

Webinar on May 4, 2017

Dyslexia and Related Disorders  
An Overview, Signs and Symptoms, and Screening Tools

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Transcription

**1) Dyslexia and Related Disorders**

Welcome to the webinar Dyslexia and Related Disorders, an overview, signs & symptoms, and screening tools. I'm Beth McClure and I'm joined by my colleague Colleen Sliva.

**2) Introduction to the Presenters**

Let me introduce myself. As I said, I'm Beth McClure. I'm a teaching principal and also a Fellow of the Academy of Orton-Gillingham Practitioners and Educators. I've served on the board of the NH Branch of the International Dyslexia Association as past president. I have also done teacher training in Orton-Gillingham. I hold one or two trainings for over ten school districts in New Hampshire. I have taught graduate level courses in assessment and learning disabilities.

Hi. My name is Colleen Sliva and I'm a principal and special education director. I have a long time passion for helping students with dyslexia. At my school, I implemented an intervention program that has resulted in students reaching two years of growth in reading during one school year. Additionally, I am a past president of the NH Branch of the International Dyslexia Association.

**3) Overview**

The purpose of this webinar is to give some background information of the brain based on dyslexia, provide an overview of the characteristics of dyslexia and related disorder dysgraphia. Several screening tools being used in New Hampshire will be discussed. Our work today came about by New Hampshire's adoption of RSAs 200:58-200:62, screening and intervention for dyslexia and related disorders.

**4) What is dyslexia?**

**5) Dyslexia, a Definition**

By definition, dyslexia means a specific learning disability that is neurobiological in origin which simply means that the manifestation of dyslexia in an individual is caused by the activity in the brain and the way the brain functions. So, the neurobiology of dyslexia is different than a typical reader. We will talk about that and you will also get a chance to see a video that will give you some visuals and additional information about how dyslexia is neurobiological in origin. Dyslexia is characterized by difficulties with accurate or fluent word recognition and by poor spelling and decoding abilities that typically result from a deficit in the phonological component of language and is often unexpected in relation to other cognitive abilities and occurs despite the precision of effective classroom instruction. It may include secondary consequences such as reading comprehension problems and reduced reading experiences that can impede growth of vocabulary and background knowledge because the individual is not able to read well enough to acquire vocabulary and background knowledge through text. Now some of my

students have been able to overcome from that by increased vocabulary use at home, family support, and watching informational shows that explains in general what we would see.  
If you could just hold on while I set-up the video titled *What is Dyslexia?*

**Video:**

(jumbled words)

Take a moment to read the following.... How was that? Frustrating, Slow? What were those sentences about? They're actually a simulation of the experiences of dyslexia designed to make you decode each word. Those with dyslexia experience that laborious pace every time they read.

(dyslexia)

When most people think of dyslexia, they think of seeing letters and words backwards. Like seeing b as d and vice versa or they might think that people with dyslexia see saw instead of was. The truth is that people with dyslexia see things the same way as everyone else.

(brain)

Dyslexia is caused by a phonological processing problem meaning that people affected by it do not have a problem seeing language, but manipulating it.

(cat)

For example, if see the word cat and someone asked you to remove the c-

(at)

– what's left, at. This can be difficult for those with dyslexia.

(fantastic)

Given a word in isolation like fantastic, students with dyslexia have to break the word apart...

(fan.tas.tic.)

(lined pages)

Time spent decoding makes it hard to keep up with peers and gain sufficient comprehension.

(stik)

Spelling words phonetically to stik for stick,

(frens)

-and frens for friends is also common.

(brains)

These difficulties are varied and more widespread.

(people)

Dyslexia affects 1 in 5 people. It occurs on a continuum. One person may have mild dyslexia, while the next person has a profound case of it.

(chart with people)

Dyslexia also runs in families. It's common for one person in the family having trouble with spelling and another person having trouble even decoding one syllable words like catch.

