Welcome participants to the training on the multi-level prevention system. Throughout this module the notes will be formatted in the following way:

“Text formatted in standard font is intended to be read aloud by the facilitator.
Text formatted in bold is excerpted directly from the presentation slides.
Text formatted in italics is intended as directions or notes for the facilitator; italicized text is not meant to be read aloud.”

Additional information can be found in the NCRTI Facilitators Guide which can be accessed at www.rti4success.org

This is the final module within the implementer series developed by the National Center on Response to Intervention (NCRTI). This module focuses on the multi-level prevention system. The preceding modules focused on screening and progress monitoring. All three Modules are aimed at district or school teams involved in the planning for Response to Intervention (RTI) implementation.

Note: This module relies on information presented in the screening and progress monitoring modules (Modules 1 and 2). Although it is possible to present this module as a stand-alone presentation, the content may need to be supplemented by information from the previous two modules.

Throughout the module green boxes are included on some slides to alert participants of NCRTI resources that relate to the content on the slide. The green boxes are also used to alert participants to the location of handouts or key information in the training manual. Where available, the link is included to the actual resource. The two primary resources referenced are the Integrity Rubric (http://www.rti4success.org/resourcetype/rti-integrity-rubric-and-worksheet/) and the Instructional Intervention Tools Chart and User’s Guide (http://www.rti4success.org/instructionTools). As the Integrity Rubric is referenced a number of times, providing participants with a hard copy to reference is recommended.
Read slide.

The agenda may be changed to fit the time frame and the focus of the training.
The objectives for this training are as follows:

Read slide.

Note: Decisions rules for screening and progress monitoring were covered in Module 1: Screening and Module 2: Progress Monitoring. If the screening and progress monitoring modules have not been presented to these participants, we recommend that you include additional information on data-based decision making in this module.
The following review is intended to provide an overview of the key points from Module 1: screening and Module 2: progress monitoring. Allow between 20-30 minutes to review screening and progress monitoring and conduct a review activity.

Key Terms:

- Essential components
- Progress monitoring
- Culturally responsive
- Screening
- Data-based decision making
- Evidence based

Main Points:

- *RTI is a school-wide, multi-level prevention system that integrates assessment and intervention.*
- *RTI is a preventive framework for all students, not a pre-referral process for special education.*
- *The four essential components of RTI are screening, progress monitoring, the multi-level prevention system, and data-based decision making.*
Defining RTI

- Response to intervention (RTI) integrates assessment and intervention within a school-wide, multi-level prevention system to maximize student achievement and reduce behavior problems.

Although not required, it is recommended that participants have access to the one-page What Is RTI? Placemat (www.rti4success.org), a supplement to the Essential Components of RTI – A closer Look at Response to Intervention, for easy reference.

The National Center on RTI has a definition (this definition is taken from the What is RTI placemat) for RTI that includes what we consider to be the essential components. **Response to intervention integrates assessment and intervention within a school-wide, multi-level prevention system to maximize student achievement and reduce behavior problems.** It is important to point out that RTI is a school-wide prevention system, as opposed to a prerereferral process for special education, and it is multi-level as opposed to multitier. It is important to understand that there are three levels of prevention in an RTI framework, and states, school districts, and schools can have multiple tiers within those three levels of instruction to prevent poor learning outcomes. This will be discussed further during the training.
Defining RTI

- With RTI, schools identify students at risk for poor learning outcomes, monitor student progress, provide evidence-based interventions and adjust the intensity and nature of those interventions based on a student’s responsiveness; and
- RTI may be used as part of the determination process for identifying students with specific learning disabilities or other disabilities (in accordance with state law).

The second part of the definition highlights the essential components of an RTI framework.

- The first component involves schools identifying students at risk for poor learning outcomes. We commonly refer to this process as universal screening.
- The next component involves monitoring student progress through progress monitoring.
- The third component relates to providing evidence-based interventions based on a student’s responsiveness. It is not merely the delivery of interventions that is important; there must be a multi-level prevention system in which students have access to increasingly intense levels of instruction and interventions.
- The last component involves using data (e.g., screening, or progress monitoring) to adjust the intensity and nature of those interventions based on student responsiveness. In other words, there is an explicit, systematic process for data-based decision making.

Some people mistakenly believe that RTI involves only special education. It is important to remember that RTI is a school-wide, multi-level prevention system that results in data that may be used as part of the determination process for identifying students with specific learning disabilities or other disabilities in accordance with your state law.
In summary, RTI is a preventive framework. RTI is not a new name for a prereferral process. The intent of RTI is to improve outcomes for all students while providing immediate supplemental supports to students at risk for poor learning outcomes. Although, RTI may be a component of a comprehensive evaluation for specific learning disability determination, that is not the overarching purpose of RTI.
So, as you saw in the definition, the Center has identified four essential components for RTI:

- **Screening**: a system for identifying students at risk for poor learning outcomes
- **Progress monitoring**: a system for monitoring the effectiveness of the supports provided to students
- **School-wide, multi-level prevention system**: at least three increasingly intense levels of instructional support.
  - **Primary** – the core instruction and curriculum.
  - **Secondary** – instruction that is supplemental to the primary level that provides supports targeted to students’ needs
  - **Tertiary** – instruction that is also supplemental to primary, but more intense than secondary
- **Data-based decision making for**
  - **Instruction** – determining who needs assistance, what type of instruction or assistance is needed, is the duration and intensity sufficient, etc.
  - **Evaluating Effectiveness** – evaluating the effectiveness of the core curriculum and instruction for all students, interventions, and the RTI framework.
  - **Movement within the multi-level system** – when to move students to something more or less intense, who is responding and/or not responding, etc.
  - **Disability identification** – when to refer for special education evaluation, how does the student compare to his/her peers, did he/she receive appropriate instruction, etc. This is, of course, in accordance with the state law.
NCRTI has developed this graphic to highlight the RTI framework. Many of you probably associate the red, green, and yellow triangle with RTI. In reality, the triangle does not represent the RTI framework; it represents only one component: the multi-level prevention system. The Center graphic takes into account all of the essential components and most importantly uses data to make decisions, which is often absent from the traditional RTI triangle.

If you look at the far left, you see screening; to the far right, progress monitoring; and at the bottom, the multi-level prevention system. The three outer components require and are necessary parts of data-based decision making, which is why the arrows travel in both directions. If the three other components are in place, but data-based decision making is absent, then RTI is technically not being implemented.

In the center ring, you will see the phrase “culturally responsive,” meaning that screening tools, progress monitoring tools, core instruction, interventions, and data-based decision-making procedures should all be culturally responsive. In the same ring, you will notice the phrase “evidence-based,” which implies that all components are evidence-based. If these components are implemented through a cohesive model, we expect to see improved student outcomes. I will now briefly review screening, progress monitoring and data-based decision making before moving to the focus of the presentation, the multi-level prevention system.
The **purpose of screening** is to **identify those students who are at risk for poor learning outcomes**. Because RTI is a framework for providing services, the outcomes you are concerned about could be anything, such as academic achievement, behavior, graduation, or post school outcomes. Sites (state, district, schools) typically identify what outcomes students are expected to achieve and then screen to see which students are not likely to achieve those outcomes.

For example, if the desired outcome is graduation, a quick screen of attendance and credits – predictors of graduation – can reveal which students are not likely to meet the requirements of graduation and need additional support. If the desired outcome is mastery on end-of-year tests, student performance assessments like curriculum-based measurement (CBM) can reveal which students are not likely to meet the end of year standards and need additional support.

The **focus** is on **all students** not just those students we may believe are at risk. Students may slip through the cracks unless there is a systematic process for screening in place. Screening is not diagnostic testing; it is a brief, reliable, and valid assessment to identify which students may need additional assessments, (such as progress monitoring or diagnostic assessments), or additional instructional support. The tools should demonstrate diagnostic accuracy for predicting learning or behavioral outcomes. In other words, they should be able to accurately identify who could be at risk.

At a minimum, **screening should be administered more than once per year**, such as at the beginning of the school year and the middle of the school year. Schools and districts that wish to use screening data to evaluate program effectiveness, to establish local norms and cut scores, and to provide data to the next year teacher typically choose to administer the screening assessment three times a year (e.g. fall, winter, spring) and should select a screening tool that provides alternative forms and multiple benchmarks.
Progress Monitoring

- **PURPOSE**: Monitor students’ response to primary, secondary, or tertiary instruction in order to estimate rates of improvement, identify students who are not demonstrating adequate progress, and compare the efficacy of different forms of instruction.
- **FOCUS**: Students identified through screening as at risk for poor learning outcomes.
- **TOOLS**: Brief assessments that are valid, reliable, and evidence-based.
- **TIME FRAME**: Students are assessed at regular intervals (e.g., weekly, biweekly, or monthly).

The **purpose of progress monitoring** is to **monitor students’ response to primary, secondary and tertiary instruction**. Progress monitoring data can be used to 1) **estimate the rates of improvement**, which allows for comparison to peers; 2) **identify students who are not demonstrating or making adequate progress** so that instructional changes can be made; and 3) **compare the efficiency of different forms of instruction** – in other words, identify the instructional approach or the intervention that lead to the greatest growth among students.

Progress monitoring is not just for those students identified for supplemental instruction. The **focus** is on **students who have been identified through screening as at risk for poor learning outcomes**. This could include students just above the cut score as well as those scoring below the cutoff score.

**Progress monitoring tools**, just like screening tools, should be brief, **valid, reliable, and evidence-based**. Common progress monitoring tools include general outcome measurements, including CBM and mastery measures.

The **time frame** for progress monitoring assessment is really dependent on the tools being used and the typical rate of growth for a student.

Progress monitoring can be used any time throughout the school year. With progress monitoring, **students are assessed at regular intervals** (e.g., weekly, biweekly, monthly) to produce accurate and meaningful results that teachers can use to quantify short- and long-term student gains toward end-of-year goals. At a minimum, progress monitoring tools should be administered at least monthly. However, more frequent data collection is recommended given the amount of data needed for making decisions with confidence (six to nine data points for most tools). With progress monitoring, teachers establish long-term (i.e., end-of-year) goals that indicate the level of proficiency students should demonstrate by the end of the school year.
Data-Based Decision Making

- Analyze data at all levels of RTI implementation (e.g., state, district, school, grade level) and all levels of prevention (i.e., primary, secondary, or tertiary).
- Establish routines and procedures for making decisions.
- Set explicit decision rules for assessing student progress (e.g., state and district benchmarks, level and/or rate).
- Use data to compare and contrast the adequacy of the core curriculum and the effectiveness of different instructional and behavioral strategies.

In a comprehensive RTI framework, data analysis occurs at all levels of RTI implementation, not only at the student level. For example,

- States may use RTI data to establish policy and guidance and allocate resources.
- Districts may use data to evaluate the effectiveness of RTI, establish policies and procedures, and allocate resources.
- Schools may use data to evaluate the effectiveness of their overall framework and the essential components, assess alignment among grade levels, and allocate resources.
- Grade-level teams may use data to evaluate core curriculum and instruction, identify students for secondary and tertiary instruction, and allocate resources.

