RTI: Meeting the Needs of Students with Dyslexia

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Current Federal Definition

- **IDEIA 2004**
  - States cannot require districts to use IQ tests for identification of LD
    - (CAN’T REQUIRE A DISCREPANCY MODEL)
  - States had to permit districts to implement RTI
    - (MUST ALLOW FOR THE USE OF A PROCESS THAT DETERMINES IF THE STUDENT RESPONDS TO SCIENTIFICALLY RESEARCH-BASED INTERVENTIONS; AND MAY PERMIT OTHER ALTERNATIVE RESEARCH-BASED PROCEDURES)
  - Children could not be identified as LD if poor achievement was **primarily due to** lack of appropriate instruction in reading or math
    - Evidence of appropriate instruction in reading and math in general education
    - Data-based documentation at repeated intervals of the student’s response to instruction
Ability-Achievement Discrepancy

- **Guiding principle**: SLD = unexpected underachievement

- **Basis for decision making** = psychometric: Comparing two test scores

- **Key assessment data** = Full scale IQ score and achievement test score

- Lichtenstein (2014)
What is RTI

• A **systematic** and **data-based** method for addressing academic concerns:
  
  • Identifying, defining, & resolving
  
  • **cause-effect relationship** between academic/behavioral interventions and the student’s response to it.

• Think “scientific method”!

• Burnes et al. (2014) Gresham (2014); Howell & Hops (2014);
RTI

- **Guiding principle**: prevention and early intervention
- **Basis for decision making** = systemic problem-solving model
- **Key assessment data** = CBM data over time

- Lichtenstein (2014)
Three Main Components of RTI

• **High quality core instruction**
  - All children deserve effective instruction that leads to achieving functional skills

• **Frequent, systematic data collection**
  - Continuous assessment leads to skill improvement

• **Data-based decision making**
  - Adjustment to instruction must be based on student performance data
    - Burnes et al. (2014); Gresham (2014); Lichtenstein (2014)
Problem Solving

- At each tier within RTI², a **problem solving model** is employed to make decisions

**Problem Identification**
- Define the problem
- Develop an assessment plan

**Plan Evaluation**
- Analyze the results of implementation
- Determine next steps

**Problem Analysis**
- Analyze the assessment plan results
- Develop an intervention plan

**Implement Plan**
- Progress monitor
RTI Instead of Discrepancy Models

• RTI is a **general education** based method for monitoring student progress

• Why change?
  
  • Lack of evidence to support the discrepancy method
  
  • Evidence that other methods (RTI) work just as well or better
  
  • A desire to do away with “wait to fail”
    
    • When interventions are delayed until age 9, approximately 75% will continue to have difficulties throughout high school (National Reading Panel)

  
  • Burnes et al. (2014); Gresham (2014); Howell & Hops (2014); Lichtenstein (2014)
Essential Conditions and Support for RTI

- State-level infrastructure to support RTI
- District and school level leadership support
- High quality, evidenced-based instruction in general education
- Preservice and inservice professional development
- Maximized use of research based, scientifically validated interventions appropriately matched to student needs and implemented with fidelity
- Use of data to systematically monitor and make decisions about RTI
- Sufficient time and resources for staff to collaborate
- Documentation procedures for tracking
What are the measures we used for data collection in an RTI model?

Three types of CBM’s
3 Types of CBM’s

• Sub-skill Mastery Measures

• Skill Based Measures

• General Outcome Measures (GOM’s)
Subskill Mastery Measures

- **SMMs** are very **narrow** in focus
- Sensitive to **short term** change
  - Can be administered **frequently** (weekly)
  - Ex.
    - Letter naming fluency
    - Letter sound fluency
    - Phoneme segmentation fluency
Skills-Based Measures

• **SBM** require multiple subskills to be combined

  • Can be used when **capstone tasks** are **not** available

  • Require **more time** to see change (growth)

• Ex.
  