(lines)

The continuum and distribution of dyslexia suggests a broader principle to bear in mind, as we look at how the brains of those with dyslexia process language.

(neurodiversity)

Neurodiversity is the idea that because all of our brains show differences in structures and function, we shouldn't be so quick to label deviate from the norm as a pathological difference or disorder or dismiss these people living with these variations as defective. People with neurobiological variations like dyslexia,

(people)

-including such creative and inventive individuals such as Picasso, Muhammad Ali, Steven Spielberg, Whoopi Goldberg, and Cher clearly had every capacity to be brilliant successful in life.

(brain)

So here's the special way the brains with those with dyslexia work. The brain is divided into two hemispheres. The left hemisphere is generally in charge with language and ultimately reading, while the right typically handles spatial activities. fMRI studies have found that the brains of those with dyslexia rely more on the right hemisphere and the frontal lobe than the brains of those without it. This means when they read a word, it takes a longer trip through their brain and can get delayed in the frontal lobe. Because of the neurobiological glitch, they read with more difficulty. But those with dyslexia can physically change their brain and improve their reading. With an intensive, multisensory intervention, that breaks the language down and teaches the reading to decode based on syllable types and spelling rules,

(catch next to brain)

-the brains of those with dyslexia begin using the left side of their brain more efficiently while reading and their reading improves.

(side brain)

The intervention works because it locates dyslexia appropriately as a functional variation of the brain which naturally shows variation from one brain to another.

(line of brains)

Neurobiology emphasizes this because the spectrum in brain function is different in all human being which suggests that to better understand the perspectives of those around us,

(circular brain)

-we should not only see the world through their eyes, but understand it through their brains.

**End of video**

I hope you've enjoyed that video and will have an opportunity to view it again because this webinar is being recorded and will be able to be shared. We have also included the link at the bottom of the slide so you can view it independent from this webinar.

## **6) So, what disorders are related to dyslexia?**

### **7) Related Learning Disorders**

Several disabilities can occur simultaneously with dyslexia. This slide represents a depiction of possible comorbid disorders. Please note that this is not to scale with comorbidity or lack thereof. NH RSA 200:58-62 calls attention to dyslexia and related disorders, such as dysgraphia, dysphasia, phonological processing disorder, and reading fluency disorder. In order to fully support our struggling students, it is important to understand that these learning disorders can co-occur.

### **8) (Brain)**

We learn language, spoken language, by exposure to it. But, that's not how we learn to read. Reading is a relatively recent activity in terms of human existence. In fact, reading is mapped onto other systems of the brain. As mentioned in the video earlier, researchers have been able to use fMRIs to learn how and where the brain activates when we read. They have even been able to compare fMRIs to typical developing peers with those of dyslexic readers. This depiction is a diagram from Taylor, Rastle and Davis as a result of their research on reading and what areas of the brain are activated during different reading tasks. What happens when we read depends on the age of the reader. For everyone though, when we first start reading, the activity begins in the occipital lobe in the back or posterior part of the brain. From there, the information is processed in the temporal lobe along the side and in the parietal

lobe. One thing you will notice from the diagram is spelling sound conversions occurs in the parietal lobe as does the phonological processing nearby. The temporal lobe helps synthesize the information that we get from our senses and from there, as we read the text, our frontal lobe begins to work to process the meaning of the word or combination of words that we have read. So as I mentioned earlier, the parietal lobe of the brain is where phonological processing occurs and the temporal lobe helps integrate that processing. For individuals at risk for dyslexia or who have been diagnosed with dyslexia, FMRI's indicate that the efficient processing needed to decode is hampered by the amount of activity in key areas of the brain and the neurobiological synapse involved in key areas of the brain. In the past few years, recent studies using FMRI's have shown that with targeted intervention with things like phonemic processing, multisensory instruction actually strengthens the necessary connections for reading.