Data analysis and decision making occur at all levels of prevention. For example, in the primary level of prevention, we are interested in the effectiveness of the core curriculum and instruction. With the secondary and tertiary levels of prevention, we are looking at student-level decisions, but we are also looking at how well particular interventions work for the majority of students in the secondary and tertiary levels of prevention.

Districts and schools should have established routines and procedures, ideally in writing, for making decisions. Written procedures increase fidelity of the data-based decision-making process; ensure the equity of resources among students, classes, and schools; and help train new teachers more efficiently. Teams should follow pre-established routines and procedures for making decisions. For example, data teams should meet at regularly scheduled intervals, such as monthly or bimonthly, to systematically review data.

Districts/schools should also establish explicit decision rules for assessing student progress. This includes goal-setting procedures, changing instruction and/or interventions, referring students to special programs, and moving students to more or less intensive levels.

Schools can also use data to compare and contrast the adequacy of the core curriculum and the effectiveness of different instructional and behavioral strategies at all levels of prevention.
This slide provides a series of questions from the first two modules. It is up to the presenter on how to structure the review. Allow for 10-15 minutes for teams or pairs to answer questions.

**What is the difference between a mastery measure and a general outcome measure?** Mastery measures assess a student’s mastery of a specific skill while general outcome measures assess whether students are progressing in a general domain (e.g., reading or math). The latter can provide information about whether students are maintaining and generalizing mastered skills.

**T or F: All progress monitoring tools are created equal.** False

**Where can I find evidence of the reliability and the validity of progress monitoring tools?** The NCRTI Progress Monitoring Tools Chart

**Name three uses of progress monitoring data.**
- Estimate rates of improvement,
- Identify students who are not demonstrating adequate progress, and/or
- Compare the efficacy of different forms of instruction to design more effective, individualized instruction.

**What is a trend line?** A line through the scores that visually represents the performance trend

**What are three ways to establish PM goals?**
- End-of-year benchmarking
- National norms for weekly rate of improvement (slope)
- Intra-individual framework (tertiary)

**Describe two ways to analyze progress monitoring data.** Trend line analysis (a decision is based on whether the trend line is above or below the goal line) and 4-point rule (a decision is based on whether the four most recent data points are above or below the goal line)

See screening and progress monitoring modules for additional questions that might be used for this review activity.
This section will focus on the essential component, multi-level prevention system.

The following are key terms and main points that should be focused on during this segment of the presentation.

Key Terms

<table>
<thead>
<tr>
<th>Levels</th>
<th>Tiers</th>
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<tbody>
<tr>
<td>Intervention</td>
<td>Primary level prevention</td>
</tr>
<tr>
<td>Secondary level prevention</td>
<td>Tertiary level prevention</td>
</tr>
<tr>
<td>Core curriculum</td>
<td>Differentiated learning</td>
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<tr>
<td>Disability identification</td>
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Main Points

- The RTI framework has three levels (primary, secondary, and tertiary), but the RTI model determines the number of tiers as defined by the school, district, or state. The number of interventions provided within the levels and the tiers should be determined by the needs of the population.

- The primary level of prevention provides research-based core curriculum materials that are aligned across grades and grade levels, differentiated instruction based on student need, and is monitored and implemented with fidelity.

- The secondary level of prevention provides interventions with fidelity that are administered by well-trained staff in optimal group sizes for students. These interventions are evidence-based, aligned and supplemental to core instruction. Decisions about responsiveness to interventions are based on reliable and valid progress monitoring data and explicit decision rules.

- The tertiary level of prevention represents more intensive individualized interventions that are implemented with fidelity and are evidence-based or validated through progress monitoring methods for individualizing instruction. Interventions should be led by well-trained staff, in optimal group sizes for the age and the need of students, and address the general education curriculum in an appropriate manner for a student. Decisions are made on a case-by-case basis and based on reliable and valid progress monitoring data and decision rules.

- Instruction can be changed by changing one of the following: the intervention, the duration, the frequency of the intervention, the interventionist, or the group size.
As I mentioned previously, many of you probably associate the red, green and yellow triangle with RTI. In reality, the triangle does not represent the RTI framework but only the multi-level prevention system component. The Center graphic shows the interconnected nature of the four essential components and how screening and progress monitoring data are used to make data-based decisions that inform the multi-level prevention system and movement between the primary, secondary and tertiary prevention levels.
The triangle graphic depicts the progression of support across the multi-level prevention system. Although discussions in the field frequently refer to “tiers” to designate different levels of interventions, the Center intentionally avoids the use of this term when describing the RTI framework and instead uses “levels” to refer to three prevention foci: the primary level, the secondary level, and the tertiary level. Although the term “levels” is often used synonymously with the term “tier,” they can be different. The common denominator should be the intensity of the support. This triangle represents three levels of prevention and the percentage of students we would expect to benefit from those levels of prevention in an effective system.

The first, or primary level, is indicated in green. We expect most students, at least 80 percent, to benefit from the instruction, which uses well-differentiated instruction in the core curriculum. The next, or the secondary level, is indicated in yellow. We expect about 10-15 percent of students to need supplemental, small-group instruction to benefit from the core instruction and curriculum. The top level in red, or the tertiary level includes specialized, individualized instruction for students with intensive needs. It typically involves small group and/or one-on-one instruction of 1-3 students who are significantly behind their peers. Decisions regarding student participation in both primary and tertiary levels of prevention are made on a case-by-case basis according to student need.

Note: It is important to differentiate between an RTI framework and an RTI model. The levels correspond to the RTI framework whereas the tiers correspond to the RTI model specified by states, districts and schools. The percentages reported above are based on prevention-oriented public health models. Keep in mind that these are recommended estimates. Thus, if percentages of primary, secondary, and tertiary students in your school do not correspond to this chart, these recommended percentages may be good targets to work toward.
Remember, the RTI model used in schools or districts is their interpretation of the RTI framework. Schools and districts vary widely in the number of tiers included in their RTI frameworks. Regardless of the number of tiers of intervention a school or district implements, each should be classified under one of the three levels of prevention: primary, secondary, or tertiary. This will allow for a common understanding across schools, districts, and states. Within this three-level prevention system, schools may configure their RTI frameworks using four, five, or more tiers of intervention. The minimum number of tiers possible within a school or LEA’s model is three, with one tier representing each level of intensity. In choosing the number of tiers for the RTI model, practitioners should recognize that as the number of tiers increases, the complexity of the model also increases. In all models, all students receive instruction within primary prevention level (the core curriculum), which is often synonymous with tier 1. [Essential Components of RTI – A closer Look at Response to Intervention]

Note: A further discussion about the distinction between levels and tiers can be found in the Ask the Expert video by Lou Danielson “Why does The National Center on RTI use the term “levels of prevention” instead of “tiers” when describing the RTI framework?” http://www.rti4success.org/asktheexpert/video/996
Interventions are provided within each level and within each tier. Variations in the model, including the number of tiers and the interventions used within each tier, should be based on the needs of the population. For example, one school may have three interventions of approximately the same intensity in the secondary level of prevention, while another school may have one intervention at this level. While there are differences in the number of interventions, these schools will have a common understanding of the nature and the focus of the secondary level of prevention. Within each level of prevention and tier, there can be more than one intervention, but this is not a requirement. [Essential Components of RTI – A closer Look at Response to Intervention]
When we are talking about the different levels within a multi-level prevention system it is important to understand the difference between research-based curricula and evidence-based interventions.

*Review slide.*
First, we are going to talk about primary prevention in more detail
Primary Prevention Level

- **FOCUS:** ALL students
- **INSTRUCTION:** District curriculum and instructional practices that are research based; aligned with state or district standards; and incorporate differentiated instruction
- **SETTING:** Regular education classroom
- **ASSESSMENTS:** Screening, continuous progress monitoring, and outcome measures or summative assessments

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Primary prevention is high-quality core instruction that meets the needs of most students.

*Briefly summarize slide.*
The focus of primary prevention is **ALL students including those with disabilities, learning differences, or language barriers**. You can increase access for all students through **differentiated instruction**, **linguistically and culturally responsive practices**, and using **accommodations or modifications**.

*Read slide.*
Refer participants to the multi-level instruction section of the Integrity Rubric. The last column includes the essential features of an effective primary prevention level (See NCRTI Integrity Rubric).

Within primary level instruction:

- All of the curriculum materials are research based for the target population of learners (including subgroups).
- Procedures are in place to monitor the fidelity of implementation of the core curriculum; the preponderance of evidence supports that the core curriculum is delivered with fidelity, as it was intended to be delivered.
- Teaching and learning are well articulated from one grade to another and within grade levels so that students have highly similar experiences, regardless of their assigned teacher.
- Most or all teachers differentiate instruction using students’ assessment data to identify their students’ needs.
- School-based professional development is institutionalized and structured so that all teachers continuously examine, reflect on, and improve instructional practice.
The core curriculum is the course of study deemed critical and usually mandatory for all students of a school or school system. Core curricula are often instituted at the elementary and secondary school levels by local school boards, departments of education, or other administrative agencies charged with overseeing education. [Essential Components of RTI – A closer Look at Response to Intervention]
Teachers use student assessment data and knowledge of student readiness, learning preferences, language and culture to offer students in the same class different teaching and learning strategies that address their needs.
Differentiation can **involve mixed instructional groupings, team teaching, peer tutoring, learning centers, and accommodations to ensure that all students have access to the instructional program.** Differentiated instruction is **NOT the same as providing more intensive interventions to students with learning disabilities.**
The setting for primary prevention is the general education classroom or a similar setting. Various grouping strategies such as whole class and cooperative learning groups, are used.
Ongoing data drives instructional decisions in primary prevention. This includes:

*Universal screening* to determine students’ current level of performance

*Continuous progress monitoring* to confirm risk status and monitor progress of at-risk students

*Outcome measures or summative assessments* for accountability

*Read slide.*
As we have discussed in the screening and progress monitoring modules, the data collected can help to inform decisions within the primary prevention level. **Screening data** can help identify students in need of additional assessment or instruction and can evaluate the effectiveness of the core curriculum. **Progress monitoring data** can be used to confirm or disconfirm students identified through screening as at risk.

*Note: The data portions of this module are intended as review. If you did not present the screening and progress monitoring modules to this group of participants, you might need to supplement the data sections in this presentation to show how screening and progress monitoring data can be used within the multi-level prevention system.*
All students in primary prevention are screened using validated screening tools. Screening data can show you which students are falling behind their peers or below determined benchmarks and who needs additional assessment or instruction. Students scoring below a cut score are suspected at risk for reading or math difficulties.

The image at the left (if looking at the screen) shows a box plot that compares an individual student to his or her peer group. The class or grade is represented in the box plot. This level of analysis would be appropriate for identifying students in need of supplemental support. In this example, you can see that the student is performing well below his or her peer group.