  • Word Reading Fluency (every other week)
General Outcome Measures

- **GOMs**
  - *sample* performance across several goals at the same time
  - are collected to determine if the student is making progress toward *long-range goals*

- **capstone tasks**
  - Ex.
    - Oral reading fluency (every other week)
<table>
<thead>
<tr>
<th>Tier</th>
<th>CBM Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tier 1</td>
<td>Universal screener</td>
</tr>
<tr>
<td>Tier 2</td>
<td>Survey level assessment</td>
</tr>
<tr>
<td></td>
<td>Progress monitoring</td>
</tr>
<tr>
<td>Tier 3</td>
<td>Specific level assessment</td>
</tr>
<tr>
<td></td>
<td>Progress monitoring</td>
</tr>
</tbody>
</table>
Let’s take a closer look at Tennessee’s RTI² model
TN’s RTI²

• What is Tier I?
  • Scientifically based CORE instruction
  • Nationally normed skill based universal screening administered 3X a year
    • grade level
  • Decisions about students’ academic needs are data-driven

RTI² manual pg 21-33
Referral to Tier II Decision Tree

<table>
<thead>
<tr>
<th>Condition</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Core literacy instruction has been implemented with fidelity</td>
<td>≥80% of student needs are met by core instruction</td>
</tr>
<tr>
<td>Differentiated instruction has been provided in a small group</td>
<td>within core literacy instruction</td>
</tr>
<tr>
<td>Student has been present for ≥75% of instructional days</td>
<td></td>
</tr>
<tr>
<td>Student has passed vision and hearing screening</td>
<td></td>
</tr>
<tr>
<td>Data indicates performance below the 25\textsuperscript{th}% on universal</td>
<td>screening of student achievement compared to national norms</td>
</tr>
<tr>
<td>Additional Assessment data supports universal screening data</td>
<td></td>
</tr>
</tbody>
</table>
What is Tier 2

- **Small-group** intervention practices
  - For students identified through the universal screening process as being between the 25% and 11% on national norms

- Administered by **highly qualified** personnel
  - Highly qualified = people who are adequately trained to deliver the selected intervention as intended with fidelity to design.
  - When possible, Tier II interventions should be taught by qualified, certified teachers

RTI² Manual pgs 34-45
RTI² Decision-Making Process

**Tier II**

<table>
<thead>
<tr>
<th>Universal Screening</th>
</tr>
</thead>
<tbody>
<tr>
<td>Does not meet grade-level expectations (below 25th percentile)</td>
</tr>
<tr>
<td>Ready for grade-level instruction</td>
</tr>
<tr>
<td>Exceeds advanced expectations</td>
</tr>
</tbody>
</table>

**Core Instruction 80–85%**
- High quality instruction aligned to Common Core Standards
- Instructional decisions driven by ongoing formative assessment
- High quality professional development and support

**Ongoing Assessment**

<table>
<thead>
<tr>
<th>Tier I</th>
</tr>
</thead>
<tbody>
<tr>
<td>Core Instruction 80–85%</td>
</tr>
<tr>
<td>Tier II</td>
</tr>
<tr>
<td>Targeted Intervention 10–15%</td>
</tr>
<tr>
<td>Addresses the needs of struggling and advanced students</td>
</tr>
<tr>
<td>Additional time beyond time allotted for the core instruction</td>
</tr>
<tr>
<td>High quality intervention matched to student-targeted area of need</td>
</tr>
<tr>
<td>Provided by highly trained personnel</td>
</tr>
</tbody>
</table>

**Tier II**

<table>
<thead>
<tr>
<th>Targeted Intervention 10–15%</th>
</tr>
</thead>
</table>

**Tier III**

<table>
<thead>
<tr>
<th>Targeted Intervention 3–5%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Addresses small percentage of struggling students</td>
</tr>
<tr>
<td>More explicit and more intensive intervention targeting specific area of need</td>
</tr>
<tr>
<td>Intervention provided by highly trained personnel</td>
</tr>
</tbody>
</table>

Provide enrichment
## Referral to Tier III Decision Tree

<table>
<thead>
<tr>
<th>Tier II intervention(s) have occurred daily for 30 minutes in addition to core instruction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intervention logs attached</td>
</tr>
<tr>
<td>(3) Fidelity checks completed and attached</td>
</tr>
<tr>
<td>Implementation integrity has occurred with at least 80% fidelity</td>
</tr>
<tr>
<td>Student has been present for ≥75% of intervention sessions</td>
</tr>
<tr>
<td>Tier II intervention(s) adequately addressed the student’s area of need</td>
</tr>
</tbody>
</table>
Tier II intervention was appropriate and research-based

