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What Audiologists Need To Know about Auditory Processing Disorders in School-aged Children

Webinar Presented for AudiologyOnline
Wednesday, April 10, 2019

Background of Presenter:
Jay R. Lucker, Ed.D., CCC-A/SLP, FAAA

- Howard University – Washington, DC
  - Dept. of Communication Sciences & Disorders
  - Professor
  - Director of the Five-Year Accelerated Master's Degree Program
- Private Practice Specializing in Auditory Processing Disorders
  - Evaluation, consultation, recommendations for treatment and educational accommodations
Disclaimer

- Dr. Lucker’s only financial factor is that he is receiving an honorarium for his presenting this webinar. There are no products discussed from which Dr. Lucker will receive money.

- Dr. Lucker identifies that he has a private practice specializing in auditory processing disorders. Some participants in today’s webinar might wish to refer clients to him, but this is their decision and not something Dr. Lucker will be promoting during this webinar.

Learning Outcomes

- After this course, participants will be able to explain what evidence exists to support that young children below 7 years of age can and should be evaluated for auditory processing disorders.

- After this course, participants will be able to explain how to interpret evaluations of auditory processing in children who have been identified with intellectual disabilities.

- After this course, participants will be able to explain the evidence that identifies and supports APD problems being specific learning disabilities, so that children with APD who have learning problems in schools can obtain IEPs and 504 Accommodation Plans.
Overview

- This webinar covers three MYTHS that audiologists may have heard before, believe in, and tell others.
- These myths are:
  - Can't test children below 7 or 8 years of age
  - Can't test children with intellectual disabilities for APD
  - Schools are correct in not accepting APD as an educational diagnosis

Part 1: Can Audiologists Accurately and Appropriately Assess APD in Young Children?

- Many audiologists learn, are told, and believe that you cannot assess and diagnose APD in children below a certain age.
  - Usually age level of 7 or 8 years
- However, audiologists typically do not ask the person saying such statements as to what evidence supports that you cannot test children below a specific age.
- So, what does the evidence state?
- The two most important pieces of evidence are these:
  - ASHA Technical Report and Role of the Audiologist in testing APD (2005)
Publications Regarding the Age Limitation

- Bellis (n.d.) Understanding Auditory Processing Disorders in Children. Retrieved from:
- Bellis states that “care must be taken” when testing young children whose mental age may be below 7 years;
- In what way does this mean you cannot test children below 7 years of age?
- Bottom line: There is no age limit

Publications Regarding Age Limitation

- Some professionals cite:
Publications Regarding Age Limitation

- Publications that point out that there is no research to support age limit:

- Publications that caution against waiting to diagnose APD:
  - Shapiro Z (2016, December). Don’t wait to diagnose auditory processing disorder. ASHA Leader.

The Bottom Line on the Age Limit

- The “argument” is that children may be too young to cognitively understand the tasks used in APD tests
  - But, this is the same for every test we use as audiologists and speech-language pathologists
- Lucker’s publications point on what Bellis stated “care must be taken” which is also what is the underlying theme in the AAA and the two ASHA publications.
- The bottom line is if a child below age seven demonstrates the ability to handle the test, why can’t you evaluate auditory processing in a child below age 7 years?
Support for Testing Below Age 7 Years

- The overwhelming majority of tests for evaluating auditory processing have norms well below the age of 7 years.
- The AAA (2010) Guidelines cites a variety of tests for young ages.
- Bellis (sometime in the 1990s) developed a modified version of the Pitch Pattern Sequence Test (PPST) with norms going below the original version’s age of nine (9) years (original version developed by Musiek and Pinheiro). Bellis’ norms go down to age 6.
- SCAN-3 by Keith (2006) has norms for many measures of auditory processing going down to age 5.
- SSW (was updated from 1960’s for the norms for children in 1990’s – same recording used from 1960s) by Katz has norms going down to age 5 (preliminary norms for 4 year olds).
- Phonemic Synthesis Test by Katz (1970’s) has norms down to age 6 and the Phonemic Synthesis Picture Pointing Test (1980’s) has norms down to age 4.
- Auditory Skills Assessment by Goldman and Geffner (1990’s) has norms down to 3-1/2.

Concerns Regarding the Age Limit Factor

- Concerns regarding the age limit led Lucker to write an article submitted to the ASHA Leader for consideration for publication in September 2015.
- The editor of the ASHA Leader returned the manuscript saying the following:
  - The Leader does not accept unsolicited manuscripts.
  - I could resubmit by requesting if the Leader would consider such a publication.
  - “…this topic is not appropriate for the Leader because it’s making an assumption that most professionals refuse to test for auditory processing before age 7 when there is no proof that this is the case.”
- Citation from: Law BM (2015, September). Personal response from the editor of the ASHA Leader.
The AUD and SLP Survey

- AUDs = 30.2%
- SLPs = 58.7%
- Dual = 11.1%

Where They Work

- Public Schools = 30.2%
- Private Schools = 3.2%
- University/Colleges = 10.6%
- Hospitals = 4.8%
- Non-Hospital Clinics = 4.8%
- Private Practice = 55.6%
- Group Practice = 6.3%
### Do you evaluate auditory processing?

