A Model for Dyslexia Screening
Adam Scheller, Ph.D.
Pearson Clinical Assessment

Dr. Adam Scheller
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Disclosures
Dr. Scheller is an employee of Pearson (salary/financial), publisher of many academic, cognitive, and language assessments. Dr. Scheller will refer to some of these assessments, including the Shaywitz Dyslexia Screener, during this presentation.

Additional credit to Dr. Kristina Breaux:

Agenda
• Screening…what and why?
• What is Dyslexia?
• Understanding Dyslexia:
  • Symptoms
  • Causes/Correlates
  • Risk Factors
• A Model for Dyslexia Screening
  • Examples
Why Use A Screener?

- Large numbers of children must be evaluated, to meet district/state criteria
- Referral process is not clearly established
  - Referral process has a poor "hit rate"
- Intervening early has benefits for prognosis

Limitations of a Screener

- Can not be used to provide a diagnosis
- Is not designed to identify the degree of impairment
- Can not be used to identify pattern of strengths or weaknesses

- What question are you trying to answer?

Using a Screener: Points to consider...

1. Practical: How large are the holes in your net?
   
   VS.

2. Outcome: What do we need to catch?
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How large are the holes in your net?

1. TIME and RESOURCES!!!

2. How much time/money and how many people will you require to “catch” what you’re looking for?
   1. The larger the holes the less time/resources
   2. The smaller the holes the more time/resources

Outcomes

• What are the implications for missing someone?
  1. Impact on student
  2. Impact on organization

• False Positive vs False Negative

What is Dyslexia?
Defining Dyslexia (IDA, 2002)

1. …a specific learning disability that is neurobiological in origin.
2. …characterized by difficulties with accurate and/or fluent word recognition and by poor spelling and decoding abilities…
3. …typically result from a deficit in the phonological component of language that is often unexpected in relation to other cognitive abilities and the provision of effective classroom instruction…
4. …secondary consequences may include problems in reading comprehension and reduced reading experience that can impede growth of vocabulary and background knowledge…

U.S. Senate 2015

• Cassidy-Mikulski Senate Resolution 275 definition of Dyslexia:
  1. An unexpected difficulty in reading for an individual who has the intelligence to be a much better reader; and
  2. …is due to a difficulty in getting to the individual sounds of spoken language, which affects the ability of an individual to speak, read, spell, and often learn a language.

Dyslexia points

• Dyslexia is unexpected*
• Often (not always) present with an uneven cognitive profile
  • Basic skill deficits in light of strengths (such as reasoning, problem solving, vocabulary, and listening comprehension).
  • Approximately 20% of the population shows symptoms of dyslexia.
• Dyslexia is a language-based reading disorder that often results in lifelong impact to an individual.

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Reading is Language

Developing Language Competence (ASHA, 2001)

What is the connection between oral and written language?

a. Oral language provides the foundation for the development of reading and writing;

b. The relationship between oral language and literacy development is reciprocal in nature, with interconnections originating in early childhood;

c. Children with speech and language impairments are at increased risk for difficulties with early and conventional literacy development; and

d. Intervention for oral language can positively influence literacy development, and vice versa.

Dyslexia and Dyscalculia

- Both considered **neuro-biological** in origin
- Children often receive diagnoses of both **dyslexia** and **dyscalculia**.
  - Approximately 43–65 percent of children with math disabilities also have reading disabilities.
  - Prevalence rates may be underestimated due to co-morbidities (i.e. ADHD)

- Confusion with Reading/Math Learning Disability

Collaboration is Key

• Professional-Parent Collaboration
• Inter-Professional Collaboration

• Support provided by many professionals (psychologists, SLPs, educational diagnosticians, reading specialists, general and special education teachers, school administrators, and government stakeholders)
• Helps us to facilitate effective assessment and intervention planning

A Dyslexia Screening Model

A Research Supported Model

• School of thought: more is better
  • Identification using a single criterion are prone to measurement error and show poor stability over time.
  • At minimum use more than one measure for the same construct...rinse and repeat.

• A hybrid model of dyslexia identification considers:
  1. Multiple sources of information
  2. The degree to which the student has responded to treatment.

• Poor response to instruction is considered an important symptom!
  • But it’s not enough

Pre-reader Symptoms
  • alphabet writing, letter identification, and/or phonics (letter-sound correspondence).

Reader Symptoms
  • decoding pseudowords, word reading, reading fluency (oral reading fluency, in particular), spelling, and written expression.
  • In addition, reading comprehension is poor relative to listening comprehension


Cognitive processing weaknesses
  • Not as easily observed.
  • Symptoms either attributed to or related to one/several of these processes
  • Phonological processing, RAN, Auditory WM considered key for dyslexia evaluation (IDA, 2016)


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**Risk Factors**

- Hereditary/correlated risk factors + behavioral symptoms = Robust Assessment!
- Low scores on a dyslexia screening test
- ↑ risk for dyslexia:
  - family history of dyslexia
  - a history of language impairment
  - and/or weaknesses in receptive vocabulary.