Research based interventions are:

- Explicit
- Systematic
- Standardized
- Peer reviewed
- Reliable/valid
- Able to be replicated

Progress monitoring has occurred with at least 10-15 weekly data points –OR- 8-10 bi-monthly data points

Gap analysis indicates that student’s progress is not sufficient for making adequate growth with current interventions
What is Tier III?

- Tier III addresses 3-5% of students who have received Tier I instruction and Tier II interventions and continue to show marked difficulty in acquiring necessary reading, mathematics, and writing skill(s).

- It could also include students who are 1.5 to 2 years behind or are below the 10th percentile and require the most intensive services immediately who were identified through the universal screener administered during Tier I.
• Students at this level should receive
  • daily,
  • intensive,
  • individualized,
  • small group intervention
  • more directly targeting specific area(s) of deficit
RTI² Decision-Making Process

Tier I
Core Instruction 80–85%
- High quality instruction aligned to Common Core Standards
- Instructional decisions driven by ongoing formative assessment
- High quality professional development and support

Ongoing Assessment
- Does not meet grade-level expectations
- Meets grade-level expectations
- Exceeds grade-level expectations

Tier II
Targeted Intervention 10–15%
- Addresses the needs of struggling and advanced students
- Additional time beyond time allotted for the core instruction
- High quality intervention matched to student-targeted area of need
- Provided by highly trained personnel
- Typically 12 weeks before moving to Tier III

Progress Monitoring
- Does not meet grade-level expectations

Tier III
Targeted Intervention 3–5%
- Addresses small percentage of struggling students
- More explicit and more intensive intervention targeting specific area of need
- Intervention provided by highly trained personnel

Progress Monitoring required for data-based decision making
- Does not make significant progress
- Makes significant progress

Consider possible need for Special Education referral after Tier II and Tier III interventions
Continue with Tier III Intervention
What are some differences between Tier II & Tier III interventions?

- Increase in **intensity** and **duration** of instruction
- More **specifically tailored** to a student's unique strengths and weaknesses
  - **Functionally relevant**
<table>
<thead>
<tr>
<th>Referral for SLD Evaluation Decision Tree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tier III Intervention(s) have occurred daily for 60 minutes in addition to core instruction</td>
</tr>
<tr>
<td>Intervention logs attached</td>
</tr>
<tr>
<td>(5) Fidelity checks completed and attached</td>
</tr>
<tr>
<td>Implementation integrity has occurred with at least 80% fidelity</td>
</tr>
<tr>
<td>Student has been present for ( \geq 75% ) of intervention sessions</td>
</tr>
<tr>
<td>Tier III intervention(s) adequately addressed the student’s area of need</td>
</tr>
</tbody>
</table>
Tier III intervention was appropriate and research-based

Research based interventions are:

- Explicit
- Systematic
- Standardized
- Peer reviewed
- Reliable/valid
- Able to be replicated

Progress monitoring has occurred with at least 10-15 weekly data points –OR- 8-10 bi-monthly data points at Tier III

Gap analysis indicates that student’s progress is not sufficient for making adequate growth with current interventions
Let’s Look at some commonly used Universal Screeners and how they relate to the new TN Dyslexia law.
Tier I Assessment: Universal Screener

- For K-8, **Universal Screeners** should be administered **3X** per year

- In grades 9-12, there are **multiple sources** of data that can be reviewed, such as:
  - EXPLORE, PLAN and ACT; Tennessee Comprehensive Assessment Program (TCAP) which includes Writing (TCAP-WA), End of Course (EOC), 3-8 Achievement and in 2014-2015, Partnership for Assessment of Readiness for College and Careers (PARCC); TVAAS

