is evident for the remaining two components (support data-based decisionmaking and support infrastructure practices for MTSS/RTI implementation).

A tool that defines expected practices at the dimension level describes the practice in a concrete manner that educators should be able to interpret in the same way and that supports implementing a practice as expected by a state (for example, specifying how to implement a practice, with whom, or how often). These specific practices reduce subjective inference in item interpretation and rating assignment, thereby increasing the likelihood of interrater agreement and reliability for the instrument. Thus, tools that assess specific MTSS/RTI practices at the dimension level are more likely to yield reliable feedback that schools and districts can use to improve MTSS/RTI implementation (Zimmaro, 2004).

Yet having a well-developed tool is only a state's first step toward understanding MTSS/RTI implementation in schools. The next step, offering training and supports for school and district staff, helps ensure that they implement the tool as intended.

The website and document review revealed that 15 of the 21 states that developed or adapted a tool made resources available to support tool use, while interview respondents reported using purposeful site selection, training, coaching, and follow-up strategies to support tool use

States can assist schools and districts in tracking progress toward implementation of expected practices within an MTSS/RTI framework by providing tools for assessing implementation and by developing a plan that supports schools and districts in using these tools. For research question 4 on supporting districts and schools in using the assessment tool, interview respondents reported using competency drivers to guide their planning approach, as described below (Blase, Fixsen, & Duda, 2011; Fixsen, Naoom, Blase, & Friedman, 2005). According to the State Implementation and Scaling-up of Evidence-based Practices Center and the National Implementation Research Network (2017), "competency drivers are the activities to develop, improve, and sustain educator and administrator ability to put programs and innovations into practice so [that] students benefit."

Some state interview respondents reported purposefully selecting sites in the initial roll-out for training on how to use the tool. When implementing new practices, such as using an implementation assessment tool, getting staff on board and building a culture of working together are paramount to success (Fixsen et al., 2005). Respondents reported that selecting sites for the initial roll-out was an important consideration, and different states used different processes to select sites purposefully.

One interview respondent explained that, to gradually reach all districts, the state systematically rolled out the tool over five years using a cohort model. For cohort 1, state MTSS personnel used data from a readiness instrument to select a small group of districts that seemed the most ready to implement MTSS. For cohort 2, they selected districts that were slightly less ready, along with districts that were the least ready, in an effort to provide the least ready districts with models of districts that were likely to implement the tool successfully. Cohorts 3 and 4 covered the remaining districts of regular public schools, and cohort 5 included charter schools. This approach enabled the state to strategically and gradually roll out the tool to all districts.

Two interview respondents reported that their states required districts to apply to participate in training. For example, one respondent explained that the application included forms and interviews to assess a district's

readiness. The application process also gave the state MTSS/RTI team an opportunity to prepare districts for what the training would entail and the anticipated time commitment.

Interview data indicate that states varied in whether training targeted regional or district personnel to support school staff in using the tool. Improving MTSS/RTI practices requires training, both to clarify the underlying rationale for using the implementation assessment tool and to explain how it supports schools in implementing MTSS/RTI practices. Interview respondents described training personnel at either the regional or district level to help ensure that school-based teams understand how to use the tool.

Two interview respondents reported that regional consultants were trained at state-funded technical assistance centers and were then responsible for supporting school teams in using the tools and the resulting data. One respondent explained that the state used a limited number of regional trainers to make the trainings consistent and support accurate implementation of the state's MTSS/RTI model. In comparison, three respondents reported that state MTSS/RTI staff (from either a state-funded technical assistance center or the state department of education) provided training to a district-level facilitator or coach, who then supported school teams in using the tools. One respondent commented that the state used a facilitator to ensure that someone had the requisite content knowledge and interpersonal skills to support completion of the team-based assessment. Three other respondents described how state MTSS/RTI personnel worked directly with districts and schools to support tool use.

Five interview respondents reported having state-level coaches who supported tool use. Most new skills can be introduced during training, but multiple opportunities to practice and receive feedback are critical for mastery. Guidance from a coach is recommended to support schools in implementing an MTSS/RTI framework (Freeman, Sugai, Simonsen, & Everett, 2017; March, Castillo, Batsche, & Kincaid, 2016).

Two interview respondents reported that districts and schools were required to commit to two or more years of training and subsequent coaching. One respondent described how a state-funded technical assistance center worked with districts by focusing on elementary school literacy for four years, middle school literacy for three years, and elementary school math for two years. Coaches at the state-funded center were responsible for inputting the tool data into the center's online dashboard and reviewing the data with district and building leadership teams to support action planning. Another respondent explained that school personnel used the tools with support from a state coach for the first three to four years and that MTSS/RTI coaches monitored districts' data and guided schools in problem-solving, as needed.

Six interview respondents reported following up with communication processes and strategies to maintain implementation. The respondents reported on how their state followed up with staff who had been trained and what types of communication processes and tools they used for maintaining contact to encourage continuing use of the implementation tools. These processes included using online data input and scoring systems and a program for recognizing schools that were making progress toward full implementation of an MTSS/RTI framework.

One interview respondent explained that the state-funded technical assistance center sent districts a link each year to complete the tool online, which also allowed the center to monitor which schools completed it. The center also supported data use in decisionmaking by employing the data to create school-level charts and action plan templates.

