



# RTI FOR READING DIFFICULTIES IN THE PRIMARY GRADES: SOME ANSWERS AND LINGERING QUESTIONS

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# Objectives

- Describe the characteristics of and current research base on the RTI framework in primary-grade reading.
  - What is RTI in early reading?
  - What is evidence-based instruction?
  - How should RTI in early reading be implemented?
  - How should intervention responsiveness be determined?
- Identify questions that have yet to be adequately addressed by researchers.

# RTI in Early Reading

Comprehensive **school-wide frameworks** through which students at-risk for reading difficulties are **identified** and provided with **evidence-based and data-informed instruction and interventions** before they fall farther behind their peers.

# Closing the Gap

Students who struggle with reading in the early grades are likely to continue to struggle if they receive only typical instruction.

Francis, Shaywitz, Stuebing, Shaywitz, & Fletcher, 1996; Jewel, 1988; Torgesen & Burgess, 1998

# Closing the Gap

“An underlying assumption of RTI is that there is a window of opportunity wherein reading difficulty is more easily altered by instruction and risk of later reading difficulty is likewise minimized.”

Simmons et al. (2008), p. 159

# A Prevention System

The implementation of a comprehensive RTI model “may reduce the number of students referred for special education, promote effective early intervention, provide diagnostic information to consider in the identification of a disability, and/or may reduce the impact of a disability on a child’s academic progress”

Council for Exceptional Children (2007), p. 2

# Essential Characteristics

- Multi-tiered intervention systems
- Evidence-based classroom reading instruction
- Supplemental intervention provided when needed
- Student progress is monitored and outcomes evaluated.
- Student assessment data are examined regularly, and decisions related to intervention are based on student data.
- Sufficient teacher professional development is provided so that high-quality instruction is delivered with fidelity to evidence-based programs and practices.

# 3 Tiers

- Tier 1 intervention (primary prevention): quality evidence-based, differentiated classroom reading instruction **and** universal screening to identify students at-risk for reading difficulties
- Tier 2 intervention (secondary intervention or secondary prevention): supplemental intervention provided to students identified as at-risk for reading difficulties
- Tier 3 intervention (tertiary intervention or tertiary prevention): higher intensity intervention for students with inadequate response in Tier 2

# Evidence-Based Instruction

- Characteristics related to improved outcomes for students with reading difficulties
- Common characteristics of effective interventions

# Evidence-Based Instruction

- Instruction that is purposeful and targeted at important objectives, progressing logically from easier to more challenging skills
- Explicit instruction, in which skills and strategies are clearly modeled and key concepts are directly taught
- Extended opportunities for guided and independent practice with both corrective and positive feedback, including cumulative practice

# Evidence-Based Instruction

- Engaged practice in reading and responding to connected text with and without teacher support and feedback
- Instructional formats that promote active student involvement and provide many opportunities to respond
- Data-based decision-making: based on diagnostic assessments; mastery of key skills and strategies is monitored; reteaching is provided when needed

# Selecting a Program

- High-quality implementation of a research-validated or evidence-based instructional program
- **Research-validated:** The program itself has been evaluated in quality research and found to have positive outcomes for students with reading difficulties (in more than one study, with students similar to yours)
- **Evidence-based:** Look for the characteristics listed on the last 2 slides, including mastery tests; Tier 1 Core programs usually need to be adapted by adding additional practice and more explicit instruction for at-risk readers.

# Tier 1

- **Quality, Evidence-Based Instruction:** Most children will learn to read adequately
- **Differentiated Instruction: *based on diagnostic and progress monitoring assessments*** (Teach what the student needs to learn: not too easy, not too hard)
- **Universal screening and progress monitoring**
- **Teacher professional development**

# Tiers 2 and 3

- Converging evidence supports the effectiveness of instructional reading interventions provided *with sufficient fidelity and intensity* to primary-grade students at-risk for reading difficulties
- Most studies were conducted with 1:1 or small-group standard protocol interventions, primarily in pull-out formats.

(Research Syntheses and Meta-Analyses: Benner, Nelson, Ralston, & Mooney, 2010; Cavanaugh, Kim, Wanzek, & Vaughn, 2004; Ehri, Nunes, Stahl, & Willows, 2001; Elbaum, Vaughn, Hughes, & Moody, 2000; Torgesen, 2004; Wanzek & Vaughn, 2007).