RTI² manual pg 16-17 & Implementation Guide Component 63-65
Dyslexia Screening

- Phonological Awareness
- Alphabet knowledge
- Sound-symbol recognition
- Decoding Skills
- Rapid Naming
- Encoding (Spelling) Skills
Phonological Awareness

- DIBELS 6th Edition
  - ISF – Initial Sound Fluency
  - PSF – Phoneme Segmentation Fluency

- DIBELS Next
  - FSF - First Sound Fluency
  - PSF – Phoneme Segmentation Fluency
Phonological Awareness

- **Aimsweb2**
- **Test of Early Reading**
  - Phoneme Segmentation Fluency
- **Easy CBM**
  - Phoneme Segmentation Fluency
Alphabet Knowledge

- **DIBELS 6th Edition**
  - LNF – Letter Naming Fluency

- **DIBELS Next**
  - LNF – Letter Naming Fluency

- **Aimsweb2**
  - Test of Early Literacy
    - Letter Naming Fluency

- **Easy CBM**
  - Letter Naming Fluency
Sound-Symbol Recognition

- Aimsweb2
- Test of Early Literacy
  - Letter Sound Fluency
- Easy CBM
  - Letter Sound Fluency
Decoding Skills

- **DIBELS 6th Edition**
  - NWF – Nonsense Word Fluency
  - ORF – Oral Reading Fluency (% accuracy)
    - – 93-97% correct

- **DIBELS Next**
  - NWF – Nonsense Word Fluency
  - ORF – Oral Reading Fluency

- **Aimsweb2**
  - Test of Early Literacy
    - Nonsense Word Fluency
  - Oral Reading (R-CBM)

- **Easy CBM**
  - Word Reading Fluency (K-2)
  - Passage Reading Fluency (1-8)
RAN

• All fluency measures previously discussed – e.g., LNF

• if the performance is accurate but slow RAN weakness can be assumed to be the underlying cause

Encoding (Spelling)

• Aimsweb2
  • Spelling CBM
What Next?
Decisions and Assessments Based on Universal Screening Data

**Tier 1:**
Students performing above the 25%

**Tier 2:**
Students performing between the 11% and 25%

**Tier 3:**
Students performing at or below the 10%

- **Conduct survey level assessments** to determine the category to focus the intervention on.
- **Progress monitor Tier 2 intervention weekly or biweekly.**

- **Conduct specific level assessment** to determine functional relations to focus interventions on.
- **Progress monitor Tier 3 intervention weekly or biweekly.**

**Continue monitoring with benchmark assessments**.
Linking Assessment to Interventions....

- Research has shown that effective interventions have certain features in common:
  - Correctly targeted to the student’s deficit
  - Appropriate level of challenge (instructional range)
  - Explicit instruction in the skill
  - Frequent opportunities to practice (respond)
  - Provide immediate corrective feedback

(e.g., Brown-Chidsey & Steege, 2010; Burns, Riley-Tillman, & VanDerHeyden, 2013; Burns, VanDerHeyden, & Boice, 2008;)

What Would **Assessment** at **Tier II** Look Like?
So you have identified your “at risk students”- now what?

- You will need to conduct **Survey Level Assessment (SLA)** for these students

- **Survey Level Assessment (SLA)**
  
  - Can be used to:

    - (a) provide information on the difference between prior knowledge and skills deficits to be used to plan instructional interventions &
    - (b) serve as baseline for progress monitoring
Why is it important to conduct Survey Level Assessments before beginning Tier II interventions?

- The primary question being addressed by the survey level assessment at Tier II is
  
  “What is the CATEGORY of the problem”

- What is the specific area of academic deficit? (e.g., Riley-Tillman, Burns, Gibbons, 2013)
For example..... In reading

- comprehension & fluency =
  - comprehension intervention

- comprehension + low fluency, but decoding =
  - fluency intervention

- comprehension + fluency + decoding, but phonemic awareness skills
  - decoding intervention

Riley-Tillman et al., (2013)
Determining the appropriate category

1) Start at student’s grade level

2) Test backwards by grade until the student has reached the benchmark for a given skill
Let’s look at Mitch a 2nd grade student

- At the fall benchmark, he was identified on PRF as being below the 25th%.