Consider Possible Strengths

- Possible strengths in:
  - Fluid reasoning and problem solving
  - Oral language (including listening, speaking, vocabulary, and grammar)
  - Math
  - The development of interventions/strategies should consider an individual’s cognitive processing strengths.


Examples of Dyslexia Screeners
Examples of Screeners for Reading
(Including both Universal and Tier 2 capable measures)

- Pearson
  - Shaywitz DyslexiaScreen
  - KTEA-3 Brief
  - KTEA-3 and WIAT Dyslexia Index Scores
  - aimswebPlus
- Others
  - DIBELS (Dynamic Measurement Group)
  - easyCBM Reading (University of Oregon)
  - MindPlay Universal Screener (MindPlay)
  - Feifer Assessment of Reading Screening Form (PAR)
  - Predictive Assessment of Reading

Universal Screening

- An interrelated process that is applied to every student
- A process by which instructional practices are evaluated and adjusted based on data
- A process to match the student's needs with the strategies
- Not an indication of a need for special education services

Shaywitz DyslexiaScreen

- Brief teacher survey for identifying students at risk for dyslexia.
- This assessment is intended for use with students experiencing academic difficulties but can also be used to screen all students.
  - Universal or Tier 2 capable
- 5 minutes using an online form
- Digital administration and scoring
- The classification accuracy data indicate moderately high sensitivity and specificity
## KTEA-3 Brief

- Used to screen for weaknesses in reading, writing, and mathematics (grades PK–12+; ages 4–25).
- The three-subtest Brief Achievement (BA-3) composite useful for this purpose.
- Results may be used to identify students who need a comprehensive evaluation.
  - Academic Skills Battery (ASB)
  - Brief Form scores can be applied to either Form A or Form B of the KTEA–3 Comprehensive.

## KTEA-3 and WIAT-III Dyslexia Index Scores (in Breaux & Lichtenberger, 2016)

- Ideal for screening
  - brief administration time
  - clinical sensitivity
- However, these index scores are also sufficiently rigorous to contribute to a more comprehensive diagnostic evaluation.
- KTEA–3 Dyslexia Index and the WIAT–III Dyslexia Index are considered highly reliable and theoretically sound.
- However, consider differences of subtests:
  - Grades K–1
  - For grades 2–12+

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### Test or Index score

<table>
<thead>
<tr>
<th>Test or Index score</th>
<th>Subtests/Items</th>
<th>Mean (optimal/clinical)</th>
<th>Standard Error</th>
<th>Effect size</th>
<th>Estimated administration time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grades K–1 and ages 5–25</td>
<td>KTEA-3 Brief BA-3 composite</td>
<td>Letter &amp; Word Recognition + Spelling = Multiple Comprehension</td>
<td>96</td>
<td>78.6 (68.6)</td>
<td>2.11</td>
</tr>
<tr>
<td>Grades K–1 and ages 5–12</td>
<td>Dyslexia Index: Form 1 (Grade K)</td>
<td>12 items</td>
<td>96</td>
<td>5.5 (5.5)</td>
<td>0.66</td>
</tr>
<tr>
<td>Grades K–1 and ages 6–12</td>
<td>Dyslexia Index: Form 2 (Grade 1)</td>
<td>12 items</td>
<td>90</td>
<td>5.5 (5.5)</td>
<td>0.66</td>
</tr>
<tr>
<td>Grades 2–6 and ages 7–12</td>
<td>KTEA–3 Dyslexia Index 1</td>
<td>Phonological Processing = Letter Naming Facility + Letter &amp; Word Recognition</td>
<td>92</td>
<td>78.4 (51.6)</td>
<td>1.78</td>
</tr>
<tr>
<td>Grades 2–6 and ages 7–12</td>
<td>KTEA–3 Dyslexia Index 2</td>
<td>Early Reading Skills = Spelling</td>
<td>94</td>
<td>82.0 (15.0)</td>
<td>1.66</td>
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<tr>
<td>Grades 2–6 and ages 7–12</td>
<td>WIAT–III Dyslexia Index 1</td>
<td>Word Recognition = Familiar Word Decoding + Spelling</td>
<td>97</td>
<td>82.0 (15.0)</td>
<td>1.78</td>
</tr>
<tr>
<td>Grades 2–6 and ages 7–12</td>
<td>WIAT–III Dyslexia Index 2</td>
<td>Oral Reading Fluency = Familiar Word Decoding + Spelling</td>
<td>94</td>
<td>82.0 (15.0)</td>
<td>1.78</td>
</tr>
</tbody>
</table>

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Implications for Performance on Screeners

• Not significant?
• Borderline?
• What happens if the rating comes up as significant?
  • Refer for additional testing
  • Refer for more rigorous intervention
  • Monitor
    • Re-screen

Dyslexia Screening with Dr. Sally Shaywitz

Town Hall Format
Date: Sep 09, 2016  Time: 09:00 AM EDT
Date: Sep 09, 2016  Time: 04:00 PM EDT

1. www.pearsonclinical.com
2. Search for Shaywitz
3. Training Tab

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