

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 Secondary Intervention

reading below the 30th percentile after intervention

Study	Hours of Instruction	Student/Teacher Ratio	Reading %ile for Initial Identification of Risk Status	% of Lowest Readers Reading Below 30th %ile After Intervention	% of Students Reading Below 30th %ile after Intervention Extrapolated to The Total Population
Felton, 1993	340	1:8	16	24%	3.8%
Vellutino et al., 1996	35-65	1:1	15	30%	4.5%
Torgesen et al., 1999	88	1:1	12	23%	4.0%
Torgesen et al., in press	92	1:3	18	8%	1.0%
Torgesen et al., 2002	80	1:3	18	4%	.7%

Results of Primary Intervention

reading below the 30th percentile after intervention

Study	Hours of Instruction	Student/Teacher Ratio	Reading %ile for Initial Identification of Risk Status	% of Lowest Readers Reading Below 30th %ile After Intervention	% of Students Reading Below 30th %ile after Intervention Extrapolated to The Total Population
Foorman et al., 1998	174	Classroom	18	30%	5%
Mathes et al., 2001	35	Classroom (Peer tutoring)	25	31%	6%
Allor et al., 2002	35-55	Classroom (Peer tutoring)	25	29%	6%
Mathes et al., in press	35	Classroom (Peer tutoring)	25	18%	5%

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

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

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

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

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 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?

Table 1. A comparison of outcomes for reading rate across varying levels of initial word reading ability and amount of intervention.

Hours of Intervention	N	Instructional Method	Initial WID	Initial Rate	Post Rate	Rate Gain
60 (1:2-4)	48	Spell Read	92	71	99	28
50 (1:2-4)	14	Spell Read	80	69	78	9
100 (1;2-4)	20	Spell Read	83	65	79	14
68 (1:1)	29	Lindamood	69	71	75	4
133 (1:1, 1:2)	4	Lindamood + fluency	72	72	72	0

Note: All scores are standard scores with a mean of 100 and a standard deviation of 15

Tier III: Tertiary Interventions

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

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

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

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 1/2 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

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

Predicting Responsiveness to Intervention

- ⇒ IQ
- ⇒ Phonological measures
- ⇒ Naming speed
- ⇒ Double deficits
- ⇒ Targeted intervention

Intervention Review

- ⇒ Progression of skills taught to mastery?
- ⇒ Explicit, direct, systematic and organized?
- ⇒ Multi-sensory and infused across learning situations?
- ⇒ Contains essential components?
- ⇒ Addresses all areas of language?

Controversial Therapies

- ⇒ Fast ForWord
- ⇒ Gift of Dyslexia
- ⇒ Tinted Lenses
- ⇒ Optometric Visual Training
- ⇒ Ingestive Treatments
- ⇒ Neuro-physiological Approaches

Designing Interventions

- ⇒ Consider foundational skills
- ⇒ Consider predictor factors
- ⇒ Implement research based interventions
- ⇒ Monitor progress
- ⇒ Add additional components if not working
- ⇒ Include emotional considerations

Intervention Review

- ⇒ Provide interventions that target area of need?
- ⇒ Related to standards?
- ⇒ Provide methods for monitoring growth?
- ⇒ Provide accommodations as needed?
- ⇒ Help to formulate long-term plan

Matching Program to Student?

- ⇒ No data to support matching modalities
- ⇒ Teach to strengths?
- ⇒ Remediate weaknesses?
- ⇒ Consider connectionist model of development of word representations
 - What processors might be more effective links for this child?

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 | ⇒ Text |
| □ Phonological awareness | □ Rate |
| □ Orthographic awareness | □ Fluency |
| ⇒ Word | □ Comprehension |
| □ Decoding | □ Independent reading |
| □ Morphological awareness | |
| □ Word specific learning | |
| □ Rate | |

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.		
Learning Activities	Goal	Progress Monitoring Method
Alphabetic Phonics	Segment and blend multi-syllabic words.	Phonemic segmentation fluency will be measured on a weekly basis.
ORTHOGRAPHIC AWARENESS		
Essential standard/level		
PAL Receptive Coding = 10 th decile Codes individual beginning and ending letters but does not code letter clusters or medial letters		
Learning Activities	Goal	Progress Monitoring Method
Practice with highlighted letter clusters using reading and spelling lists.	Recognize and recall common letter cluster patterns with speed and accuracy.	Weekly probes of letter cluster coding.

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 CWM on 2 nd grade probe.		
Learning Activities	Goal	Progress Monitoring Method
Repeated, paired reading of passages with 90% accuracy. <i>Great Leaps.</i>	Read third grade text at 70 CWPM	Weekly fluency probes with second grade text.
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		
Learning Activities	Goal	Progress Monitoring Method
SRA Skill Series	Third grade level.	Graphed progress within program.

DECODING		
Essential standard/level: Know and use complex word families when reading to decode unfamiliar words.		
WJ Word Attack SS = 69, Spelling of Sounds SS = 75 TOWRE phonemic decoding efficiency SS = 72 Limited decoding ability @ ending 1 st grade level		
Learning Activities	Goal	Progress Monitoring Method
Alphabetic Phonics	Use word families to decode at an ending third grade level.	Biweekly probes of decoding accuracy and speed with third grade nonsense words.
MORPHOLOGICAL AWARENESS		
Essential standard/level		
Beginning		
Learning Activities	Goal	Progress Monitoring Method
Limited introduction to prefixes and suffixes.		
WORD SPECIFIC LEARNING		
Essential standard/level: Read aloud narrative and expository text at fluently and accurately...		
WJ Letter word ID = 73, TOWRE = 62 Beginning 2 nd grade		
Learning Activities	Goal	Progress Monitoring Method
Using Fry Word List practice with coded flash cards.	80% success rate with third grade word list.	Weekly probes for accuracy and speed on selected word lists.

Component Skills Continued

- ⇒ Production processes
 - Handwriting
 - Keyboarding
- ⇒ Oral language comprehension
 - Recall
 - Syntax
 - Expression
- ⇒ Motivation

HANDWRITING/KEYBOARDING		
Essential standard/level		
Letter formation poor. Alphabet writing is at 10 th decile for grade.		
Learning Activities	Goal	Progress Monitoring Method
Handwriting lessons using classroom curriculum		Weekly measures of alphabet writing speed and when appropriate text copying.
SPELLING		
Essential standard/level		
Student will spell frequently used irregular words and basic short vowel, long vowel words correctly		
WJ Spelling = 73		
Spells at partial phonetic level.		
Learning Activities	Goal	Progress Monitoring Method
Spelling words coordinated with reading words. Use highlighting for identifying letter clusters.	Spell third grade level word list with 85% accuracy.	Weekly spelling progress checks.

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.