The image on the right (if looking at the screen) provides an example of data output using criterion scores (or criterion-referenced data) to identify students. In this example, based on their scores, students are categorized as established, emerging, or deficient.
Using data from primary prevention, districts and schools can also analyze performance by subgroups and make decisions about the efficacy of primary prevention for most students. In this graph, the red line, or target line, represents the target scores, or expected, scores of students. Depending on the location, this may either be the established benchmarks, cut scores, or national performance norms.

These data can help to answer the questions such as:

- How is the general population performing in comparison to the target scores (red line)?
- Are students in Title I performing similarly to students in general education?
- Are students with disabilities performing at similar rates as students without?

*Note: In this example, general population is defined as all students that are not included in Title I or special education.*
Progress monitoring data are used in primary prevention to confirm or disconfirm risk. Suspected at-risk students are monitored for 6 to 10 weeks during primary prevention with a validated progress monitoring tool. Students with adequate slopes, such as this one, continue to receive only primary prevention.
Or, progress monitoring data may confirm risk status, as in this example. This student would receive additional instruction and supports in secondary prevention in addition to the core curriculum.
With your team, take about 5-10 minutes to discuss these traits as they relate to primary prevention. Record your discussion in column 2 of your Developing an RTI Model Handout found in the back of the training manual (Appendix B). Think about:

• What is your district model?

• What things do you want all schools to have?

Please remember, some of you may not have enough time to complete the entire handout. Be sure to come back to the worksheet to complete as a team at a later point.

Have participants refer to the Integrity Rubric to complete this activity. This tool is designed to help district and school teams clarify the dimensions of their RTI model. The level of detail included in the tool is for the team to determine. District teams may want to be more general to allow for variations in models implemented at individual school sites. For example, a district may indicate that progress monitoring tools used in secondary and tertiary interventions are valid and reliable for the population without naming specific tools, whereas the individual school may consider identifying the actual tool. School teams may want to include more specific dimensions of each level of prevention to ensure integrity of the implementation school-wide, whereas the district may include key components to ensure integrity across schools. In the left column, the traits of a multi-level prevention system are in bold. Each trait includes several questions to consider; however, feel free to add additional information. Teams may choose to add additional information in the blank section at the end of the handout.
Next we will discuss the secondary prevention level.
Secondary prevention represents evidence-based intervention(s) of moderate intensity that addresses the learning or behavioral challenges of most at-risk students.

*Briefly summarize slide*

*Note: Progress monitoring and diagnostic assessments are different. Reference “Understanding Types of Assessment within an RTI Framework” in Module 1: Screening*
The focus for secondary prevention is on students identified through screening as at risk for poor learning outcomes. This is typically between 15-20 percent of the entire population. A school or district’s target identification rate (e.g., based on resource limitations, for example, they can only serve 15 percent of students) may mean that not all students who meet the selection criteria for secondary prevention receive this level of support. Schools and districts may consider two tiers within secondary prevention (i.e., tier IIa and tier IIb) if the performance levels or needs of students receiving secondary instruction vary greatly.

Note: see screening module for more information on target identifications rates.
Refer to Integrity Rubric.

In an effective secondary system, the following are true:

- All secondary-level interventions are evidence-based.
- Secondary level prevention is well aligned with core instruction and incorporates foundational skills that support core instruction.
- Procedures are in place to monitor the fidelity of implementation of secondary level interventions and secondary level implementation is generally implemented with fidelity according to developer guidelines.
- Secondary level interventions are led by well-trained staff and the groups size is optimal for the age and the needs of students.
- Decisions about responsiveness to intervention are based on reliable and valid progress monitoring data that reflect the slope of improvement or the final status at the end of secondary level prevention. The decision making criteria are implemented accurately.
- Secondary-level interventions supplement core instruction.
Secondary prevention typically occurs in a regular education classroom or similar setting. Secondary instruction is provided in addition to the core curriculum, so students should not be pulled from general education instruction. It relies entirely on adult-led small-group instruction rather than whole-class instruction and involves instruction where the group size is optimal for the age and needs of the students.
Decisions about responsiveness to intervention are based on reliable and valid progress monitoring data that reflect slope of improvement or the final status at the end of the intervention period; these decision-making rules are applied accurately and consistently.
Progress monitoring data and diagnostic assessments are important when developing a data-driven secondary system. These tools can be used to monitor student response to secondary instruction, evaluate the efficacy of the secondary system, and should be conducted at least monthly. Diagnostic assessments are used within a secondary prevention system to match student needs to interventions. Let’s look at how these data inform decisions at the secondary level.
In Module 2: progress monitoring, we learned that progress monitoring tools and data can help to set goals using end-of-year benchmarks or weekly growth rates.

*Note: If you have not presented the progress monitoring module to these participants, it may be necessary to discuss how to set goals.*

<table>
<thead>
<tr>
<th>Secondary Prevention Goal Setting</th>
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<tbody>
<tr>
<td>▪ End-of-year benchmarking</td>
</tr>
<tr>
<td>▪ National norms for weekly rate of improvement (slope)</td>
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</tbody>
</table>
As we have discussed, the data collected within the secondary level of prevention can help determine the response to secondary interventions either through the four-point rule or trend line analysis. Progress monitoring data can also be used to compare the efficacy of secondary interventions.
The four-point rule states that the decision is made on the last four data points. The four-point rule can be used if three weeks of instruction have occurred AND at least six points have been collected, by examining the four most recent data points. The following decisions can be made.

- If all four are above goal line, you may choose to increase the goal or discontinue providing secondary level interventions. It is recommended that progress monitoring continue in primary prevention to ensure that the student continues to make adequate progress without supplemental support.
- If all four are below the goal line, you need to make an instructional change.
- If the four data points are both above and below the goal line, you need to keep collecting data until the trend-line rule or four-point rule can be applied.
The second approach is trend line analysis. As you can see by these data, the trend line is steeper than the goal line. In other words, the student is showing increasing scores and making progress. Depending on how the goal was set, you may choose to increase the goal or discontinue the secondary level interventions. It is recommended that progress monitoring continue in primary prevention to ensure that the student continues to make adequate progress without supplemental support.
Schools and districts can use the average progress monitoring data to determine average expected growth rates of interventions used and determine which interventions lead to greater gains. To look at this information, clearly delineated interventions must be used for an extended period of time.

Note: This is a more advanced data technique for which many schools may not be collecting the appropriate data. To compare interventions, predefined interventions must be used over a period of time. These types of data alone constitute weak evidence that one intervention truly works better than another. This would be particularly problematic at the tertiary level, where samples are likely to be very small and programs should be somewhat individualized.
Secondary prevention is expected to benefit a large majority of students who do not respond to effective primary prevention. Most students receiving secondary interventions should benefit from this instruction. A small percentage of students, however, will demonstrate inadequate response, providing evidence that they require more intense, individualized (tertiary) instruction.

Data should also indicate that interventions and data-based decision rules were implemented with fidelity.
Turn back to the Developing an RTI Model Handout. With your team, take about 5-10 minutes to discuss these traits as they relate to secondary prevention. Think about:

- What is your district model?
- What things do you want all schools to have?

Please remember, some of you may not have enough time to complete the entire handout. Be sure to come back to the worksheet to complete as a team at a later point.

**Have participants refer to the Integrity Rubric to complete this activity. This tool is designed to help district and school teams clarify the dimensions of their RTI model. The level of detail included in the tool is for the team to determine.** District teams may want to be more general to allow for variations in models implemented at individual school sites. For example, a district may indicate that progress monitoring tools used in secondary and tertiary interventions are valid and reliable for the population without naming specific tools, whereas the individual school may consider identifying the actual tool. School teams may want to include more specific dimensions of each level of prevention to ensure integrity of the implementation school-wide, whereas the district may include key components to ensure integrity across schools. In the left column, the traits of a multi-level prevention system are in **bold.** Each trait includes several questions to consider; however, feel free to add additional information. Teams may choose to add additional information in the blank section at the end of the handout.
Now we will discuss the tertiary prevention level.
Tertiary prevention, the third level of the RTI prevention framework, is the most intensive of the three levels and is individualized to target each student’s area(s) of need. At the tertiary level, the teacher begins with a more intensive version of the intervention program used in secondary prevention (e.g., longer sessions, smaller group size, and/or more frequent sessions). However, the teacher does not presume it will meet the student’s needs. Instead, the teacher conducts frequent progress monitoring (i.e., at least weekly) with each student. When the progress monitoring data indicate that the student’s rate of progress is unlikely to achieve the established learning goal, the teacher engages in a problem-solving process. That is, the teacher modifies the components of the intervention program and continues to employ frequent progress monitoring to evaluate which components enhance the rate of student learning. By continually monitoring and modifying (as needed) each student’s program, the teacher is able to design an effective, individualized instructional program.

*Summarize slide.*
Tertiary Prevention Focus

- Students who have not responded to primary or secondary level prevention, or who present with markedly low achievement
- Typically 3%-5% of the entire population

The focus of tertiary prevention is on

*Read slide.*
The following are true in an effective tertiary level of prevention:

- Tertiary level interventions are evidence-based standard protocols or are based on validated methods for individualizing instruction;
- Interventions are more intensive than secondary interventions. In other words, a standard protocol intervention may be individualized using ongoing progress monitoring data to make adjustments in instruction.
- Procedures are in place to monitor the fidelity of implementation of tertiary level interventions and the preponderance of evidence supports fidelity.
- Tertiary level interventions are led by well-trained staff and the group size is optimal for the age and the needs of students.
- Decisions about responsiveness to intervention are based on reliable and valid progress monitoring data that reflect the slope of improvement or the final status at the end of tertiary level prevention. Decision making criteria are implemented accurately.
- Decisions regarding student participation in both primary and tertiary levels of prevention are made on a case-by-case basis, according to student need and interventions address the general education curriculum in an appropriate manner for students.

Note: Learn more about tertiary or intensive interventions by contacting the National Center on Intensive Interventions (http://www.intensiveintervention.org/).
Tertiary Prevention Setting

- Regular education classroom or other appropriate setting
- Decisions are made on a case-by-case basis.
- Optimal group size is chosen for ages and needs of students.

The location of tertiary instruction is the regular education setting or other appropriate setting within the school. Decisions regarding student participation in both primary and tertiary levels of prevention are made on a case-by-case basis and tertiary preventions address the general education curriculum in an appropriate manner for students. Group sizes are optimal for the ages and needs of the students.
Decisions about responsiveness to intervention are based on reliable and valid progress monitoring data that reflect the slope of improvement or the final status at the end of the intervention period; these decision-making rules are applied accurately.
### Tertiary Prevention Assessment

- **Progress monitoring**
  - Frequent progress monitoring (ideally weekly) is recommended.
  - Continuously monitor progress based on established learning trajectories indicated by the goal line.
- **Diagnostic**
  - Match instruction to needs.
  - Inform individualized instructional planning.

