DOINGWHATWORKS

Presentation

FULL DETAILS AND TRANSCRIPT

Screening and Monitoring Progress in Mathematics

December 2009

Topic: Response to Intervention in Elementary-Middle Math
Practice: Screening and Monitoring

Highlights

- Similarity of screening systems and processes in math and reading
- RtI as an early detection and prevention approach
- Rationale for universal screening as objective with teacher judgment reserved for progress monitoring
- Schedule math screenings at beginning and middle of year
- Convening of a building-level RtI team to manage screening process
- Selection of screening measures based on appropriate content, accuracy of prediction, and cost; role of state assessments in screening
- Math skills to focus on at each grade level
- Predictive validity based on specificity and sensitivity
- Establishing grade-level benchmarks for making decisions about level of risk for failure
- Establishing and refining cut points
- Regular progress monitoring for students placed in Tier 2 and 3 and borderline students receiving Tier 1 core instruction.

Full Transcript

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Welcome to the overview on Screening and Monitoring Progress in Mathematics.

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Response to Intervention, or "RtI," is a multi-tier instructional framework that focuses on the early detection and prevention of learning difficulties with foundational math skills. Two key components of RtI are the universal screening of all students and the ongoing monitoring of their progress. Staff familiar with other RtI systems will find the following concepts similar, as all RtI systems share the same basic screening and monitoring plan and schedule.

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Universal screening provides an objective view of all students' math skills and helps schools ensure that they won't overlook students who are at risk for developing future difficulties with math. Students are more likely to do well in math if they receive help early—before they fall behind their peers in math skill learning and become discouraged.

This does not mean that teacher judgment about learning needs is unimportant. As students' learning is monitored over time, teachers will make important contributions by gauging progress and recommending changes to interventions as necessary.

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Screenings for potential math difficulties should take place twice a year: at the beginning of the school year and again in the middle of the year.

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A universal screening program requires schoolwide coordination of staff and resources. A building-level RtI team should be composed of diverse members with a range of expertise, such as teachers, special educators, school psychologists, math specialists, and the principal.

The team manages selection of screening measures, establishing cutoff scores to identify students at risk, and even scheduling and administration of assessments.

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When considering which measures to select, the team should give special attention to each measure's efficiency, reliability, and proven validity.

Specific factors to consider include:

• ensuring that the appropriate math skills are being measured,

• how accurately the measure predicts risk, and

• cost.

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Screening measures should focus on the critical math objectives for each grade level.

• In the primary grades through grade 5, screening should assess proficiency with whole numbers, including operations.

• By grade 4, screening should also include proficiency with rational numbers and more advanced operations with whole numbers.

The National Mathematics Advisory Panel report provides information about grade-level benchmarks, which indicate when a particular math skill should be achieved.

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The accuracy of any given screening measure in predicting who is at risk for math difficulty is referred to as its predictive validity.

Predictive validity has two aspects: its *sensitivity*—the degree of accuracy with which it correctly identifies students who are at **high risk**—and its *specificity*—its accuracy in identifying students at **low risk**.

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At grades 4 through 8, these screening measures can be combined with the results of state assessments to provide an even more accurate assessment of students' risk levels.

Ideally, the same screening measures will be used with all schools in the district over the course of several years to facilitate accurate analysis. Standardized, long-range data can be helpful in revealing patterns related to curricular coverage and quality of implementation.

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Once benchmarks have been established, the district will need to establish cut-points or cutoff scores to identify those students who are likely to reach proficiency without additional assistance and those who are at low, moderate, or high risk for developing math difficulties.

It is critical to keep in mind that no measure is *perfectly* reliable. When students' scores fall slightly below or above a cutoff score on a benchmark test, schools may wish to conduct an additional assessment of those students or monitor their progress for a period of six to eight weeks to determine whether the students do, in fact, require additional assistance.

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Schools may need to refine initial benchmark cut points to obtain the right level of accuracy for identifying at-risk students. A lenient cut-point can result in false positives that end up being more costly to the school, while a more stringent cut point may miss students at risk for potential math problems.

In general, it's best to set screening cut points that will identify a pool of children, and then follow up with regular progress monitoring to further determine those most at risk.

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Of course, screening is just the beginning. Once students are receiving supplemental interventions, it's critical to check their progress frequently to determine whether the intensity of the intervention is meeting students' learning needs. The results of progress monitoring can help teachers regroup students as necessary.

It's important to monitor progress on grade-level math objectives at least monthly for students in Tiers 2 and 3 as well as borderline students receiving Tier 1 instruction. On a daily or weekly basis, classroom-based assessments and curriculum-embedded assessments can be used to determine how well students are responding to interventions and developing key math skills and concepts.

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To learn more about Screening and Monitoring Progress in Mathematics, please explore the additional resources on the Doing What Works website.