### **9) Potential Indicators K-1**

Let's look at some potential indicators of dyslexia. These are ones that you would typically see at the kindergarten or first grade level. Although a family history is a strong indicator for all individuals either at risk or diagnosed with dyslexia. Alphabetic knowledge, which is not listed on this particular slide, is a strong indicator at the preschool and kindergarten level. Language delays can include difficult acquiring and using spoken language, phonemic awareness difficulty may manifest itself with difficulties in articulation, sequencing sounds, disordered syllables, and blending sounds as well as understanding rhyming. Please keep these in mind while looking at screening tools and talking with families. Researchers show that although there are indicators of dyslexia, everyone is different so all of the indicators may not be present in one person. For almost 30 years, phonemic processing has been associated with dyslexia. Phonemic processing difficulties, as I mentioned earlier, may manifest itself in articulation for example saying "fits" instead of "sits," or "aminal" instead of "animals." Children with naming speed difficulties can hesitate while they speak while they think of the word they want. Let's look at some other potential indicators.

### **10) Potential Indicators Grade 2+**

These may be more evident in children second grade or above. Keep in mind that children in second grade and above also indicate the same things as in the previous slide. But older individuals, second grade and older, are expected to use written language more often. So it becomes more noticeable at these ages when children don't learn the skills at an expected rate. Remembering the sounds associated with the letter can make children at risk longer. They can have a hard time moving from oral language to written language. Auditory memory, remembering words, is a risk factor. So classroom teachers may notice that a child has a hard time remembering words; therefore, remembering directions can be difficult. They also have a hard time remembering the spelling of irregular words. If organizing spoken language is difficult for them it can be even more difficult to organize written language. Slow, labored reading generally affects the child's comprehension, especially with the longer passages children read in the classroom.

### **11) What is dysgraphia?**

### **12) Dysgraphia Overview**

Dysgraphia is a learning disorder that may be related to dyslexia. This video link provides a foundation for understanding dysgraphia.

#### **Video:**

What is dysgraphia?

(child writing)

Dysgraphia is difficulty with writing with students that are otherwise intelligent and talented.

(line of people)

As many as one in five students may be dysgraphic.

(student at desk with teacher)

It's important to know about dysgraphia because if students and their teachers don't know about it, they may think that incomplete work is due to a student not trying or studying.

(child with clipboard)

What's really happening is that there is a discrepancy in what the student knows with what they can put down on paper.

Failure to recognize dysgraphia can lead to a lot of stress for students and their true ability not being recognized.

(handwriting)

Dysgraphia can be seen by itself, but it can also be seen with fine motor sensory problems, dyslexia and ADD or ADHD.

(boy)

Dysgraphia tends to get better overtime and can usually be helped a lot by technology reduced expectations, accommodations and sometimes therapy.

(face of boy)

Dysgraphia just doesn't affect English class, it affects every class because writing is required for taking notes and answering math problems and writing science reports and so much more.

(boy at desk, clipboard)

It is important that a student with dysgraphia doesn't get marked down for poorer grades because her or her writing isn't neat or spelled correctly, or written as fast as non-dysgraphic classmates.

(boy)

Students with dysgraphia should have other ways to have their knowledge and thinking recognized.

(teacher)

For teacher, the most common ways to help students with dysgraphia is with accommodations like #1-reduce the quantity of written work; #2-allow extra time...it may be a lot of extra time in some cases; #3-allow students to type, or dictate, or use other types of technology; #4-assign a designated note taker or allow a student to record lectures

(and finally and most importantly)

(student at desk beside teacher)

Let your student know that you've heard a bit about dysgraphia and would like to help. Let them know there are a lot of school work that may be difficult, but there are ways you can help.

(boy)

If you'd like to learn more about us, check us out at our website, Facebook, Twitter, Pinterest, or you can also subscribe to our YouTube channel.