# Studies of Multi-Tiered Intervention Frameworks

- Some studies have evaluated outcomes across two or more tiers of reading intervention
- Generally report positive effects on reading outcomes and a reduction in the percentages of children who remain at-risk for reading difficulties.

# Studies at Tier 3

- Several studies have examined intervention for students with severe reading difficulties
- Findings: **It is possible to intervene successfully, but individual responsiveness varies**
- Few studies have examined effects of Tier 3 *for students with inadequate responsiveness in Tiers 1 and 2*
- These are the students who would likely be served in special education in an RTI model

**Need for Research**

# Directly to Tier 3?

- In Grades 2 and up, students who are substantially below grade-level may need to be immediately provided with intensive intervention rather than progressing through less intensive tiers (Vaughn, Denton, & Fletcher, 2010).
- Students with the lowest pre-intervention performance levels require more intensive interventions in order to close the gap with typically-developing students (Torgesen, 2004; Vaughn et al., 2003).

Need for Research

# Implementation of Tiers 2 and 3

Schools have limited time, personnel, and funding.

- Who can provide intervention? Where should intervention be provided?
- What is the optimum group size?
- When should Tier 2 begin?
- How should intervention be scheduled and how long should it be provided?
- How should responsiveness be determined?

# Interventionists at Tier 2

- In research, effective interventions are most often provided by reading interventionists other than the classroom teacher

## **Intervention can be successfully provided by:**

- Reading specialists or other certified teachers “pull-out” or “push-in”
- Paraprofessionals who receive training and sustained coaching from an experienced teacher.
- Classroom teachers who provide focused, targeted intervention *regularly and with high fidelity*.
- **But what is the BEST way?** There is need for experimental research contrasting interventionists.

# Classroom Teachers as Interventionists at Tier 2

- General education **classroom teachers** who provide small-group instruction within their own classrooms **with sufficient intensity and fidelity**
- **Sustained professional development in implementation of the intervention *and* in classroom management skills** to allow the teacher to provide **focused, consistent intervention** to small groups while ensuring that **other students** in the class are **actively involved in purposeful independent practice activities**
- Recommend a **supportive, structured published program**

# Paraprofessionals at Tier 2

- **Well-prepared and well-supported paraprofessionals** have provided Tier 2 successfully in research **under certain conditions**:
  - interventionists are carefully selected
  - group sizes are kept very small or 1:1
  - highly structured reading intervention programs are used
  - an experienced teacher trains and coaches the paraprofessionals, **spending extended amounts of time with them**

(Grek, Mathes, & Torgesen, 2003; Vadasy, Sanders, & Peyton, 2006; Vadasy, Sanders, & Tudor, 2007).

# Interventionists at Tier 3

- **Well-qualified teachers** who are provided with professional development in the intervention program *and* in teaching students with persistent reading difficulties
- Students in Tier 3 tend to have
  - relatively severe problems in phonological processing, processing speed, and working memory
  - challenging behaviors and attention deficits
- Difficult-to-teach students place large demands on teachers' knowledge and skills
- Probably best to provide Tier 3 in a quiet location outside of the regular classroom

# Group Size

- Small enough to promote **maximum active student involvement** and allow the teacher to monitor and respond appropriately to each student.
- 1:1 has positive outcomes (Elbaum, Vaughn, Hughes, & Moody, 2000)
- For students in kindergarten through Grade 3, higher effects are found in studies with **1:1 instruction or very small groups** than with larger groups (Wanzek and Vaughn, 2007)
- **Tier 2-type interventions: 1:2 or 1:3 generally as effective as 1:1** (Iversen, Tunmer, & Chapman, 2005; Vaughn et al., 2003).

# Group Size at Tier 3


- Some students who receive Tier 3 intervention may require 1:1 instruction
- There are examples in research of effective Tier 3 interventions provided in very small groups (1:2 or 1:3).
- Probably best decided on an individual basis by RTI problem-solving teams based on data indicating the student's needs in reading, attention, and behavior.

