Three Tiered Model

- Assessment by response to intervention
- Tier 1
  - Provide classroom support
- Tier 2
  - Provide more intensive support
- Tier 3
  - Consider special education
- Monitor and evaluate at all stages

Tier II: Secondary Intervention, Supplemental Reading Instruction

- Explicit, systematic instruction
- Phonological awareness
- Phonetic decoding
- Reduce percent needing support to 3 to 4%

Tier I: Impact of High Quality Classroom Instruction

- Instruction that contains core classroom components
- Phonological awareness, alphabetic principle, application of skills
- Result in about 6% or less of children expected to experience reading problems

Results of Primary Intervention

<table>
<thead>
<tr>
<th>Study</th>
<th>Hours of Instruction</th>
<th>Students/Teacher Ratio</th>
<th>Reading % by Initial Status</th>
<th>% of Students Reading Below 30th %ile After Intervention</th>
<th>Results of Primary Intervention</th>
</tr>
</thead>
<tbody>
<tr>
<td>Footman et al., 1998</td>
<td>174 Classroom</td>
<td>18</td>
<td>30%</td>
<td>5%</td>
<td></td>
</tr>
<tr>
<td>Mathes et al., 2001</td>
<td>35 Classroom (Peer tutoring)</td>
<td>25</td>
<td>31%</td>
<td>6%</td>
<td></td>
</tr>
<tr>
<td>Allor et al., 2002</td>
<td>35-55 Classroom (Peer tutoring)</td>
<td>25</td>
<td>29%</td>
<td>6%</td>
<td></td>
</tr>
<tr>
<td>Mathes et al., in press</td>
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<td>18%</td>
<td>5%</td>
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</tr>
</tbody>
</table>

Results of Secondary Intervention

Early Intervention Makes a Difference

- Can significantly reduce number of children performing below criterion
- Increase scores on standardized tests
- Results are long lasting for most children
- Largest gains are made in first part of intervention
Who Does It Help?
- Those without underlying processing disorders (phonological and naming speed)
- Those who respond quickest
- Those whose reading problems are a result of limited exposure
- Those with better foundational literacy skills
- IQ does not differentiate those who will be helped

Why Does It Help?
- Establishes basic early skills
- Puts children on growth trajectory
- Response to early intervention shows growth curve in basic skills to be greater than normal for those receiving intervention

Criteria To Determine Ongoing Need for Secondary Intervention
- Basic Reading subskills
  - Most children in intensive interventions improve in this area
  - Fluency
    - Effects of reading rate problems on classroom performance
    - Fewer children would meet criteria using reading rate
    - 77-82% compared to 90+% for basic skills
    - Children with poor fluency more likely to be retained
    - Significant relationship to later basic reading skills

Length of Intervention
- Rate of progress in intervention predicts future reading
- Difference in response
  - Rapid responders
    - Meet rate goals with more prolonged intervention
    - Need intensive intervention beyond traditional
      - Both word reading and comprehension are low
      - Word reading lower than comprehension

Length of Intervention contin.
- For slower responders gains may occur in later years
- For each hour of intervention Standard Score gains ranged from:
  - .28 to .76 for word attack
  - .07 to .34 for word identification
  - .11 to .9 for comprehension

Length and Intensity of Intervention
- Rate of response to instruction a good marker for students needing more intervention
- Berninger suggests that a cutoff of 1 standard deviation below the mean on initial reading skill and verbal IQ may predict differences in response rate
What Does It Take?

Group Size and Composition

- Same ability grouping
- Small groups within classrooms
- Small groups equal to or better than one on one
- Up to three to four students

What Can Be Expected?

- Typical students in first grade gain @ 2 wrds per week in oral reading fluency (ORF)
- Grade two students gain about 1.66 decreasing to about .6 in fifth and sixth grade
- Special education students is about ½ that of regular education students
- High quality interventions was about 1.5
- Benchmark for interventions
  - 2 wrds per week to level of 30 CWM
  - Approximately 1 wrd. per week thereafter

Tier III: Tertiary Interventions

- Intensive
- Generally given later than Primary and Secondary
- Less exposure to more complex words
- Problems in reading rate remain

Age At Intervention

- Unclear whether brain changes that occur for younger children happen with older
- General cognitive ability affects comprehension
- Typical special education during 4th and 5th grade increases reading by only .4 SD over what would occur in classroom

Upper Grade Interventions

- Often lack intensity
- Little direct instruction or guided practice in phonics
- Lack of comprehension strategy instruction
**Successful Upper Grade Interventions**
- Teach phonemic decoding explicitly
- Provide opportunities for supervised practice
- Intensive
- Small group
- Related to entry level skills
- Provide all NRP elements of reading instruction
- Brain studies show intervention effect on brain function
- Teach morphology