**End of video**

### **13) Dysgraphia**

So the term dysgraphia can be understood by its roots: "dys" meaning difficulty and "graphia" meaning handwriting. The DSM-V defines dysgraphia as a specific learning disorder with impairment in written expression resulting from fine motor difficulties, visual-spatial difficulties, and/or handwriting issues. Problems associated with dyslexia such as problems with spelling, word retrieval or fluency, and language processing problems can contribute further to writing difficulty. Students with dysgraphia

have writing skills that are substantially below level give the persons chronological age, measured intelligence, and age-appropriate education. Dysgraphia is a learning disorder characterized by difficulty with handwriting, spelling, and thinking and writing at the same time. Children with dysgraphia may have difficulty with orthographic decoding, but do not have a problem with a primary developmental disorder.

#### **14) Dysgraphia Symptoms by Age/Grade**

Dysgraphia is a deficit in handwriting and the ability to write cohesively. Students with dysgraphia have an impairment in handwriting, orthographic decoding, which is the storing process of written words and the processing the letter in those words which an important component to spelling. They also have an impairment in moving finger muscles needed for writing. People with dysgraphia often have difficulty with handwriting and spelling which, in turn, can cause writing fatigue. They may lack basic grammar, spelling skills, for example having difficulties with the letters “b” “d” “p” q,” and often will write the wrong word when formulating their thoughts on paper.

#### **15) Dysgraphia Overview**

Dysgraphia may present itself by the following symptoms depending on age or grade. In preschool children, they may be hesitant to write or draw and say that they hate coloring. School-age children may have illegible handwriting that can be a mix of cursive and print. They may have trouble writing on a line and may print letters that are uneven in size and height. Some children may also need to say words out loud when writing or have trouble putting their thoughts on paper. Teenagers may write in simple sentences. Their writing may have many more grammatical mistakes than the writing of other kids their age. So what causes dysgraphia? Research to date has shown that orthographic coding and working memory is related to handwriting. As mentioned before, orthographic coding is the difficulty in storing words in working memory while the letters and the words are analyzed in word learning or the ability to create permanent word memory, and written words related to their pronunciation and meaning. Children with dysgraphia do not have a primary developmental disorder, which is another process for handwriting. They may have difficulty planning sequential finger movements, such as touching the thumb to progressive fingers on the same hand. Dysgraphia is thought to be impairment in the cerebellum region of the brain. Diagnosis of dyslexia, ADHD, or selective language impairment indicates greater risk for students developing dysgraphia. At this time, research does not support a familial link.

#### **16) Dysgraphia Experience**

This slide is meant to expose you to a student experiencing dysgraphia. Using your dominant hand, I want you to write the following words upside down and in cursive and you have one minute...go. Okay stop. Now reflect on that experience. Did you experience difficulty reading the words and the paper and have struggle copying them or was it easy for you? As you encounter, most likely, dysgraphic students have to devote an inordinate amount of cognitive energy toward the act of writing meaning they will have far less cognitive energy to devote to other portions of writing, such as organization, conventions, and spelling.

#### **17) Screening Tools**

Now let's talk about screening tools. Screening tools are meant for use in the regular education classroom as a screening tool, in other words, they are meant to be administered to all students.

#### **18) 200:59 Screening and Intervention for Dyslexia and Related Disorders**

RSA 200:59 states that all students shall be screened in kindergarten, if they have kindergarten, by November 30<sup>th</sup>. Children entering first grade in the fall of 2017, also must be screened by November 30<sup>th</sup>, 2017. It does not state that school districts don't have an option to wait to screen until first grade.

### **19) Choosing a Screening Tool**

When you are choosing a screening tool, there are a number of questions you need to ask yourself. Districts in New Hampshire will be able to choose their screening tools, so this section provides some questions to ask before selecting that tool. There is a link at the bottom of the slide that is an online tool developed by the American Center for Educational Research. It's fantastic and it shows a number of tools and their characteristics including classification, accuracy, reliability, validity, and administration information. There is information on that interactive chart for tools that we will be presenting, as well as other tools we will not be presenting here. So you definitely want to ask yourself for what skills to we need to screen, for what grades we need to screen, and what is the technical rigor of the screening tool., and we hope to help you with that today.