# When to Begin Tier 2?

- Researchers have tested models that begin Tier 2 in kindergarten (e.g., O'Connor et al., 2005), fall of first grade (e.g., Mathes et al., 2005), and winter of first grade (e.g., Denton et al., in press)
- Kindergarten may be a “window of opportunity” (Coyne et al., 2004; Simmons et al., 2008) but it can be hard to accurately identify kindergarten students who need supplemental intervention (Jenkins, Hudson, & Johnson, 2007).

Need for Research

# When to Begin Tier 2: The Trade-Off



Potential  
benefits of  
very early  
intervention

Intervention may  
be provided to  
some students  
who don't need it.

**Evaluate priorities and resources: The answer may differ for different children.**

# When to Begin Tier 2?

- Two-stage screening process may improve accuracy in identifying at-risk readers (Compton et al., 2010)
  - Screen at beginning of first grade
  - Monitor progress for five weeks to eliminate “false positives”.
- But: This would delay the onset of intervention for all students.

# When to Begin Tier 2?

- It may make sense to provide immediate intervention to the most impaired readers in k-1 and monitor the progress of less impaired students
- Screen all students
- If needed, administer additional assessments to those who perform lowest on the screen (e.g., norm-referenced phonemic awareness or word-reading test)
- Decisions made by the problem-solving team based on student assessment outcomes

# Schedule and Duration of Tier 2

- What Works Clearinghouse: 3-5 times per week for 20 to 40 minutes “for a reasonable amount of time before providing a more intensive daily Tier 3 intervention” (Gersten et al., 2008, p. 26).
- Synthesis of reading intervention studies showed that providing intervention for at least 20 weeks is feasible and students with reading difficulties and disabilities benefit (Wanzek and Vaughn, 2007)

# Schedule and Duration of Tier 2

- Few experimental studies have directly examined the question, and results have been mixed.
- Some found that students who received the same intervention more times per week did better than those who received it less often (e.g., Al Otaiba et al., 2005; kindergarten).
- Some found that this made little or no difference in outcomes (e.g., Denton et al., in press; grade 1).
- More studies needed.

# Schedule and Duration of Tier 2

- Denton et al.: many children failed to close the gap in **brief small-group interventions (16-32 hours)**
- Fuchs, Compton, Fuchs, Bryant, and Davis (2008): 1st graders who received a **9-week** intervention, 45 min, 4 X per week (about **27 hours**), outperformed control students on progress monitoring measures and some standardized reading tests.
- **Students who are more impaired generally require more time to close the gap (Vaughn, Linan-Thompson, & Hickman, 2003; Grade 2 : 10 weeks, 20 weeks, 30 weeks, never)**

# Schedule and Duration of Tier 2

- More times per week with fewer weeks or fewer times per week with more weeks?
- Massed vs. distributed practice research suggests that distributed lessons are better
- Denton et al. (in press) found no difference between 4 X per week for 8 weeks and 2 X per week for 16 weeks.

# Scheduling and Duration at Tier 3

- What Works Clearinghouse (Gersten et al., 2008): Tier 3 reading intervention should be individualized, “concentrated instruction” delivered in “multiple and extended instructional sessions daily” (p. 10).
- Number of weeks—or months—in Tier 3 will depend on the needs of the students and the level of intensity with which intervention is delivered.
- Monitoring by the Problem Solving Team recommended (student data).

# Increasing the Intensity of an Intervention

- Smaller groups or 1:1
- Longer sessions or multiple sessions across the day
- Extended duration (20-30 weeks, or more)
- Increased:
  - Opportunities to respond
  - Teacher-student interactions
  - Active student involvement

# Determining Adequate and Inadequate Responsiveness

Approaches differ across four dimensions.