**Sample Interventions**
- Auditory Discrimination in Depth (LIPS)
- Code emphasis
- Reading Recovery with added Phonological component
- Spell, Read P.A.T.
- Read Write Well
- Berninger PAL aligned
- Phono-Graphix

**Conclusions for Upper Grades**
- Older children around 30th percentile can bring phonemic decoding, text reading accuracy and fluency into average range (60 hours)
- Those around 10th percentile can bring phonemic decoding, accuracy and comprehension into average range. Fluency increase but still low (100 hours)
- Those at 2nd percentile can bring phonemic decoding into average and increase accuracy and comprehension but little relative change in fluency

**Sample Interventions contin.**
- Slingerland
- Recipe for Reading
- Wilson Reading System
- Alphabetic Phonics
- Words (Marcia Henry)
- Corrective Reading

**Difficulties For Older Children**
- Low entering word reading scores reflect underlying deficits
- Deficit makes it impossible to close the gap
- Those with better word reading at entry may have more words “on the verge”
- May have additional deficit in ability to form orthographic representations

**Swanson Meta-analysis**
- Large analysis of studies on interventions for LD students
- Considered multiple characteristics of instruction
- For reading looked primarily at word recognition and comprehension
- Difficulties in designing experimental studies
### Word Recognition
- Direct instruction with drill, repetition and practice
- Sequencing
- Segmentation
- Advance organizers
- Orienting to task
- Small groups

### Fluency
- Importance of prosody as well as rate
- Repeated readings
  - No consistent results
  - Perhaps some value in using higher level text
- Assisted reading
  - With another person
  - With tape
  - May have more promise than repeated readings
- Tend to improve comprehension and prosody but not word recognition

### Reading Comprehension
- Greater number of components than for word recognition
- Direct instruction
- Strategy instruction
- Directed response
- Sequencing
- Elaboration
- Teacher modeling

### Fluency continued
- Increasing word recognition
  - Rate efforts alone don’t improve reading rate or comprehension
  - Preteaching vocabulary aids comprehension
- Segmenting text
  - Augmented text may be particularly useful for slow readers
- Increases in fluency lead to increases in comprehension
- Important to assure that component skills are in place
- Importance of motivation

### Fluency
- Good indicator of reading skill
- Correlates highly with comprehension measures
- Multiple reading processes may become automatic

### Swanson’s Conclusions
- Growth doesn’t always mean significant effect sizes
- Phonics instruction alone doesn’t always generalize to real word reading
- LD students need more than just phonics in order to transfer their skills to real words
- General language deficit (higher order) and its effect on learning to read
<table>
<thead>
<tr>
<th>Predicting Responsiveness to Intervention</th>
</tr>
</thead>
<tbody>
<tr>
<td>IQ</td>
</tr>
<tr>
<td>Phonological measures</td>
</tr>
<tr>
<td>Naming speed</td>
</tr>
<tr>
<td>Double deficits</td>
</tr>
<tr>
<td>Targeted intervention</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Intervention Review</th>
</tr>
</thead>
<tbody>
<tr>
<td>Progression of skills taught to mastery?</td>
</tr>
<tr>
<td>Explicit, direct, systematic and organized?</td>
</tr>
<tr>
<td>Multi-sensory and infused across learning situations?</td>
</tr>
<tr>
<td>Contains essential components?</td>
</tr>
<tr>
<td>Addresses all areas of language?</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Controversial Therapies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fast ForWord</td>
</tr>
<tr>
<td>Gift of Dyslexia</td>
</tr>
<tr>
<td>Tinted Lenses</td>
</tr>
<tr>
<td>Optometric Visual Training</td>
</tr>
<tr>
<td>Ingestive Treatments</td>
</tr>
<tr>
<td>Neuro-physiological Approaches</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Designing Interventions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Consider foundational skills</td>
</tr>
<tr>
<td>Consider predictor factors</td>
</tr>
<tr>
<td>Implement research based interventions</td>
</tr>
<tr>
<td>Monitor progress</td>
</tr>
<tr>
<td>Add additional components if not working</td>
</tr>
<tr>
<td>Include emotional considerations</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Intervention Review</th>
</tr>
</thead>
<tbody>
<tr>
<td>Provide interventions that target area of need?</td>
</tr>
<tr>
<td>Related to standards?</td>
</tr>
<tr>
<td>Provide methods for monitoring growth?</td>
</tr>
<tr>
<td>Provide accommodations as needed?</td>
</tr>
<tr>
<td>Help to formulate long-term plan</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Matching Program to Student?</th>
</tr>
</thead>
<tbody>
<tr>
<td>No data to support matching modalities</td>
</tr>
<tr>
<td>Teach to strengths?</td>
</tr>
<tr>
<td>Remediate weaknesses?</td>
</tr>
<tr>
<td>Consider connectionist model of development of word representations</td>
</tr>
<tr>
<td>What processors might be more effective links for this child?</td>
</tr>
</tbody>
</table>
Program Analysis

- Phonemic awareness?
- Phonics with systematic, orthographic element?
- Fluency?
- Instructional level and comprehension training?
- Spelling and writing?