One interview respondent shared that schools were not required to use the tools because MTSS/RTI was not required in the state. However, to encourage use of the tool, schools could receive various degrees of recognition (bronze, silver, gold, or platinum), depending on the levels or tiers, content areas, and duration for which they had demonstrated full implementation.

Limitations

Because the data collected in the website and document review included only publicly released information that was available on state education agency websites, the information may not be comprehensive. Analysis was limited to the data from the website and document review since it was outside the scope of the study to interview an official from every state to expand on that information. For the coding of key MTSS/RTI practices, the findings represent only the information provided on the tools themselves and may not fully reflect key practices in a state's MTSS/RTI framework. Further, the study captures information only on the tools that states confirmed that they were using as of May 2018.

The interview data are not generalizable because only eight state education officials were interviewed. District and school staff were not interviewed, so the data provide limited information about the actual day-to-day use and challenges of implementing MTSS/RTI assessment tools from the perspective of district and school staff. Rather, interview respondents mentioned broader challenges that they observed from their vantage point in the state department of education or state-funded technical assistance center, such as lack of state capacity to provide coaching to everyone (two states), complaints from tool users that the tools were cumbersome or burdensome (three states), and tool users struggling with how to use the data after completing a tool (two states). Finally, causal inferences cannot be drawn from the study findings about the effectiveness of any specific practices in supporting MTSS/RTI implementation.

Implications

State officials who are seeking to use a tool for assessing MTSS/RTI implementation may find it valuable to review existing tools as a first step, to consider whether selecting or adapting an existing tool may meet the state's needs. State officials considering tool development can look at the 21 states that had developed or adapted tools as of 2018 that were accessible to the public. (See appendixes B and D for the states and tools that were included in the in-depth analysis.)

Although there are many examples that can inform tool development and adaptation, states might consider the following approaches used by the 21 states in this study in developing tools and supporting their use. (See appendix D on the proportion of key MTSS/RTI practices addressed by each tool type.)
- Capture key MTSS/RTI practices to the extent possible, particularly specific and clearly described dimensions that help ensure construct and content validity and that can facilitate agreement among educators in the same district or school on their ratings of practices.
- Use a format, such as a rubric, that describes explicit practices for each level of implementation so that users have the information to determine next steps toward ideal implementation (Jonsson & Svingby, 2007).
- Request evidence to justify tool ratings to bolster the validity of the information collected and support consistency in the criteria used to substantiate tool ratings across users in the same district or school.
- Pilot test to understand how intended users interact with the tools and to inform any needed modifications (Colton & Covert, 2007).
- Establish technical adequacy (reliability and validity) when developing or extensively adapting a tool to confirm that the tool captures the information of interest accurately and consistently among intended users (Moskal & Leydens, 2000; Reddy & Andrade, 2010).
- Provide training and technical assistance on how to use the tool and the data it generates (Fixsen, Blase, Naoom, & Wallace, 2009).

State agency staff seeking tools with these characteristics may want to consult Minnesota's Reading Tiered Fidelity Inventory, an adapted rubric that addresses all the key MTSS/RTI components and subcomponents and 75 percent of the 24 dimensions listed in table 1. This tool also requests that users provide evidence to support

tool ratings. Further, Minnesota is currently pilot testing the tool. State agency staff who are interested in establishing technical adequacy for their tool may want to learn more about the process that developers can use to examine a tool's validity and reliability (for example, convening expert review panels and collecting preliminary data on use through pilot testing).

Time, resources, and capacity are important considerations in tool development and use. Thus, state agency personnel may also want to consider using other types of tools in place of or in addition to rubrics. For example, Wyoming's MTSS Implementation Checklist for Literacy is a rating scale that addresses all the key MTSS/RTI components and subcomponents and 83 percent of the 24 dimensions listed in table 1 and requests that users provide evidence to substantiate ratings. Pennsylvania's Using Response to Intervention for SLD Determination: School Building Application (K–12) is a checklist that addresses key MTSS/RTI practices (75 percent of the components, 88 percent of the subcomponents, and 75 percent of the dimensions listed in table 1) and requests evidence. For state personnel interested in using a survey to gain insight into staff members' perceptions about implementation, New York's Self-Assessment Tool for RtI Readiness captures all the key MTSS/RTI components and subcomponents and 75 percent of the dimensions listed in table 1, in addition to having been pilot tested.

Yet having an implementation assessment tool available may not be sufficient to enhance implementation of MTSS/RTI practices to improve student learning outcomes (McClellan, 2010; Stuhlmann, Daniel, Dellinger, Kenton, & Powers, 1999). Appropriate training is needed to support school personnel in administering a tool as intended, analyzing the data appropriately, and applying the findings to support program improvement in a sustainable way (Foorman, Smith, & Kosanovich, 2017). States might consider approaches reported by the interview respondents, such as gradually rolling out tools through purposeful site selection, requiring an application, or establishing a cohort model based on school readiness to use the tool effectively. Through this gradual release, states can focus on delivering high-quality training to fewer sites while accommodating possible resource constraints. If resources allow, states might also consider options for providing coaching through a state-funded technical assistance center for MTSS/RTI implementation; funding an onsite district MTSS/RTI director to lead, implement, and evaluate the initiative; or funding state- or regional-level coaches within regional or intermediate education agencies that may include MTSS/RTI supports. In addition to being informative for state personnel, these findings can be relevant for district staff, such as those without a state-level tool or those wanting to develop a tool that is more closely aligned with the district's MTSS/RTI framework.

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