A Model for Dyslexia Screening: Shaywitz DyslexiaScreen
Presented by: Adam Scheller, Ph.D.
Pearson Clinical Assessment

Agenda
- Screening: Important Points for Consideration
- Shaywitz DyslexiaScreen
  - What is it?
  - A look at the test
  - Sample, Reliability, and Validity
- Universal or Tier 2?
- Question and Answer

Dr. Scheller is an employee of Pearson (financial disclosure), publisher of the Shaywitz DyslexiaScreen.

What is Dyslexia?

Defining Dyslexia
(IDA, 2002; Cassidy-Mikulski Senate Resolution 275, 2015)

1. ...a specific learning disability that is neurobiological in origin.
2. ...an unexpected difficulty in reading for an individual who has the intelligence to be a much better reader...
3. ...language based...
4. ...characterized by difficulties with accurate and/or fluent word recognition and by poor spelling and decoding abilities...
5. ...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...
6. ...secondary consequences may include problems in reading comprehension and reduced reading experience that can impede growth of vocabulary and background knowledge...

Reading is Language
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
  • Large achievement gap between students with and without dyslexia is evident in kindergarten and first grade, and this gap persists through high school
  • These findings strongly advocate for early identification and intervention for students at risk for dyslexia in order to close the achievement gap and prevent persistent academic failure.

Ferrer et al. (2015)

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?

Practical Considerations

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

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

• Pearson
  • Shaywitz DyslexiaScreen (Rating)
  • KTEA-3 Brief (Performance)
  • KTEA-3 and WIAT Dyslexia Index Scores (Performance)
  • aimswebPlus (Performance)

• Others
  • Curriculum Based Measurement (Performance)
  • DIBELS (Dynamic Measurement Group)
  • easyCBM Reading (University of Oregon)
  • MindPlay Universal Screener (MindPlay)
  • Feifer Assessment of Reading Screening Form (PAR)

Examples of Performance-based Screening:
KTEA-3 and WIAT-III Dyslexia Index Scores
(in Breaux & Lichtenberger, 2016)

• Ideal for screening (lower numbers)
  • brief administration time (requires performance)
  • clinical sensitivity
  • Rigorous enough 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.

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Poll
- Does the description of these scores make you want to tell Pearson...
  - Choices:
    - "Drop everything and integrate these scores into your digital platform now! I would use them tomorrow!"
    - "Integrate these scores into your digital platform as soon as you can. I could really use them."
    - "It would be lovely as an add-on, but I'm getting what I really need now."
    - "Meh. (Yawn) :)"

What does the SDS measure?
- Emphasis on:
  1. Phonological
  2. Linguistic, and
  3. Academic performance
- Ratings based on classroom teacher observations
  - Subjectivity limited because teacher answers questions after having worked with student daily for 6-8 weeks.

Shaywitz DyslexiaScreen
- Brief teacher survey for identifying students at-risk for dyslexia
- Intended for use with students experiencing academic difficulties, but can also be used to screen all students.
  - Therefore...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

<table>
<thead>
<tr>
<th>Test or subtest</th>
<th>Subtitle/Name</th>
<th>Mean</th>
<th>SD</th>
<th>Median</th>
<th>Range</th>
<th>Effect size</th>
<th>Estimated administration time</th>
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<tbody>
<tr>
<td>Grades K-3 and ages 5-25</td>
<td>Dyslexia Screening: Form 2 (K)</td>
<td>12 items</td>
<td>1.0</td>
<td>1.0</td>
<td>0.8-1.4</td>
<td>0.7</td>
<td>30 minutes</td>
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<td>Grades 4-8 and ages 12-17</td>
<td>Dyslexia Screening: Form 2 (K)</td>
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<td>1.0</td>
<td>0.8-1.4</td>
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<tr>
<td>Grades 9-12 and ages 16+</td>
<td>Dyslexia Screening: Form 2 (K)</td>
<td>10 items</td>
<td>1.0</td>
<td>1.0</td>
<td>0.8-1.4</td>
<td>0.7</td>
<td>30 minutes</td>
</tr>
</tbody>
</table>
Forms

- All materials needed to administer the Shaywitz DyslexiaScreen are available on Q-global®
  - www.helloQ.com for more information on Q-global
- Well suited for 2nd level of screening or ID process
- Universal Screening platform...coming soon!
- The Shaywitz DyslexiaScreen offers three forms:
  - Form 1: Students ages 5:0 through 6:11 in kindergarten and consists of 10 items.
  - Form 2: Students ages 6:0 through 7:11 in Grade 1 and consists of 12 items.
  - Form 3: Grade 2 Coming Soon!!