Within the tertiary level of prevention, weekly progress monitoring is recommended due to the number of data points needed to make a decision (6-9), although biweekly (every other week) should be the minimum. For students in tertiary instruction, established learning trajectories are developed (the individualized goal line) and progress monitoring data are compared to the learning trajectory (goal line) to determine the degree to which a student is making adequate progress. Continuous diagnostic assessments are used to match instruction to needs and inform individualized instructional planning.
In Module 2: progress monitoring and in the secondary prevention section, we discussed two approaches to goal setting that are also appropriate for tertiary prevention.

The first option is **end-of-year benchmarking** and the second option is using **national or local norms of improvement**.

A third option that can be used when local and national norms are not useful or appropriate is **intra-individual**. To use this option, identify the weekly rate of improvement for the target student under baseline conditions, using at least 8 CBM data points. Multiply this slope by 1.5 (we want students to not only maintain that growth but also increase it by at least half). Take this product and multiply it by the number of weeks until the end of the year. Add this product to the student’s baseline score. This sum is the end-of-year goal.

*See progress monitoring module for more information on this method of goal setting.*
As we discussed in the progress monitoring module, the data collected within the tertiary level of prevention can help determine response to tertiary interventions through the four-point rule, trend line analysis, or trend line analysis with slope. Progress monitoring data can also be used to compare the efficacy of tertiary interventions.
As with secondary prevention, decisions about response to instruction at the tertiary level should be made using established written decision-making criteria. Remember, we can use the four point rule if three weeks of instruction have occurred AND at least six points have been collected. The following decisions can be made by looking at the four most recent data points:

- If all 4 are above goal line, increase goal or discontinue the more intensive instruction.
- If all 4 are below goal line, make an instructional change.
- If the 4 data points are both above and below the goal line, keep collecting data until trend-line rule or Four-point rule can be applied.

What decision would we make about this student’s response? Because the last four points are below the goal line for this student, we would consider making an instructional change.
We can also apply trend line analysis to determine a student’s response to tertiary intervention. What is this student’s response? Because this student’s trend line is below the goal line, we would consider making an instructional change.
Based on this student’s performance in the previous intervention, the team decided to change its intervention. On this graph, the slope of the student’s trend line after the change in instruction is steeper than the slope of the goal line. As a result, we might consider raising the goal or discontinuing the intensive instruction.
Just as with secondary prevention progress monitoring data, schools and districts can use the average progress monitoring data by intervention to determine the average expected growth rates and which interventions lead to greater gains.

Note: This is a more advanced data technique that many schools may not be collecting the data for. To compare interventions predefined interventions must be used over a period of time.
Tertiary prevention is also expected to benefit the large majority of students who do not respond to effective secondary and primary prevention. The majority of students who are in tertiary prevention should demonstrate adequate progress with the additional intensive supports. If the majority of students are not benefiting from tertiary, it is difficult to determine if it is student related issues or program related issues. In effective multi-level models, more students should be moving to less intensive levels of instruction than more intensive. As evidenced by progress monitoring data, students who do not benefit from the interventions provided under tertiary prevention may represent a students with a disability. These data could provide useful information as part of a comprehensive evaluation when a disability is suspected.
Turn back to the Developing an RTI Model Handout. With your team, take about 5-10 minutes to discuss with your team these traits as they relate to tertiary prevention.

• What is your district model?

• What things do you want all schools to have?

Please remember, some of you may not have enough time to complete the entire handout. Be sure to come back to the worksheet to complete as a team.

Have participants refer to the Integrity Rubric to complete this activity. This tool is designed to help district and school teams clarify the dimensions of their RTI model. The level of detail included in the tool is for the team to determine. District teams may want to be more general to allow for variations in models implemented at individual school sites. For example, a district may indicate that progress monitoring tools used in secondary and tertiary interventions are valid and reliable for the population without naming specific tools, whereas the individual school may consider identifying the actual tool. School teams may want to include more specific dimensions of each level of prevention to ensure integrity of the implementation school-wide, whereas the district may include key components to ensure integrity across schools. In the left column, the traits of a multi-level prevention system are in **bold**. Each trait includes several questions to consider; however, feel free to add additional information. Teams may choose to add additional information in the blank section at the end of the handout.
Changing the Intensity and Nature of Instruction

- Intervention
- Duration
- Frequency
- Interventionist
- Group size

For all levels of prevention (primary, secondary and tertiary), data should guide decisions about changing the level of support needed for students to be successful. Changing the intensity includes both increasing and decreasing the level and the intensity of the support given to a student. In cases where students are responding to interventions, teams may consider decreasing the intensity. In cases where students are not responding or making adequate progress, the team may consider increasing the intensity.

There are five main approaches to changing the intensity of an intervention.

1. The first is to change or supplement the intervention itself. In cases where the current intervention is believed to be ineffective for a student, the team may consider selecting a different intervention. However, this may not always be necessary. If student data indicate a student is making some, but not necessarily adequate progress, the team may decide to change the intensity of support by manipulating one or more factors of the intervention or adding additional instructional strategies to supplement the existing intervention.

2. Another way to address intensity is to increase or decrease the duration of the intervention, or how long a student is receiving the intervention each time.

3. The intensity may also be changed by increasing or decreasing the number of times a student participates in the intervention (or the frequency of the intervention). For example, the delivery of the intervention may increase from three to five times per week or increase the number of times per day.

4. In some cases, the intensity may be modified by changing the interventionist. For example, some schools use paraeducators to deliver supplemental interventions. The intensity of the intervention may be changed by using a content specialist, such as a reading coach, to deliver the intervention.

5. Another way to modify the intensity is to increase or decrease the number of students participating in the intervention. For example, the team may consider reducing the group size from five to two to provide students with more direct instruction and opportunities to respond.
When thinking about how the levels of the multi-level prevention system and RTI relate to IDEA, it is important to remember:

• An RTI process cannot be used to delay or deny an evaluation for eligibility under IDEA.
• Students with disabilities must be identified in a “timely manner.”
• Long-term secondary prevention cannot be used as an alternative for providing services without an IEP [individualized education program] to a student with a disability.

See memo from Melody Musgrove, U.S. Department of Education, Office of Special Education Programs (OSEP) from January 2011
There are really two groups of students we are talking about:

1. Students eligible for special education
2. Students being referred for special education eligibility consideration
Although the design of the RTI model implemented is up to the state education agency (SEA) or LEA, it is recommended that special education staff and students with disabilities are included in the development and the implementation of the multi-level system. *(CLICK to show animation).* In this model, students with disabilities continue to received access to the core curriculum through accommodations, differentiated instruction, and other support. Then, depending on the services outlined in the IEP, students may receive ongoing secondary (unlike short-term secondary) support or intensive, individualized services delivered by the special education teacher. Thus, complete removal from the core curriculum is not typically recommended because students are assessed against grade-level standards.
Disability Identification

To ensure that underachievement in a child suspected of having a specific learning disability is not due to a lack of appropriate instruction in reading or math, the group must consider, as part of the evaluation, what is described in 34 CFR 300.304 through 300.306:

- Data demonstrate that prior to, or as a part of, the referral process, the child was provided appropriate instruction in regular education settings, delivered by qualified personnel.
- Data-based documentation of repeated assessments of achievement at reasonable intervals reflect formal assessment of student progress during instruction, which was provided to the child’s parents.

Authority: The requirements for using a process based on a child’s response to scientific, research-based intervention when determining that the child is a child with a specific learning disability are found in the regulations at 34 CFR §§300.307, 300.309 and 300.311.
When students are referred, whether it is after nonresponsiveness to secondary interventions or nonresponsiveness to tertiary interventions, it must be in accordance with state law and or district policies. If your state does not clearly indicate when to refer students, it is important to develop a district model that is in accordance with federal and state law. As seen in the previous slides, there is no one model for when special education referrals occur.

Example 1 (based on models from Fuchs & Fuchs) shows that referral to special education occurs after nonresponsiveness to two evidence-based secondary interventions. In this model, responsiveness to tertiary instruction is a component of the comprehensive evaluation. It is important to point out that in this model, tertiary instruction is primarily special education. If effective, 80 percent of students should be benefitting from the specialized services they receive.
In Example 2 (based on examples from sites across the country), the district model indicates that referral to special education occurs after a student demonstrates nonresponsiveness to one evidence-based secondary intervention (e.g., 8-12 weeks), and then nonresponsiveness to a more intense tertiary intervention. In this model, data demonstrating the provision of appropriate instruction in general education settings includes progress monitoring data collected from both the secondary and tertiary interventions.
Across both examples (Example 1: After nonresponsiveness to two secondary interventions or Example 2: After nonresponsiveness to one secondary and one tertiary intervention) it is important that there is collaboration between special education and regular education in order to develop an inclusive multi-level prevention model for students.

Both of these examples are appropriate for referral to special education, but a lack of consistency in their implementation across a district can create inconsistency and inequity in service delivery models. Districts should provide clear guidance about where the referral process fits within the multi-level prevention system, the roles and responsibilities of special education staff, and when students should be referred for eligibility consideration.
As we mentioned before, RTI is not another name for a prereferral process. This video answers the question "How does RTI differ from previous approaches to providing interventions?"

Click the link below to watch the video. Access to this video requires Internet connection.
This section is focused on selecting evidence-based practices and provides a demonstration of three web-based tools that provide information on evidence-based interventions. It is recommended that participants have access to a computer with Internet connection in order to complete the activities in this section.

Key terms:
Evidence-based intervention  Research-based curricula
Fidelity of Implementation

Key Ideas:
• Recognize the difference between evidence-based and research-based
• Build capacity to identify evidence-based interventions
• Learn where to go to find appropriate evidence-based interventions
NCRTI refers to an evidence-based intervention in this document as an intervention for which data from scientific, rigorous research designs have demonstrated (or empirically validated) the efficacy of the intervention. That is, within the context of a group or single-subject experiment or a high-quality quasi-experimental study, the intervention is shown to improve the results for students who receive the intervention. Research-based curricula, on the other hand, may incorporate design features that have been researched generally; however, the curriculum or the program as a whole has not been studied using a rigorous research design, as defined by the Elementary and Secondary Education Act.

*See page 6 of the Essential Components of RTI – A Closer Look at Response to Intervention and page 9 of the Training Manual.*
Varying Evidence Standards

Reminder: NCRTI recommends different evidence standards across intervention levels.

- Research-based curricula
  - Recommended for primary prevention across subjects.
  - Components have been researched and found to be generally effective.
  - Curriculum materials have not been rigorously evaluated as a package

Read slide.
Varying Evidence Standards

- Evidence-based intervention
  - Recommended for secondary and tertiary* prevention
  - Curriculum evaluated using a rigorous research design
  - Evidence of positive effects for students who received the intervention

*Note: for students who have been persistently nonresponsive to interventions that have been administered with fidelity, strategic, data-driven individualization of instruction may be necessary.

Read slide.