- His score was 30 wcpm with 86% accuracy
  - 64 wcpm = 50th%
  - 41 wcpm = 25th%
  - 26 wcpm = 10th%

- Survey level assessment were conducted using:
  - PRF 1st grade – (fluency)
  - WRF 1st grade – (phonics)
  - LSF 1st grade – (phonics)
  - PS 1st grade – (phonemic awareness)
Mitch’s Scores

- PRF – 33 wcpm; 87%
- WRF – 28 wic; 90%
- LSF – 48 lsc; 98%
- PS – 40 psc; 97%

EasyCBM Scores
Representing 1st grade Benchmark

<table>
<thead>
<tr>
<th></th>
<th>Fall</th>
<th>Winter</th>
<th>Spring</th>
</tr>
</thead>
<tbody>
<tr>
<td>PRF</td>
<td></td>
<td>32</td>
<td>60</td>
</tr>
<tr>
<td>WRF</td>
<td>15</td>
<td>28</td>
<td>49</td>
</tr>
<tr>
<td>LSF</td>
<td>31</td>
<td>41</td>
<td>45</td>
</tr>
<tr>
<td>PS</td>
<td>37</td>
<td>---</td>
<td>---</td>
</tr>
</tbody>
</table>
What next....

• You **link** your assessment data to an intervention that targets the category of skill deficit that was identified

• You select **progress monitoring probe(s)** that assess that skill

• You set the student’s **goal** for improvement
  • You can use ROI & Gap Analysis worksheets to help with this
What Would **Assessment** at **Tier III** Look Like?
Specific Level Assessment

- **Functional analysis** of skills
- Are used to:
  - (a) **identify** specific skills deficits;
  - (b) students **prior knowledge**; &
  - (c) serve as **baseline** for progress monitoring
- **Specific level assessments** rely primarily on subskill mastery measures
  - “**drill down**” to specific deficits
Linking Assessment Data to Intervention at \textbf{Tier III}

- **The learner**
  - focus on \textit{alterable} learner variables
  - identify academic \textit{entry level} skills

- **The task**
  - \textit{level} of the material the student is expected to master

- **The instruction**
  - research-based methods and management strategies used to \textit{deliver curriculum}
Targets for Academic Instructional Materials

- **Instructional level**

- **contextual reading** – 93-97% correct

- **other academic skills** – 85-90% correct

- **Produce larger gains more quickly**

Let’s look at Mitch again.....

- Specific Level Assessment –
- Phonemic Awareness:
  - Normative
    - LAC 3 or CTOPP
- Decoding Skills:
  - CBM
    - Decoding Skills test
    - Reading inventory such as QRI or IRI
    - Placement measures from programs such as Wilson
  - Normative
- Spelling:
  - CBM
    - Developmental Spelling Analysis
    - ABC’s of CMB Spelling CBM
  - Normative
    - WIST
    - WIAT
    - WJ

Problem Analysis
Linking specific level assessment data to interventions....

• Basing interventions on direct samples of student’s academic skills has been shown to result in larger effect sizes than interventions derived from other data

• This is also known as a skill by treatment interaction

• Burns, Codding, Boice & Lukito, (2010)
What Would Data Analysis at Tier III Look Like?
Analyzing Level

- **Visual analysis:**
  - (1) compared to benchmark (goal/aim line)

- **Statistical:**
  - (2) Can conduct a **Gap Analysis** using the worksheet
  - (3) Calculate **mean** or **median** for each phase and compare
Compare level

Digits Correct Per Min

Baseline mean = 13.5  Intervention mean = 14.3
Slope/Trend

- **Slope** (ROI) indicates whether it is likely that the student will meet the goal in a timely fashion

- How the central location **changes over time**
  - With academic data we are usually looking for an **increase** in skills

(e.g., Daly III et al., 2010; Hixson et al., 2008; Riley-Tillman & Burns, 2009)
Analyzing Trend/Slope

- **Visual analysis:**
  - (1) Target students **trendline** can be compared with the **aimline/goal**

- **Statistical analysis:**
  - (2) compare target student’s ROI to normative ROI using the **ROI Worksheet**
Words read correctly per minute (WRC) on 6th grade ORF passage;
Words read correctly per minute (WRCM) on 5th grade ORF passage;

\[ g\text{-index} = +0.67 \]
Deciding to refer for SLD evaluation

- As part of the team's decision to refer for an SLD evaluation, a **Gap Analysis** should be conducted.