What is Measured	Rate of growth, final outcomes, or both
Domain of Reading	PA, Word reading, fluency, comprehension
What is compared	At-risk students' scores compared directly to pre-established benchmarks or to scores of other groups of students (e.g., national norms, classmates)
The goal	The specific score cut-points or benchmarks applied

# Determining Adequate and Inadequate Responsiveness

- Approaches that differ on these dimensions are **likely to identify different students** as adequate and inadequate responders
- **There may be little or no overlap** in the identified groups (Barth et al., 2008; Fuchs et al., 2008)

# What is measured? What kind of assessment is used?

- **Progress monitoring assessments:** Is the student making adequate progress toward instructional goals? Is he/she “on track” to meet benchmarks? **What is the student’s rate of growth?**
- Most use Curriculum-Based Measures (CBMs) **closely aligned with instructional content** (phonemic awareness, letter knowledge, word reading, phonemic decoding, word reading fluency, oral reading fluency in connected text)

# Progress Monitoring and Diagnostic Assessment

- CBMs may be published tests, usually with timed administration (e.g., DIBELS)
- May be mastery tests that coordinate with a published program or teacher-developed informal assessments of mastery of taught skills and concepts (e.g., letter-sound inventories, sight word inventories, unit mastery tests)
- CBMs can provide diagnostic information to inform targeted instruction

# What is measured? What kind of assessment is used?

- Outcome assessments evaluate whether goals are attained (final outcomes)
- Often standardized tests
- Norm-referenced tests (tests that provide standard scores such as percentiles) can tell whether the gap has been closed

# What is measured? What kind of assessment is used?

## What is the goal?

- At-risk students make accelerated growth?
- At-risk students read “on grade level”?
- At-risk students close the gap with average students?

# Domain of Reading Measured

- Rate of responsiveness is usually **lower with fluency criteria** than with word reading criteria.
- At the end of Grade 1, students with poor response to intervention in **both decoding and fluency were more impaired** overall in cognitive domains (phonemic awareness, working memory, etc.) than those with deficits in **fluency alone**. (Fletcher et al., 2010)

# Domain of Reading Measured

What outcomes are important? What constitutes “reading on grade level”?

- Especially at early stages of reading development, accurate and fluent word reading is critical.
- Word reading ability continues to develop across grades k-3, and many older poor readers have impaired word reading.
- Oral reading fluency in connected text is highly predictive of comprehension in grades 1-3.
- Reading comprehension is the ultimate goal.

# What is Compared?

- Compare scores of at-risk readers to pre-determined benchmarks (50 correct words per minute in oral reading fluency at the end of Grade 1)
- Compare scores of at-risk readers to those of other students using national norms (below the 25<sup>th</sup> percentile)
- Compare scores of at-risk readers to those of average readers in the same school or classroom (1 standard deviation below the classroom mean)

# What Score or Benchmark is Applied

- Every test contains error—some more than others (reliability).
- The use of a single test or benchmark to determine responsiveness is problematic (Barth et al., 2008)
- When you apply a single “cut-point” to a group of scores, there will be inaccuracies because scores near the cut-point will fluctuate above and below the line with repeated testing.

# Multiple Indicators

- Use confidence intervals (a range of scores rather than a single score) and multiple criteria, especially when RTI data are used to help determine whether a child has a learning disability.
- Continue to monitor students who exit Tier 2/3 and provide “booster” sessions or return them to intervention if needed.

# RTI Research in Early Reading

We would like quick clear-cut answers but...

- Scientific evidence grows incrementally over time
- Single studies rarely result in clear-cut “answers”
- It is the convergence of findings from different studies that best informs practice.

# RTI Research in Early Reading

Areas with a **convergence of findings:**

1. Characteristics of evidence-based instruction for students with reading difficulties
2. Effectiveness of early reading intervention
3. If we do nothing, students rarely improve on their own.

# Areas in Need of More Research

1. The conditions under which early reading interventions are most effective in RTI contexts (interventionists, duration, etc.)
2. Effective reading instruction for students who make limited progress in Tier 3 intensive interventions
3. Long-range effects of different approaches to determining intervention responsiveness
4. The effects of fully implemented RTI frameworks.
5. Effective interventions for children with reading difficulties plus other kinds of difficulties (e.g., ADHD; I-CARD study in progress! Stay tuned.)

Denton, in press

# The Bottom Line

“I wish my teacher would help me learn to read. Sit down and read with me...I’d learn to read then.”

...Middle School Student in  
McCray, Vaughn, & Neal, 2001





TEXAS CENTER  
*for*  
LEARNING  
DISABILITIES



**I-CARD**

Interventions for Children with  
Attention and Reading Difficulties

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*Learning from science.*

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## **RTI FOR Reading Difficulties in the Primary Grades: Some Answers and Lingering Questions**

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