Note: Standards tend to be more stringent when students are identified as at risk because there is a more urgent need for a high probability of success.
Selecting evidence-based practices involves a multistep process that demands the consideration of needs and priorities and the identification of practices that match those needs and priorities. A critical and sometimes overlooked step in this process is a review of existing evidence to ensure that identified practices meet established criteria for being evidence-based. Once evidence-based practices are selected, the process shifts to implementing those practices with fidelity and evaluating the effectiveness of those practices in improving student outcomes. To select appropriate evidence-based practices, the following steps are recommended.

Read slide.

The first step recommended for selecting an evidence-based practice is to identify needs and priorities.
In identifying needs and priorities you should:

1. **Gather a team.** The team should include key stakeholders in the school or district. The team’s composition may vary, but it is recommended that the team include a diverse group of stakeholders. At least one member should be familiar with data interpretation and evaluating research claims.

2. **Conduct a needs assessment**
   - **Gather information from multiple sources,** for example:
     - Teachers
     - Parents
     - Administrators
     - Students
     - Community members
   - **Compile data** to identify areas of need, for example:
     - Academics
     - Behavior
     - School climate
     - Professional development

3. **Determine priorities** or what factors they consider most important.

Refer participants to the Instructional Intervention Tool Chart User’s Guide for more information.
Identifying Needs and Priorities

- Evaluate existing data to determine baseline performance on indicators of interest.
  - Academic achievement
  - Disciplinary referrals
  - Attendance/truancy data

In determining needs and priorities it is important to look at the baseline performance of indicators of interest. This might include the academic achievement of students, disciplinary referrals, or attendance and truancy data.
In thinking about your needs, ask yourselves these types of questions:

*Summarize slide. Refer participants to the Instructional Intervention Tools Chart User’s Guide for more information.*

In addition to determining your needs for an instructional program or an intervention, your team should also consider its priorities. Although you may want a program that meets all these criteria, such a program may not exist. You will need to weigh your priorities carefully when making your selection.

*Summarize slide. Refer participants to the Instructional Intervention Tools Chart User’s Guide for more information.*

After teams have identified their needs and priorities, they will need to identify practices that address those needs and priorities.
Evidence-based practices are not only essential for multi-level instruction. As discussed in previous modules, it is important to identify evidenced-based screening and progress monitoring tools. Data collected from these tools should be interpreted using evidence-based decision-making criteria. We can then use this data to select evidence-based interventions that then match student needs. The next few slides provide a few examples of resources where you can find evidence-based practices. See Appendix C in the training manual for descriptions and links to more resources.
As we learned from previous trainings, evidence-based progress monitoring and screening tools can be found using a variety of resources. Here are just a few:

Read slide.

Additional information is available in the Module 3: Training Manual.
We have also discussed several resources available to assist teams in identifying evidence-based data decision criteria.

Read slide.


Additional information is available in the Training Manual.
Numerous resources exist for identifying evidence-based practices. The first three resources, **What Works Clearinghouse (WWC), Best Evidence Encyclopedia (BEE), and the NCRTI Instructional Intervention Tools Chart** are searchable databases that allow users to search for interventions by a number of features (e.g., grade level, content, and delivery method). Although these sites are similar, each has its own criteria for determining what is evidence based. These will be discussed in more detail later in the presentation. The Practice Guides are published documents from the Institute of Education Sciences (IES), which provide summaries of research-based practices in math and reading. The IRIS (IDEA and Research for Inclusive Settings Center) modules provide training and research on various teaching practices.

- **Center on Instruction** [http://www.centeroninstruction.org/index.cfm/](http://www.centeroninstruction.org/index.cfm/)
- **IRIS Center Learning Strategies Modules** [http://iris.peabody.vanderbilt.edu/resources.html](http://iris.peabody.vanderbilt.edu/resources.html)

Additional information is available in the Training Manual.
Once teams have identified practices that meet their needs and priorities, the next step is to evaluate the evidence claims.
3) Evaluating Evidence

- Where can I find evidence?
- What type of evidence exists?
- What is the quality of the evidence?
- What were the desired outcomes?
- What are the effects of the intervention?
- Is the sample population similar?

When teams evaluate evidence, they should consider the following questions:

*Read slide.*

We will discuss these questions in more detail in the next slides. More information about each can also be found in your Module 3: Training Manual, beginning on page 10.
Evidence for programs can be found on curriculum websites and in various peer-reviewed journals. (which can be found through a number of sources including ERIC [Education Resources Information Center] (www.eric.ed.gov/), Google Scholar (www.scholar.google.com/), Education Abstracts, Psychological Abstracts, and more). If these resources are used, it is important for the team to have established review criteria prior to evaluating the evidence. Caution should be taken when evaluating evidence provided by a publisher. Some questions to consider are:

- Did an independent researcher conduct the study?
- Are the results from a rigorous research study?
- Is the study population similar to the school or district population of interest?
- What outcomes and skills were targeted?

To assist educators, several resources publish independent reviews of instructional practices using rigorous review criteria. The outcomes of these reviews can be found in the IES Practice Guides, What Works Clearinghouse, Best Evidence Encyclopedia, and the NCRTI Instructional Interventions Tools Chart. Links to these resources can be found in Appendix C of the Training Manual.
Because access to peer-reviewed journals, access to established review criteria, and the time to sift through existing research are limited for most teams, several groups (funded through federal funds or state funds) have done this work. The following are examples of sites that have conducted rigorous reviews of existing educational practices or interventions and then published the results. It is important to remember that each site has its own review criteria and expected level of rigor.

For example, the What Works Clearinghouse has the most stringent review criteria, which results in fewer practices being considered evidence based. You might find that a tool is considered evidence-based on one site but not another. You may also find that some tools are on some sites but not on others. This is because there are also differences in how tools or practices are selected for review. For example, if a publisher says it has an intervention, then the What Works Clearinghouse conducts a thorough review of peer-reviewed journals to identify all existing evidence and then rates the program based on the reviewed evidence. The NCRTI Instructional Intervention Tools Chart, on the other hand, reviews the research of tools submitted by the publisher. As a result, NCRTI does not rate the program; it rates the submitted research evidence. Regardless of the site used to identify evidence-based programs, it is important to understand how the tools were selected and what criteria were used to rate them.
Evidence may come in different formats and from different sources. Teams can review actual research studies, a technical report that provides evidence about its effectiveness, or a summary of the existing research, which is common on the websites we just discussed as well as the IES Practice Guides. Many people often depend on peer or publisher claims, such as a district that believes a program is effective because a neighboring district claimed it raised their test scores. Teams may find other evidence, such as a brief claiming the positive effects of research conducted by the publisher or research conducted within the school district. It is important to review these types of reports closely to determine the quality of the evidence, which we will discuss in more detail.
Evidence not only takes different forms, but also includes various types of research studies (e.g., randomized control trial, single-case designs quasi-experiment, and quantitative research synthesis).

- While not always feasible, randomized control trials are considered the most rigorous form of research. Eligible subjects are randomly assigned into groups to receive or not receive one or more interventions that are being compared.

- Carefully designed studies with quasi-experimental designs, which do not randomly assign students, attempt to best approximate the effects of randomization that are found in randomized control trials through a number of different methods to minimize selectivity bias. Both types of studies work to ensure that the effects shown for the intervention are not based on extraneous variables or initial differences between the control and experimental group but are a result of the intervention.

- Single-case designs are research studies where the researcher attempts to demonstrate an experimental treatment effect using single participants.

- Quantitative research synthesis uses statistical techniques to combine multiple quantitative research studies. An example is a meta-analysis.

See page 11 in the Training Manual for more information.
In addition to looking at where the evidence came from and the type of evidence provided, it is important to look at the quality of the information provided and whether it is feasible to implement the program under normal conditions. Some questions to consider in looking at the information provided are:

*Read slide.*

It is also important to consider how feasible it would be to replicate what was done in a classroom in a school or district. The following should be considered when thinking about the feasibility of the intervention:

- How complex is the intervention?
- How much staff training will be necessary to implement it?
- How often should the intervention be delivered?
- What was the student-teacher ratio?
- How much does it cost (materials, training, staff time)?

*See page 11 in the Training Manual for more information.*
Evaluating Evidence: Desired Outcomes?

- Were the outcomes assessed relevant to your outcomes?
  - What outcome measures were used to evaluate the intervention?
  - Do the outcome measures seem reasonable?
  - Are they relevant to your concerns?
  - Are they reliable and valid?
  - Is it feasible to implement with your population?

It is also important to think about what outcomes were measured in the study and whether the outcomes assessed are relevant to the outcomes of interest and feasible for your population. In addition, it is important to know what measures were used to evaluate the intervention outcome and if these measures are reasonable, relevant, reliable and valid. The measures might include both proximal measures, which assess aspects of competence that the program was directly targeted to improve, and distal measures, which assess aspects of competence that are related to the skills targeted by the program but not directly taught in the program.
After considering the rigor of the study, the next step is to evaluate the results. Effect sizes are useful in comparing programs and identifying programs with greater potential for student gains. The effect size is a standardized measure of the magnitude of the relationship between two variables, or, more specifically in this case, the magnitude of the relationship between the performance of students participating in a particular intervention and an outcome of interest. The larger the effect size, the greater the impact participating in the intervention had on the outcome. Generally, research literature identifies effect sizes of 0.80 or greater as “large” effects, 0.50 as “moderate” effects, and 0.20 to 0.30 as “small” effects (Cohen, 1988).

You want to look at programs that not only are supported by evidence from technically rigorous studies, but also show positive program results. Various sites report the effectiveness of programs differently. For example, the NCRTI Instructional Intervention tools chart calculates the effect size across all studies submitted, using a standard formula and then offers this information so that viewers of the chart can compare for themselves across studies for the outcome measures in which they are interested. The What Works Clearinghouse presents this information through, what they refer to as, an improvement index. Some sites fail to show the strength of the effect and instead just rate the program as effective or not (CLICK for animation). It is recommended that effect size be reviewed in making decisions about programs. It allows teams to make comparisons and determine which programs are likely to result in the level of growth needed to close the gap.

*See page 12 in the Module 3: Training Manual for more information.*
Evaluating Evidence: Population?

- For which population does the evidence show an effect?
  - Is the sample described?
  - Can you tell who was studied?
  - Is the participant similar to or representative of your student population?
  - Are there different effects for different population groups?

It is important to review the sample population in the study to determine whether the intervention has been evaluated for students similar to the demographics of a district, school, or population of interest. For example, teams may be interested in interventions with positive effects for targeted groups of students, such as students with low socioeconomic status, English language learners (ELLs), or students in special education.

Some sites that summarize program research do not report this level of information. Teams may consider using multiple resources to evaluate the existing evidence of a particular program.

*See page 12 of the Module 3: Training Manual for more information.*
Now that you understand what to look for, let’s take some time to see how several resources can assist educators in making decisions about selecting evidence-based practices. We will be focusing on:

*Read slide.*
For this demonstration, use the screen shots provided or provide a live demonstration by clicking on the title or going directly to http://ies.ed.gov/ncee/wwc/. If appropriate, have teams go through the site during the demonstration. Make sure to check whether WWC has updated their website prior to giving this presentation. These slides represent the information provided on the website as of December 2011.