### **20) Screening Tools**

The screening tools school districts choose should be universally administered, as well as be able to indicate if a student shows risk factors that will qualify him or her for tier II intervention. It is important to remember that the screening tool is not meant to diagnose dyslexia. It is meant to determine if a child has risk factors. Each school district will determine their cut score that qualifies a student for tier II intervention. No tool can provide 100% accuracy for diagnosing dyslexia or other reading difficulties. That is not the purpose of the screening tool. The cut score is meant to identify the majority of true positives or students that would experience a significant amount of difficulty without intervention. Districts vary across the country, but a cut score at approximately the 37<sup>th</sup> percentile should determine intervention. As I mentioned before, the cut score is meant to identify the majority of true positives, while not over-categorizing students to a false positive, or students who would not have had potential difficulties. Using a cut score at the 37<sup>th</sup> percentile, students at the 37<sup>th</sup> percentile and below would receive intervention. By progress monitoring students within the intervention group, teachers will be able to work with the students who need the most intensive intervention. Remember that the screening tool does not diagnose dyslexia or any other disorder. It is designed to only show students that are at risk.

### **21) Progress Monitoring**

This is a natural time to mention progress monitoring. If the school district has identified a student at the cut score or below and the school has decided that the student needs intervention, students who receive intervention need to be progressed monitored. All of the tools that we will discuss can be used for progress monitoring, as well. The purpose of progress monitoring is to identify the trajectory of the student's progress as a result of the intervention they are provided with. For example, it is recommended that a student have four data point over the course of six weeks to determine a trend line. Frequency of progress monitoring needs to be balanced to know the impact of instruction. Some teachers may feel like they are testing for than instructing, and that is a valid question to ask ourselves. Monitoring every 2 weeks for 6 weeks would yield four data points. The trend line should indicate if the student is closing the gap and should continue intervention, whether the student is not progressing and the intervention should be intensified, whether the child has caught-up and no longer needs intervention, or whether additional testing should be considered.

### **22) Dyslexia Screening Tools**

Today, we will be talking about four dyslexia screening tools. This list of screening tool is not an exhaustive list. The tools were chosen because schools districts responded to a New Hampshire Department of Education survey that said they were using them. All four tools have research studies that have been conducted. DIBELS Next is the most updated version of DIBELS and it's the version school districts are using. DIBELS Next was developed by the University of Oregon. AIMSWEB screenings are very similar to DIBELS and DIBELS Next. AIMSweb has some slight differences among the subtests when compared to either version of DIBELS as you will see in the next four slides. STAR Early Literacy is a computer adapted test available through Renaissance Learning. There is also a version for older students that we will not review during this presentation. The PALS-K and Pals 1-3 were developed by the University of Virginia. I do want to be sure that you are aware that we are reviewing them not as an endorsement of any of these tools, but because school districts in New Hampshire responded that they were using them and we thought that they would be the most helpful to begin with.

### **23) DIBELS Next Assessment Alignment**

The next set of four charts including this one was developed by us to help school districts using these tools to analyze information from the screening tools for risk indicators for dyslexia. As you can see on the left column, we have listed common risk factors for dyslexia. And, on the right column, we have listed the subtests that relate to each indicator. We have also provided the grade levels which the test screener requires administration. Notice that all the subtests can be administered at either or both levels identified in the RSA, specifically kindergarten and first grade, except for the DIBELS Maze, which can be administered beginning in grade three. Retell fluency is a measure that can be administered in the middle of first grade.