Training in Phonological Processing

- Many useful programs
  - Systematic, multi-sensory
  - In connection with letters
  - Part of larger reading system
- Sounds Abound, Catts
- Phonological Awareness Training for Reading, Torgeson
- Auditory Discrimination in Depth
- PAL Interventions

Using Curriculum Planning Sheets to Look at Student

- Address each level
- Select program elements
- Determine measure for monitoring

Training in Sound-Symbol Correspondence

- Emphasis on decoding, not guessing
- Orton-Gillingham/multi-sensory
- Orthographic and word specific knowledge
- Direct instruction
- Across instructional settings
- PAL Interventions Guide
- Reading curriculum

All Levels

- Subword
  - Phonological awareness
  - Orthographic awareness
- Word
  - Decoding
  - Morphological awareness
  - Word specific learning
  - Rate
- Text
  - Rate
  - Fluency
  - Comprehension
  - Independent reading

Component Reading Skills: Sub-word level

- Is child developing phonological awareness?
- Does child have any naming speed deficits?
- Phonological processing
- Rapid naming
**PHONOLOGICAL AWARENESS**

**Essential standard/level**

CTOPP PA = 78

Segments and blends single syllable words without consonant blends. Cannot manipulate phonemes.

<table>
<thead>
<tr>
<th>Learning Activities</th>
<th>Goal</th>
<th>Progress Monitoring Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alphabetic Phonics</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**ORTHOGRAPHIC AWARENESS**

**Essential standard/level**

PAL: Receptive Coding = 10th decile
codes individual beginning and ending letters but does not code letter clusters or medial letters.

<table>
<thead>
<tr>
<th>Learning Activities</th>
<th>Goal</th>
<th>Progress Monitoring Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Practice with highlighted letter clusters using reading and spelling kits.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**COMPONENT READING SKILLS: Text Level**

**Is child developing automaticity/fluency?**

**Components**
- Accuracy
- Rate
- Fluency
- Comprehension

**COMPONENT READING SKILLS: Word level**

**Has child acquired alphabetic principle/sound-symbol correspondence?**

**Is child developing “sight words”?**

**Components**
- Accuracy
- Rate
- Reading
- Spelling

**ORAL READING FLUENCY**

**Essential standard/level:** Read aloud narrative and expository text fluently and accurately with appropriate pacing, intonation and expression.

GORT rate = 65, accuracy = 78

Fluency at 15 CWP on 2nd grade probe.

<table>
<thead>
<tr>
<th>Learning Activities</th>
<th>Goal</th>
<th>Progress Monitoring Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Repeated, paired reading of passages with 90% accuracy. Great Leaps.</td>
<td>Read third grade text at 70 CWP</td>
<td>Weekly fluency probes with second grade text.</td>
</tr>
</tbody>
</table>

**TEXT COMPREHENSION**

**Essential standard/level:** Distinguish the main idea and supporting ideas in expository text.

GORT = 84

Able to retell and recall at mid-second grade level

<table>
<thead>
<tr>
<th>Learning Activities</th>
<th>Goal</th>
<th>Progress Monitoring Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>SRA Skill Series Third grade level.</td>
<td>Graphed progress within program.</td>
<td></td>
</tr>
</tbody>
</table>

**Component Skills Continued**

**Production processes**
- Handwriting
- Keyboarding

**Oral language comprehension**
- Recall
- Syntax
- Expression

**Motivation**
### TRANSCRIBING/KEYBOARDING

<table>
<thead>
<tr>
<th>Essential standard/level</th>
<th>Learning Activities</th>
<th>Goal</th>
<th>Progress Monitoring/Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Letter formation poor. Alphabet writing is at 10th decile for grade.</td>
<td>Handwriting lessons using classroom curriculum</td>
<td></td>
<td>Weekly measures of alphabet writing speed and when appropriate test copying.</td>
</tr>
</tbody>
</table>

### SPELLING

<table>
<thead>
<tr>
<th>Essential standard/level</th>
<th>Learning Activities</th>
<th>Goal</th>
<th>Progress Monitoring/Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student will spell frequently used irregular words and basic short vowel, long vowel words correctly WJ Spelling = 73</td>
<td>Spelling words coordinated with reading words. Use highlighting for identifying letter clusters.</td>
<td>Spell third grade level word list with 85% accuracy.</td>
<td>Weekly spelling progress checks.</td>
</tr>
</tbody>
</table>

### MOTIVATIONAL COMPONENT

**ACTIVITIES**

Chart progress on weekly basis. Begin each lesson with review of progress, goal setting and affirmative statement. End each lesson with review of material accomplished.