The What Works Clearinghouse includes rigorous reviews of programs available in a variety of content areas. To find programs, users can click on the top tab labeled Topic Areas or click on a specific topic under the tab (CLICK for animation), or click in the box located on the right side (CLICK for animation). For this demonstration, let’s click on the “Topic Areas” tab at the top (general page). Knowing your needs and priorities prior to using the WWC is essential for selecting appropriate interventions in an efficient manner.
Once on the general topic areas page (*CLICK for animation*), users can search within one of the many topic areas by clicking on the table on the right side. You will notice in the far right column, that each topic area has a summary report that may be very useful for teams. To the left, you will notice that there are several options for users under *What would you like to do*... Two of these options will be highlighted in this demonstration (*CLICK for animation*). In the first, you can find evidence on a specific intervention by entering the name in the *search* area. In the second option (*CLICK for animation*), you can click the *Find what works* link to do a general search using an extensive array of search options to determine what has been found to work. Let’s try it out.

*Note: The “Not sure where to start? We can walk you through it.” tab provides another resource for participants to learn about using the WWC page.*
Once in the search feature, you can search by the name of the intervention or select the desired outcome domains (CLICK for animation) grade levels, (CLICK for animation) population.

Continue with next slide.
(CLICK for animation) level of effectiveness, (CLICK for animation) extent of evidence, (CLICK for animation) delivery method, and (CLICK for animation) program type. It is important to understand that only interventions with research evidence that meet the WWC standards are included in the search. The number of interventions that met the criteria for that search feature is included in parentheses. To view all of the programs reviewed, use the interventions search in the topic area tab. Once you have selected your search features, you can create a report by (CLICK for animation) clicking Find. For our demonstration, we have selected academic achievement (reading achievement), second grade, curriculum, and a general education focus.
Here you can see an example of the results that met our criteria. You can see the names of the interventions, the topic areas of focus, the improvement index, the effectiveness rating, and the extent of the evidence. To organize your results you can sort by intervention name, improvement index, rating of effectiveness, and extent of the evidence. If you click on the tabs, you can learn more about the intervention details and research details.
Let’s look more specifically at the Accelerated Reader program. Click on Intervention Details to learn more about this program.
The next step is to evaluate the program to see if it meets our needs and priorities. What Works Clearinghouse does not rank or recommend programs. Instead, it provides data to support teams in the selection process. This is why it is critical that teams clearly identify the needs of their at-risk population. For example, this program appears to be more effective for reading achievement than reading fluency or comprehension. A mismatch between student needs and the outcomes of the intervention could result in nonresponsiveness and be misinterpreted as a student skill deficit.
The improvement index determines the difference between the percentile rank of the average student in the intervention group and the percentile rank of the average student in the comparison group in other words, the effects. The improvement index can take on values between -50 and +50, with positive numbers denoting results favorable to the intervention group.


The smaller the index, the smaller the gains students made from the comparison group. For example, in this case the differences between students in the Accelerated Reader intervention and those in the comparison group are minimal for reading comprehension outcomes. There was a greater difference in reading achievement than reading fluency or reading comprehension. A negative index would indicate students made less progress in the program than other students. Scores closer to 50 are considered to have demonstrated greater gains.
For each intervention, the **effectiveness** rating summarizes the results of the studies that met WWC evidence standards (CLICK to see a summary of the ratings). The effectiveness rating shows whether the studies indicate that the intervention has a positive effect, a potentially positive effect, a mixed effect, a potentially negative effect, a negative effect, or no discernible effect (see Evidence Rating Key). The rating also reflects the degree of confidence in those estimated effects. The effectiveness rating takes into account four factors: the quality of the research design, the statistical significance of the findings, the size of the difference between participants in the intervention and the comparison conditions, and the consistency in findings across studies.

The evidence rating has six categories:

1. **Positive Effects**: Indicates strong evidence of a positive effect with no overriding contrary evidence. Two or more studies shows statistically significant positive effects, at least one of which met WWC evidence standards for a strong design. No studies show statistically significant or substantively important negative effects.

2. **Potentially Positive Effects**: Indicates evidence of a positive effect with no overriding contrary evidence. At least one study shows a statistically significant or substantively important positive effect. No studies show a statistically significant or substantively important negative effect and fewer studies show indeterminate effects than show statistically significant or substantively important positive effects.

3. **Mixed Effects**: Indicates evidence of inconsistent effects. At least one study shows a statistically significant or substantively important positive effect. At least one study shows a statistically significant or substantively important negative effect, but there are fewer studies that show statistically significant or substantively important negative effect than show a statistically significant or substantively important positive effect. Or at least one study shows a statistically significant or substantively important effect. More studies show an indeterminate effect than show a statistically significant or substantively important effect.

4. **No Discernible Effects**: Indicates no affirmative evidence of effects. None of the studies shows a statistically significant or substantively important effect, either positive or negative.

5. **Potentially Negative Effects**: Indicates evidence of a negative effect with no overriding contrary evidence. At least one study shows a statistically significant or substantively important negative effect. No studies show a statistically significant or substantively important positive effect. Or more studies show statistically significant or substantively important negative effects than show statistically significant or substantively important positive effects.

6. **Negative Effects**: Indicates strong evidence of a negative effect with no overriding contrary evidence. Two or more studies show statistically significant negative effects, at least one of which is based on a strong design. No studies show statistically significant or substantively important positive effects.
The **extent of evidence** category was developed to inform readers about how much evidence was used to determine the intervention evidence rating. It focuses on the number and the size of studies. This scheme has two categories: small and medium to large. Domains with a small extent of evidence include only one study, one school, or findings based on a total sample size of less than 350 students; assuming 25 students in a class, there are a fewer than 14 classrooms across studies. Domains with a medium to large extent of evidence include more than one study, more than one school, and findings based on a total sample size of 350 students; assuming 25 students in a class, a total of at least 14 classrooms across studies.
To evaluate the evidence in more detail and its relevance to your needs, click on the name of the program ([http://ies.ed.gov/ncee/wwc/reports/beginning_reading/arrr/](http://ies.ed.gov/ncee/wwc/reports/beginning_reading/arrr/)). It will bring you to a webpage where you can access more information about the actual program.
The report includes information about the number of studies identified and that met the criteria. For example, for this program, 100 studies were identified but only two met WWC evidence standards. The remaining studies did not meet WWC evidence screens. This report also includes cost, population samples, publisher building, description of the intervention, and the range of effects. This page shows that although the average for general reading comprehension was 0 percentile points, the range was -12 (meaning some students performed 12 percentile points lower) to +12 (scored 12 percentile points higher).

The purpose of this activity is to allow participants to apply the knowledge they have just learned.

*Participants will need access to a computer and the Internet to complete this activity.*

*Provide participants 5-10 minutes to complete this activity.*

Answer 1: There are none identified in the WWC.

Answer 2: 21 demonstrated at least some growth.
Another useful site is the **Best Evidence Encyclopedia**. It uses less stringent review criteria than WWC. Before using this site, it is recommended that teams review the technical report that summarizes the review process, which can be accessed from the main website. [http://www.bestevidence.org/index.cfm](http://www.bestevidence.org/index.cfm).

On the homepage, you will notice the **Program Reviews** list on the left side. Users can click on the relevant topic to review programs and their reviews. Knowing your needs and priorities prior to using the Best Evidence Encyclopedia is essential for selecting appropriate interventions in an efficient manner. For this demonstration, let’s select middle/high school mathematics.

*Note: These slides represent the information provided on the website as of December 2011.*
At the top of the page, you can (CLICK for animation) find programs that show high or moderate effects, (CLICK for animation) find programs that show limited effects, (CLICK for animation) find programs with insufficient evidence, and (CLICK for animation) see key findings, which is a summary of the review and the methods used to review the programs for middle and high school mathematics.
On this page, we find a short summary of the research report. The information in this section is based on a review that summarizes evidence on three types of programs designed to improve the mathematics achievement of students in Grades 6-12:

**Mathematics Curricula (MC),** such as The University of Chicago School Mathematics Project, Connected Mathematics, Saxon Math, and other standard and alternative textbooks.

**Computer-Assisted Instruction (CAI),** such as I Can Learn, Jostens/Compass Learning, and Accelerated Math.

**Instructional Process Programs (IP),** such as cooperative learning, mastery learning, and other approaches primarily intended to change teachers’ instructional strategies rather than curriculum or technology.

(CLICK for animation) The full report or an educator’s summary can be accessed by clicking on the link on the right side.
By selecting Review Methods, you can see the review criteria used to determine a program’s effectiveness. Based on the effect size, the type of study, and the size of studies reviewed, programs received one of five ratings: strong evidence, moderate evidence, limited evidence, insufficient evidence, or no qualifying studies.

- **Strong Evidence of Effectiveness** - At least two large studies, of which at least one is a randomized or randomized quasi-experimental study, or multiple smaller studies, with an effect size of at least +0.20.
- **Moderate Evidence of Effectiveness** - Two large matched studies or multiple smaller studies with a collective sample size of 500 students, with a weighted mean effect size of at least +0.20.
- **Limited Evidence of Effectiveness** - At least one qualifying study with a significant positive effect and/or weighted mean effect size of +0.10 or more.
- **Insufficient Evidence** - Studies show no significant differences.
For this example, when we select **Top Rated Programs** the report shows that two middle and high schools programs were identified as having strong evidence, and no programs were identified as having moderate evidence. In other words, of all the programs they reviewed only two met their criteria as an evidence-based program for middle and high school mathematics. Let’s take a closer look at the information the report provides.
In the first column, an indicator (rating) of effectiveness is provided. In this case, this program has **strong evidence of effectiveness**, which means there were at least two studies that met the criteria that showed an effect size of at least 0.20. Remember, earlier I mentioned that the research literature identifies effect sizes of 0.80 or greater as “large” effects, 0.50 as “moderate” effects, and 0.20 to 0.30 as “small” effects. The actual effect size is not provided in this chart.
The third column indicates the type of program. Remember, the WWC reported this differently – curriculum, supplemental, or practice. For this example, the program is an Instruction Process Program (IP), such as cooperative learning, mastery learning, and other approaches primarily intended to change teachers’ instructional strategies rather than curriculum or technology.
The remaining information is about the program, including its name, a brief description, and contact information.
Similar to the previous activity, the purpose of this activity is to provide you with an opportunity to apply the information we just learned.

*Participants will need access to a computer and the Internet to complete this activity.*

Provide participants 5-10 minutes to complete this activity.

Answer 1: Jostens, The Reading Edge, READ 180, and Student Team Reading were all shown to have moderate levels of effectiveness. To complete this activity, select middle/high school reading and search top-rated programs.

Answer 2: Yes, Quick Reads is a small group tutorial that was shown to have a strong level of effectiveness. To complete this activity, select struggling students under reading. The summary page shows the different type of programs reviewed – one was a small group tutorial (SGT). *(CLICK on top rated programs to see if any programs are listed as a SGT).*
In 2010, the Center released its Instructional Intervention Tools Chart to help users determine the effectiveness of interventions used in secondary prevention systems. The first column has the program name and the second column shows the research study, or studies, that was evaluated for that particular program. Indicators of study quality and effect size data are provided in the remaining columns to assist consumers in evaluating the efficacy of the specific program. All programs on the tools chart have been submitted for review.