### **24) AIMSweb Assessment Alignment**

The AIMSweb assessment alignment is presented on this slide. Benchmarking periods for AIMSweb are in the fall, winter, and spring. Those of you that are using AIMSweb will know that benchmarking has the administrator use the same form of the test so that the test can be compared to each benchmarking period. Notice that letter naming fluency is the only subtest that can be administered in the beginning of kindergarten. That is because in early preschool and in kindergarten, alphabet knowledge is a good predictor of reading difficulty. That is also aligned to continue at the beginning of first grade. For the mid-year benchmarking in kindergarten, there are three other subtests that provide an indication of risk factors.

### **25) STAR Early Literacy (Grades K-3) Assessment Alignment**

STAR Early Literacy k-3 can be administered three to five times per year or even as often as one time per month because it is computer adaptive. The screener does not have a subtest that measures rapid naming as in DIBELS. According to the publisher, it gives a predictive literacy score in including repair strategies, reading rate, and processing. Because it is a computer-adaptive test, students do not read to a human. Another consideration is that it is not a criteria-referenced test. So, if you want to track the prediction of short vowel sounds, this tool will not give you that information.

### **26) PALS Assessment Alignment**

The PALS has benchmarking in the fall and spring. Students read the same tests for the benchmarking. The mid-year assessment is a different score. The PALS has a mobile assessment app available through i-Tunes. It can also be scored by hand and the scores entered electronically. Teachers can progress monitor as often as every two weeks using different forms called "quick checks." "Quick checks" are available in every area expect rhyming, so teachers can target specific areas for progress monitoring.

PALS 1-3 has a fluency measures that includes rate and porosity. Porosity has a rate of one to three judged by the person administering the screening.

### **27) Dysgraphia Screening Tools**

Dysgraphia screening tools. Virginia Berninger's assessment Process Assessment of the Learning, PALS-II, by the way is not related to the PALS 1-3 we just talked about. This one is by Pearson and can be used at all tier levels. It is used as an early intervention screening and monitoring that can look for signs of dysgraphia. It is nationally- normed and standardized. Its reliability and validity do vary by subtests, with a few tests lack underscore reliability. This test produces scales and composite scores. The PAL-II measures handwriting legibility, automaticity of the letter, numeral, word, and composition level.

### **28) Process Assessment of the Learner, 2<sup>nd</sup> Edition**

This chart depicts the risk factors for dysgraphia on the left hand side with the associated subtests from the PAL-II subtests on the right hand side.

### **29) Summary**

Today's summary, we provided some background on the brain basis for dyslexia and related disorders. We reviewed some of the characteristics of dyslexia and dysgraphia at an age where you can begin to identify those in your classroom and we discussed screening tools for dyslexia and dysgraphia. I just want to say that we will be offering future professional developments and webinars. We have another one coming up on Thursday, May 25<sup>th</sup> from 4:00 to 5:00 that will go in more depth on screening tools, progress monitoring, and parent communication. Our third webinar will be May 31<sup>st</sup> from 4:00 to 5:00. We will discuss evidenced-based strategies and interventions. In addition to the webinars which will all be recorded and available through links. We will have four area in-person events with two presentations at each location. The Department of Education will be sending out a flyer with all of these events that I am mentioning with active link online for you to be able to register. All events are free. On Monday, June 5<sup>th</sup>, we will be in New London at Colby-Sawyer College in Wheeler Hall. Thursday, June 8<sup>th</sup>, we will be in Plymouth at the Common Man Inn and Spa, on Wednesday, June 21<sup>st</sup>, we will be at UNH, the Memorial Building Theater in Durham. And I did this last one out of order...on June 15<sup>th</sup>, we will be in Concord at the Holiday in. So, if you prefer an in-person that will be an opportunity for you or whomever you have attend to get the entire content of the webinars, as well as some additional face-to-face interaction with participants and ourselves. We are interested in your feedback. When we sign-off, a survey should appear. It's only a three question survey and we will be reading them to get an idea of how helpful this webinar was and what we can do to answer any additional questions you may have, and we would like to thank you so much for attending and taking your time after school. We really do appreciate it and look forward to meeting you in person, if we can.