Reports

- Two report options:
  1. An Individual Report that includes student’s standard demographic information, risk level, and an interpretive statement.
  2. A Group Report that includes all students’ raw scores and risk levels listed by examinee ID.
- Results include a simple classification:
  - At Risk for Dyslexia or Not At Risk for Dyslexia

Example of Individual Report

Example of Group Report

Scoring

- Automatic.
- Raw score: the number of items that meet criteria for the At Risk for Dyslexia classification
  - The raw score is compared to a normative cut score (varies by item)

How to Interpret Results

- At Risk for Dyslexia considerations include:
  - Increasing the frequency and duration of interventions
  - Selecting a more intensive intervention program
  - Closely monitoring the student’s academic performance
  - Referring the student for a more comprehensive diagnostic evaluation.
- A student classified as Not At Risk for Dyslexia
  - Language and academic skills may be monitored and supported within the general academic setting.
- Remember, it’s not a diagnosis
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Sample, Reliability, & Validity

Description of the Sample

- 414 Connecticut schoolchildren representative of those students entering public kindergarten in Connecticut in 1983, as well as their parents and teachers, provided data for the Shaywitz DyslexiaScreen norms.
- In addition, a sample of 115 children between the ages of 5 and 7 ($M = 6.7$, $SD = 0.6$) participated in a national clinical validity study in April through July 2016.
- All student participants in both samples spoke English as their primary language.

Criteria for Identifying Students With Dyslexia in the Longitudinal Sample

1. Word recognition, decoding, and reading comprehension skills were assessed every year through Grade 12.
2. Intellectual functioning was assessed every other year through Grade 12
   - Full Scale battery from the Wechsler Intelligence Scale for Children®–Revised (WISC®–R; Wechsler, 1974).

Dyslexia ID (cont.)

3. Using the WJ and WISC®–R at Grades 2 and 4, students with dyslexia were identified using either a discrepancy criterion, low-achievement criterion, or both.
   - The discrepancy criterion required an observed WJ Reading Cluster score 1.5 standard errors below the score predicted from a student’s Full Scale IQ.
   - The low-achievement criterion required a Reading Cluster score below 90 (the 25th percentile).
4. These criteria identify children as poor readers, with little evidence of differences between subgroups formed with one criterion versus the other (Shaywitz et al., 1992; Shaywitz et al., 2003).
   - Students who met criteria for dyslexia in Grade 2 and/or Grade 4 were placed in the dyslexia group (DYS).
   - All other students in the sample were placed in the typical group (TYP).

Evidence of Reliability
(Based on National Clinical Study)

Table 3.2 Reliability of Shaywitz DyslexiaScreen Validity Study

<table>
<thead>
<tr>
<th>Shaywitz DyslexiaScreen</th>
<th>Raw scores</th>
<th>Dichotomous items</th>
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</thead>
<tbody>
<tr>
<td>Form 1</td>
<td>.92</td>
<td>.87</td>
</tr>
<tr>
<td>Form 2</td>
<td>.95</td>
<td>.90</td>
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Evidence of Validity (Based on National Clinical Study)

<table>
<thead>
<tr>
<th></th>
<th>Dyslexia</th>
<th>Non-dyslexia</th>
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</thead>
<tbody>
<tr>
<td>Score</td>
<td>Mean</td>
<td>SD</td>
</tr>
<tr>
<td>Shaywitz form 1 (Kindergarten)</td>
<td>7.3</td>
<td>3.0</td>
</tr>
<tr>
<td>Shaywitz form 2 (Grade 5)</td>
<td>6.9</td>
<td>1.7</td>
</tr>
<tr>
<td>WJ-II Early Reading Subtests (Kindergarten)</td>
<td>31.0</td>
<td>2.7</td>
</tr>
<tr>
<td>Word Reading (Grade 5)</td>
<td>39.0</td>
<td>7.0</td>
</tr>
<tr>
<td>Phonemic Decoding (Grade 5)</td>
<td>83.9</td>
<td>9.0</td>
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</table>

Classification Accuracy (Based on National Clinical Study)

<table>
<thead>
<tr>
<th></th>
<th>Sensitivity</th>
<th>Specificity</th>
<th>ROC</th>
<th>ROC area</th>
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</thead>
<tbody>
<tr>
<td>Shaywitz DyslexiaScreen</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Form 1 (Kindergarten)</td>
<td>.70</td>
<td>.71</td>
<td>.74</td>
<td>.81</td>
</tr>
<tr>
<td>Form 2 (Grade 5)</td>
<td>.70</td>
<td>.80</td>
<td>.85</td>
<td>.89</td>
</tr>
</tbody>
</table>

Correlation with Tests of Reading (Based on National Clinical Study)

<table>
<thead>
<tr>
<th></th>
<th>WJ-III Early Reading Subtests</th>
<th>Word Reading</th>
<th>Phonemic Decoding</th>
<th>Shaywitz DyslexiaScreen</th>
</tr>
</thead>
<tbody>
<tr>
<td>Form 1</td>
<td></td>
<td>103.3</td>
<td>103.4</td>
<td>104.5</td>
</tr>
<tr>
<td>Form 2</td>
<td></td>
<td>100.0</td>
<td>101.3</td>
<td>104.8</td>
</tr>
</tbody>
</table>

Universal Screening

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

Hybrid Model

- School of thought: more is better
  - Identifications 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 a student responds to effective instruction and/or intervention

Hybrid Screening using Probes with the Shaywitz DyslexiaScreen

- Consider using a probe for Benchmarking
  - Shows us who is having difficulty reading
- Use Shaywitz DyslexiaScreen after 6-8 weeks of school to allow teacher time to get to know student
  - Shows us who is “at-risk” for Dyslexia
  - Gives us better idea for “next steps”
- Use probe tool help with progress monitoring
  - Re-assess progress regularly to determine those who:
    - Need further diagnostic assessment
    - Need more intervention
    - Are making progress toward goals using current level of interventions