Note that all submissions to the Technical Review Committee (TRC) review process were voluntary. An individual, firm, or other vendor whose program appears on the chart chose to submit its program for TRC review and then to have its program and TRC ratings displayed on the chart. The NCRTI does not publish the names of individuals, firms, or other vendors who submit programs for review but decide against having their results included on the chart. Learn more about the technical review process on our website: http://www.rti4success.org/reviewProcess. The Center updates the tools charts on an annual basis. The current slides reflect the chart as of December 2011.
Each tool on these charts is presented because the developers voluntarily submitted them to the NCRTI for review in response to one of NCRTI’s annual “calls for submissions.” That means that the Instructional Intervention Tools Chart is by no means an exhaustive list of every available interventions. It is important to keep this in mind: these charts are intended to be a source of information that can help users select tools and programs, and they also help you think about what information you need to know to select an appropriate tool or a program. If there is a tool or a program that you are considering using but it is not on the chart, we recommend that you call the developer directly and ask them to submit their product to our review process.

Unlike the previous resources, the NCRTI Instructional Intervention Tools Chart does not provide an overall rating for the program. Instead, it reviews the supporting research that is specific to RTI.
For a tool to be reviewed, it had to first meet the instruction definition. This is the operational definition of instruction that was developed by the NCRTI’s TRC.

*Read slide.*

This definition reflects instruction that would occur in what we would typically refer to as secondary intervention, within an RTI framework. In a secondary prevention setting, educators are often using what we call a standard treatment protocol. This means a highly scripted program that has been validated through research to be effective. The rationale for using a validated standard treatment protocol is that, assuming the teacher implements the protocol exactly as it is intended to be implemented, then one would expect that the majority of students receiving this instruction would improve in performance, and those that did not improve could reliably be said to need more intensive intervention.
The goal of the Instruction TRC is to identify those standard treatment protocols that have been found through research to be effective: that is to help users identify programs that (1) have been studied through rigorous design and (2) shown positive, meaningful treatment effects. The Center in no way recommends any specific programs nor are the programs on the chart endorsed more than those that are not on the chart.
Use the sorting function to narrow your search selection based on subject (math, reading, or writing) and grade (elementary and secondary). To use these features select the appropriate subject or grade level and press the Filter button. If you want to return to all the tools simply press Reset.
The tools chart also allows you to narrow your search, by selecting certain interventions or studies to compare side by side. To select certain interventions or studies, simply check the box in the last column of the chart. You can select as many as you would like.

Because the Instructional Intervention Tools Chart looks at research studies of interventions, you may have more than one study for the same intervention (see Corrective Reading Decoding as an example). When looking at the tools chart you may want to compare different interventions or you may want to look at the different studies available for a single intervention. The compare feature allows you to do either of these options.
Press the compare button and the chart will appear with the interventions or studies you selected side-by-side.
The Instructional Intervention Tools Chart includes information on three aspects of a program: study quality, effect size, and implementation requirements.
The implementation requirements provides information about the intervention, usage requirements, the training needed for the intervention, the cost of the intervention, and the program specifications and requirements.
You can click on the links to find more information about the participants, the study design, fidelity of implementation, and measures.

When reviewed, the TRC used the following questions to judge these components.

- **Participants.** Are the students in the study at-risk? Are the program instructors in the study similar to what the vendors state is necessary?
- **Design.** Does the study design allow us to conclude that the intervention program, rather than extraneous variables, were responsible for the results?
- **Fidelity of Implementation.** Was it clear that the intervention program was implemented as it was designed to be used?
- **Measures.** Were the study measures accurate and important? The chart provides information for both proximal and distal measures. Remember earlier we defined proximal measures as measures that assess aspects of competence that the program was directly targeted to improve, and distal measures are those that assess aspects of competence that are related to the skills targeted by the program but not directly taught in the program.
For participants, the TRC looks for evidence that the sample that was studied is indeed considered “at risk.” Because these are secondary interventions, they are designed to target the needs of at-risk students, so the sample should have those qualifications. Users can click on the bubbles to find the information used to rate the tool. This information also allows the users to compare their population to the populations researched in the study.

The pop-up provides information about the sample size, the inclusion of ELL students, and grade levels. For example, clicking the box for this tool reveals that the study population included students for Grades K-3 who were either Hispanic (majority) or non-Hispanic.
For design, the TRC generally is looking for studies that have been designed in such a way that any results can be attributed solely to the intervention, not to any extraneous factors. This means that the study ideally used random assignment or it was a high-quality quasi-experimental design, which means that any systematic differences between the control group and the treatment groups are small and are accounted for appropriately in the analyses.

The following elements were used to determine the rating:

- Did the study use random assignment?
- If not, was it a tenable quasi-experiment?
- If the study used random assignment, at pretreatment, were the program and control groups not statistically significantly different and had a mean standardized difference that fell within 0.25 standard deviation (SD) on measures central to the study (i.e., pretest measures also used as outcomes)?
- If not, at pretreatment, were the program and control groups not statistically significantly different and had a mean standardized difference that fell within 0.50 SD on measures central to the study (i.e., pretest measures also used as outcomes), and outcomes were analyzed to adjust for pretreatment differences?
- Were the program and control groups demographically comparable?
- Were there differential attrition for the program and the control groups?
- Did the unit of analysis match the unit for random assignment (for randomized studies) or the assignment strategy (for quasi-experiments)?
**Fidelity of Implementation** means that the documented how the intervention was implemented and whether or not it was implemented in exactly the same way as it is intended.

<table>
<thead>
<tr>
<th>Program</th>
<th>Study</th>
<th>Participants</th>
<th>Design</th>
<th>Fidelity of Implementation</th>
<th>Measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Academy of READING</td>
<td>Feith, F. &amp; Yaco (1987)</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>AWARD Reading</td>
<td>Dunn &amp; McPherson (Tech)</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Corrective Reading Decoding</td>
<td>Keeler, Kinder, Branson, Stain, &amp; Stein (2006)</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Corrective Reading Decoding</td>
<td>Dunn, Syen, Epperson, &amp; Run (2000)</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
</tbody>
</table>
For measures, the TRC looks at whether the outcome measures that were assessed in the study are relevant; in other words (1) are the outcomes related to a program’s instructional content and (2) have these measures been proven to be reliable and valid? The TRC also wants to see studies that look at a range of both proximal and distal measures.

When clicking on the bubble, the user will obtain the measure, the score type, the range of measures, the reliability statistics, and the relevance to the program instructional context.

Proximal measures assess aspects of competence the program was directly targeted to improve. Typically, this does not mean the very items taught but rather novel items structured similarly to the content addressed in the program. For example, if a program teaches word attack, a proximal measure would be the decoding of pseudowords. If a program teaches the comprehension of cause-effect passages, a proximal measure would be answering questions about cause-and-effect passages structured similarly to those used during intervention but not including the very passages used for intervention. In this example Woodcock Johnson –III Basic Reading Skills, Woodcock Johnson –III Letter-Word Identification, Woodcock Johnson –III Word Attack, and DIBELS Oral Reading Fluency were all proximal measures.

Distal measures assess aspects of competence that are related to the skills targeted by the program but not directly taught in the program. For example, if a program teaches word-level reading skill, a distal measure would be answering questions about passages the student reads. If a program teaches calculation skills, a distal measure would be solving word problems that require the same kinds of calculation skills taught in the program. In this example there were no applicable distal measures.
There are many different methods for calculating effect size. In order to ensure comparability of effect size across studies on this chart, the NCRTI used two standard formulas to calculate effect size across all studies and outcome measures. Developers of programs on the chart were asked to submit the necessary data to compute the effect sizes. Results from both methods are reported on the chart. Effect sizes are separately reported for both proximal measures and distal measures.

(CLICK for animation) The **adjusted** posttest refers to posttests that have been adjusted to correct for any pretest differences between the program and control groups.
(CLICK for animation) The unadjusted posttest does not account for differences in the program and control groups. It is important to note that the unadjusted posttest is considered less rigorous than the adjusted posttest, because means have not been adjusted to account for pretest differences. This formula is typically used only in instances where we can assume pretest group equivalency.
Studies that include a “—” in the effect size cell either do not have the necessary data or do not meet the assumptions required for calculating and reporting effect size using the associated formula. The reason for the missing data is provided when users click on the cell.

**Developer was unable to provide necessary data for NCRTI to calculate effect sizes.**
In this example, the adjusted posttest for the distal measures was 0.45 and for the distal measures was 0.10. Remember, earlier we mentioned that the research literature identifies effect sizes of 0.80 or greater as “large” effects, 0.50 as “moderate” effects, and 0.20 to 0.30 as “small” effects.
Here is an example of the data when the effect size is available. The effect of the Number Rocket intervention varied based on the outcome measures (or outcomes). This intervention had little effect on the participants’ applied problems on the Woodcock Johnson Applied Problem and fact retrieval for subtraction (distal measures). It had moderate effects on Story Problems, First-grade concepts and applications, and Woodcock Johnson Calculations. This information can be useful in finding interventions that match the desired outcomes.

Effect sizes should be compared only when they are calculated using the same method (e.g., effect size based on adjusted means cannot be compared with effect size based on unadjusted means).

Remember, it is important to review study quality and effect size together. For example, you need to make sure that a study that shows large effects does not show low ratings for quality because you are then not confident that the effects shown are a result of the intervention.
Disaggregated Data

- The column reports effect size data that have been disaggregated for subgroups, if available.
  - Students with disabilities
  - ELLs
  - Students from diverse racial-ethnic groups

In this example, there are no available data.
Team Activity: Instructional Intervention Tools Chart

1. What secondary instruction programs are available for elementary mathematics students?
2. Which study has the highest average adjusted effect size?
3. What are the average unadjusted effect sizes for SSRD Writing Strategies?
4. Identify a program used in your district/school
   • What level of evidence is reported for the program?

This activity provides an opportunity to explore the Instructional Intervention Tool Chart and to apply the information we just learned.

Participants will need access to a computer and the Internet to complete this activity.
Provide participants 5-10 minutes to complete this activity.

Answer 1: Hot Math Tutoring, Number Rockets, and Pirate Math Individual Tutoring. Use the filter feature to search for math and elementary.

Answer 2: Hot Math Tutoring (1.16 for distal adjusted effect size). This can be done easily by using the ranking feature in the header (the little arrows).

Answer 3: There are three studies reviewed for this program, 0.56, 1.38, and 1.36. All of these are for proximal measures.
The purpose of this example is to give participants an opportunity to use one of the three intervention sites to address the situation at Bell Top Elementary School. This example is an optional activity and should take about 10-20 minutes to complete. Refer participants to the Training Manual, Appendix D, for copies of the school examples.