- Let’s look at how to complete the Gap Analysis worksheet with Mitch.
# Gap Analysis

<table>
<thead>
<tr>
<th>Assessment Used:</th>
<th>2nd PRF</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student’s current benchmark performance:</td>
<td>66</td>
</tr>
<tr>
<td>Student’s current rate of improvement (ROI):</td>
<td>1.3</td>
</tr>
<tr>
<td>Current benchmark expectation:</td>
<td>102</td>
</tr>
<tr>
<td>End of year benchmark expectation:</td>
<td>102</td>
</tr>
<tr>
<td>Number of weeks left in the school year:</td>
<td>5</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Current benchmark expectation</th>
<th>Current performance</th>
<th>Current gap</th>
<th>Is Gap Significant?</th>
</tr>
</thead>
<tbody>
<tr>
<td>102</td>
<td>66</td>
<td>1.5</td>
<td>Yes</td>
</tr>
</tbody>
</table>

The current gap is significant.
Conducting a Gap Analysis

**Step 2**

\[
\begin{align*}
\text{End of year benchmark} & \quad \text{Current performance} \quad \text{Difference} \\
102 & \quad 66 & \quad 36
\end{align*}
\]

\[
\frac{36}{5} = 7.2
\]

\[
\frac{36}{1.3} = 28
\]

*Is this reasonable?*

*Yes*  

*A reasonable ROI is one which is no more than twice (2x) the ROI of typical peers*
Referral for SLD  Special Education Evaluation
RTI² and the Process for Referral for a Special Education Evaluation

• **Progress Monitoring** data indicating a lack of responsiveness to intervention; and

• A **lack** of sufficient progress to **meet age or State-approved grade-level standards** will be established by examining the student’s **Rate of Improvement** (ROI) including a **gap analysis** and will be based on the following criteria:
If a student fails to make adequate progress after receiving intervention at all levels, the information obtained during the intervention process from:

- any screenings,
- survey and specific level assessments (used for program planning purposes)
- progress monitoring data

should be used as part of the eligibility determination.
<table>
<thead>
<tr>
<th>Exclusionary Factor</th>
<th>Source of Evidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Visual, Motor, or Hearing Disability</td>
<td>Sensory screenings, medical records, observation</td>
</tr>
<tr>
<td>Intellectual Disability</td>
<td>Classroom performance, academic skills, language development, adaptive functioning</td>
</tr>
<tr>
<td></td>
<td>(if necessary), IQ (if necessary)</td>
</tr>
<tr>
<td>Emotional Disturbance</td>
<td>Classroom observation, student records, family history, medical information, emotional/behavioral screenings (if necessary)</td>
</tr>
<tr>
<td>Cultural Factors</td>
<td>Level of performance and rate of progress compared to students from same ethnicity with similar backgrounds</td>
</tr>
<tr>
<td>Environmental or Economic Factors</td>
<td>Level of performance and rate of progress compared to students from similar economic backgrounds, situational factors that are student specific</td>
</tr>
<tr>
<td>Limited English Proficiency</td>
<td>Measures of language acquisition and proficiency (i.e., BICs and CALPs), level of performance and rate of progress compared to other ELL students with similar exposure to language and instruction</td>
</tr>
<tr>
<td>Excessive Absenteeism</td>
<td>Attendance records, number of schools attended within a 3 year period, tardies, absent for 23% of instruction and/or intervention</td>
</tr>
</tbody>
</table>
Helpful Resources from NASP
Additional Helpful Resources

- Guilford Press

The ABCs of CBM
A Practical Guide to Curriculum-Based Measurement
Michelle K. Hosp, John L. Hosp, and Kenneth W. Howell

Learning Disabilities
From Identification to Intervention
Jack M. Fletcher, G. Reid Lyon, Lynn S. Fuchs, Marcia A. Barnes