We will now look at two school level examples and work on applying the information that we just discussed. The first example is Bell Top Elementary School.

Read slide.

Use one of the three Websites (NCRTI Instructional Intervention Tools Chart, Best Evidence Encyclopedia, or What Works Clearinghouse) that we just looked at to address the situation in Ms. Jones’ class.

Because participants are likely to use different approaches to identify similar, yet different interventions, it is important to engage the audience in discussion. The discussion questions may include:

1. Which resource did you choose to use and why?
2. What other information would be helpful?
3. How can districts support schools in identifying appropriate interventions?
The purpose of this example is to give participants an opportunity to use one of the three intervention sites to address the situation at Lake Ridge Middle School. This example is an optional activity and should take about 10-20 minutes to complete. Refer participants to the Training Manual for copies of the school level examples.

The second example is Lake Ridge Middle School

*Read slide.*

Use one of the three Websites (NCRTI Instructional Intervention Tools Chart, Best Evidence Encyclopedia, or What Works Clearinghouse) to address the situation in Mr. Morris’ class.

Because participants are likely to use different approaches to identify similar, yet different interventions, it is important to engage the audience in discussion. The discussion questions may include:

1. Which resource did you choose to use and why?
2. What other information would be helpful?
3. How can districts support schools in identifying appropriate interventions?
This is an optional activity depending on time available. The activity should take about 15-20 minutes. Participants will need access to a computer and the Internet to complete this activity. Following group working time, allow teams time to share the information that they found.

We will now practice applying the information that we just covered to examples from your own schools and districts. Select a content area and program of interest that you want to investigate more closely. This can be a program that you are currently using in your school/district, something you are considering adopting, or something that you are interested in learning more about. Using the three sites we just covered, look at the evidence available for the program.

Because participants are likely to use different approaches to identify similar, yet different interventions, it is important to engage the audience in discussion. The discussion questions may include:

1. Which resource did you choose to use and why?
2. What other information would be helpful?
3. How can districts support schools in identifying appropriate interventions?
Just selecting an evidence-based intervention is insufficient for increases in student performance. The intervention must be implemented as designed.
Implementation involves providing initial recommended training and professional development to the interventionist. A plan must be developed and put in place to ensure that the intervention is delivered as designed, including the appropriate time scheduled and the appropriate materials. After the initial implementation begins, it is important to provide ongoing coaching and professional development to ensure that the intervention continues to be delivered as designed. Ongoing monitoring of implementation fidelity is essential.
What Is Fidelity of Implementation?

This Ask the Expert video featuring Doug Fuchs addresses the following question: We hear a lot about fidelity of implementation when talking about RTI. What does this really mean? (5.17 min). Click the link below the video to watch.

Here is a sample from the video. Doug Fuchs, ...“Look, this is how we developed the program, this is the program. If you deliver the program the way we have detailed it, it’s a good bet that you will get results as we did. So what we’re really saying is, we’re encouraging fidelity of treatment implementation, meaning we’re encouraging you to implement our program the way we implemented it when we validated it. Importantly, this doesn’t mean that practitioners can’t take a validated instructional program, customize it to their own students and circumstances and do better and have their children do even better than the children who participated in our research. ...”
Implement Practices: Fidelity

The best way to monitor fidelity is to measure it.

- Self-Report Data
- Observation
- Logs, lesson plans, and student work

The best way to monitor fidelity is to measure it. Fidelity can be measured through Self-report data, observations or logs and lesson plans. We will discuss each of these in more detail.

Page 11 of the Module 3: Training Manual includes a link for more information of monitoring the fidelity of implementation.
Evaluating Implementation: Monitoring Fidelity

Self-Report Data

- Questionnaires, surveys, interviews
- May provide an indicator of teacher knowledge, context of implementation
- Often unreliable when used alone

Self-report data can include questionnaires, surveys, or interviews and may provide an indicator of teacher knowledge as well as the context of implementation. These measures are often unreliable when used alone.
Conducting observations can be done by developing checklists of critical implementation components, recording and listening to sessions at random, doing spot checks, conducting peer observations, and implementing peer coaching.
### Evaluating Implementation: Monitoring Fidelity

Logs, lesson plans, and student work

- Allows for evaluation of what was done
  - Content covered
  - Student progress
- Less information about:
  - Delivery
  - Dosage
  - Adherence to scripts (if applicable)

---

*Summarize the slide*

Reviewing logs/lesson plans and student work allows for evaluation of what was done. It could include looking at the content covered and student progress. It provides less information about delivery, dosage, adherence to scripts (if applicable).
Evaluating Implementation

Using Fidelity Data

- Distinguish curriculum/intervention from quality of implementation when problems occur

Review slide.
Evaluating Implementation

Using Fidelity Data

- Identify implementation strengths
  - People
  - Potential coaches
  - Components of intervention

- Target areas in need of improvement
  - Coaching
  - Professional development
  - Retraining

Review slide.
Once the intervention is implemented with fidelity, teams can evaluate the effectiveness of the intervention for groups and individual students.
5) Evaluate Effectiveness

- Evaluate general intervention effectiveness.
- Evaluate effectiveness for individual students.
  - Ongoing, graphed progress monitoring data
  - Reviewed at least every 4-6 weeks
  - Evidence-based decision-making criteria
  - General outcome measure versus mastery measure

Evaluating the effectiveness of the instruction cannot occur until the intervention has been delivered with fidelity. Otherwise, it is difficult to determine if nonresponsiveness is a result of poor implementation or student learning differences. Before determining individual student responsiveness to an intervention, the effectiveness of the intervention for most students must be determined. If most students are not benefiting (and data indicate high fidelity of implementation), the intervention may not be effective for your student population. Once the effectiveness of the intervention for most students is determined (data indicate that the intervention is effective) it is easier to identify nonresponders that are a result of learning differences, not a result of a poor intervention.

Evaluating the effectiveness for individual students can be done by using progress monitoring data that show trend lines. This is one of the easier ways to show growth over time. You can also monitor groups of students by averaging weekly data points to show a group trend. In thinking about this, remember that:

- **Ongoing, graphed progress monitoring data** illustrate progress over time.
- Data should be **reviewed at least every 4-6 weeks**. Remember from the previous training, that it takes at least 8 data points to create a trend line.
- **Decisions are based on evidence-based decision criteria.** Criteria for making decisions about tier movement and responsiveness should be based on pre-established, written criteria using logical practices.
- **General outcome measure vs. mastery measure.** As mentioned in previous trainings, it is important to distinguish if the progress monitoring measure is a general outcome measure (one that measures an overall curriculum and is curriculum independent) or a mastery measure (a measure that is assessing sub-skills). By using the mastery measures, we can determine if a student was able to acquire a specific skill. However, a general outcome measure will help us determine if a student is able to apply and maintain the skill.

*Note: There may be questions about the use of pre-post tests to determine effectiveness. Although these types of measurement can provide data about changes in performance, it is difficult to know if the change in performance is a result of the program or other factors because the summative assessment measures are less sensitive. However, these types of measures may be used with groups of students to compare against the performance of students not in the intervention.*
As mentioned earlier in the presentation, practitioners can use progress monitoring data to compare and contrast the efficacy of interventions. The continued use of ineffective interventions can be costly and harmful to students. In this graph, intervention A appears to be more effective than B or C. Instead of providing three different interventions to address similar issues, it might be better to focus on intervention A. These types of data can also provide information about what is a realistic growth rate for students in these interventions. To obtain these data, average students’ weekly scores to see growth of the group over time.

*Note: This is a more advanced data technique that many schools may not be collecting the appropriate data for. To compare interventions, predefined interventions must be used over a period of time.*
Once the intervention has been determined to be effective for most students, it is possible to begin identifying individual students who are not responding to the program. In this case, the data indicated that the student was not responding to an intervention that group data indicated was effective for most of the student’s peers. The teacher decided to make a change to accommodate the student’s learning difference (duration, frequency, intensity, or setting, etc.) and (CLICK for animation, twice) the data indicate the student is responding positively to the change.
CLOSING
**Things to Remember**

- **Good data IN ... Good data OUT**
  - Know where your data came from and the validity of that data
- **Focus on the big picture or ALL students**
  - Are most students making progress?
- **ALL instructional and curriculum decisions should be based on DATA.**
- **Keep it SIMPLE and EFFICIENT!**

*Summarize or read slide.*
Implementing the RTI Framework

- Select and implement evidence-based practices and procedures.
- Implement essential components with integrity.
- Ensure tools and implementation reflect the cultural, linguistic, and socioeconomic factors that students bring to the classroom.

Remember, it can be easy to identify your model components, but implementing them with fidelity can be quite difficult and can take at least two to four years to get into full implementation. It is not enough to implement screening and progress monitoring with integrity; you also must ensure that the interventions, core curriculum and instruction, and data-based decision-making procedures are implemented with integrity.

We recommend that you select and implement evidence-based practices and procedures. This training described in detail how to select evidence-based interventions for the multi-level prevention system. The tools charts available through the NCRTI can help you do that. The Best Evidence Encyclopedia and What Works Clearinghouse also provide great resources for looking at evidence-based interventions.

It is important to ensure that cultural, linguistic and socioeconomic factors are reflected in the RTI framework and its components. On the tools chart, there is a column that provides information about how these particular tools have been used with different groups. District and schools teams should continually evaluate the efficacy of the model and model components for diverse populations.
Here are some activities for review. One possible way to do this review is through Think-Pair-Share. If you are going to use this method you would have participants:

Think about why NCRTI uses levels instead of tiers.
Give participants approximately 20 seconds.

Pair and share with your neighbor/table and list as many words as you can.
Give participants approximately 2-3 minutes.
Allow two or three pairs/tables to orally share their lists.
Repeat for the other questions.

- **Why does the National Center on RTI use levels instead of tiers?** Although discussions in the field frequently refer to “tiers” to designate different levels of interventions, the Center intentionally avoids the use of this term when describing the RTI framework and instead uses “levels” to refer to three prevention foci: primary level, secondary level, and tertiary level. Although the term ‘levels’ is often used synonymously with the term ‘tier,’ they can be different. Levels represents the general level of intensity of the instruction provided whereas tiers represents the interpretations of these levels in a school-based setting.

- **Where can districts and schools find evidence of an intervention’s effectiveness?** NCRTI Instruction Tools Chart, Best Evidence Encyclopedia, and What Works Clearinghouse. Some states and districts may also provide guidance.

- **How can schools monitor the fidelity of intervention implementation?** Measure it. Options include self-report, observations, and lesson logs or lesson plans.
Now that you have gained a general understanding of RTI and its essential component, the next steps are to develop a district/school model or framework and an implementation plan.

Depending on the training site and needs, the trainer may consider personalizing this slide. For example,

- Is the district following up with implementation sites?
- Will additional training be offered?
- What resources are available?
Need More Information?

National Center on Response to Intervention
www.rti4success.org

RTI Action Network
www.rtinetwork.org

IDEA Partnership
www.ideapartnership.org
Questions?

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