- Yes I evaluate = 44.4%
- No I do not evaluate = 55.6%

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<th>Age in years</th>
<th>3</th>
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### What AUDs and SLPs Said About Why They Do Not Evaluate APD Until the Minimum Age Given

- No normative data exists for APD tests for children below the youngest age so you can’t test that young – there is a lack of norms – norms are not good until age 7 years
- I have been advised by audiologists to wait
- Testing at a young age does not provide appropriate information to make a diagnosis of APD – Too many developmental factors at young ages
- I find that many children present with many characteristics of APD which are really very appropriate behaviors developmentally
- Children are usually not able to attend to the tasks on APD tests at the younger ages
- I don’t need APD tests, my language tests are sufficient for me to determine if a child has an APD problem – my language sampling is sufficient
- Research says that under age 7 years is too soon
What Parents Said About Waiting Until Child is Older

- In general, parents’ main concerns were loss of education, treatment, development, children’s feelings about themselves and their abilities
- Frustration not knowing what is really going on with child so can’t get appropriate treatments, education, IEPs, therapies
- Biggest concern is parents want early intervention, but they feel professionals are not supporting the parents’ concerns for their children – schools support even less

Conclusion

- The majority of professionals test, screen, refer children for APD below the age of seven – they want children evaluated below the age of seven
- Parents want their children evaluated and identified with whatever problems really exist below the age of seven
- There is misinformation - professionals believe you cannot test below the age of seven because they believe there are no tests with norms below that age level, they believe that children are not developmentally appropriate for such testing – but this could be the same for every other testing that these professionals provide for young children
- There are erroneous beliefs that there is data supporting that you cannot test below the age of seven years – but there is no such data
There is a need to share the information and get the information out that there is no evidence that you cannot test children for APD below the age of seven years.

Care should be taken, as Dr. Bellis states, as implied in the AAA and ASHA publications, but as Lucker stated in his publications, care should be taken testing every person any age.

The professionals who feel they are not able to test young children should:
- Educate themselves about what to expect for APD testing in young children.
- What APD tests are available for testing young children for APD.
- Excuse themselves saying “I am not the appropriate professional to test your child at this age. You [the parent] should seek a professional who is able and can appropriately assess young children for APD.”

Part 2: Can We Evaluate Auditory Processing in Children with Intellectual Disabilities (ID)?

- Many professionals and (in my experiences) most schools say that evaluation of auditory processing in students identified with ID is useless information.
- They conclude that the child’s ID is the cause of the child failing the auditory processing tests.
- They conclude that it is inappropriate to diagnose a child with an ID as having APD.
- What does the evidence tell us?
Step One: WHAT is an ID?

- The usual method for evaluating and identifying a child with an intellectual disability is through IQ measures
- Half those measures are auditory-verbal and the other half are visual and visual-motor
- Most children with ID are appropriate diagnosed when the auditory-verbal measures are around the same as the visual-motor measures
- Examples: Verbal IQ (first) then Non-Verbal IQ
  - Child 1 = 40 and 40?
  - Child 2 = 40 and 80?
  - Child 3 = 80 and 40?
  - Child 4 = 80 and 80?

How is IQ Calculated? Answer Provides What an ID Indicates

- IQ is the following measure
- IQ = MA divided by CA times 100 or MA/CA * 100
- MA means mental age also can be called mental age equivalent
- CA mean chronological age
- If we remove the 100, we see the percent of the child’s chronological age being his functional age level equivalent
- Example: MA = ? While CA = 10 and the child’s IQ is 50
- Calculation: ?/10 *100 = 50
- Thus, 50/100 = ½ so that MA is ½ the child’s CA
- Thus, the child is functioning at ½ his/her CA or at an age level of 5 years
How Can the Audiologist Use this MA Equivalent Value?

- If a child is functioning like a five years old, why do we compare the child’s test results with the child’s chronological age level norms?
- Example, let’s consider the 10 years old in the previous exam with an IQ of 50 or an intellectual/cognitive functioning ½ the child’s CA
- If we gave a battery of APD tests, isn’t it true that most audiologists would compare the child’s results with those of 10 years old norms?
- But the child is functioning like a 5 years old child!
- Lucker’s solution: COMPARE the child’s results to the 10 years old to see if the child is functioning (auditory processing test results) appropriate to the child’s CA
- But if the child fails APD tests using CA norms, what would happen if you compare results to the child’s MA equivalent or functional age level norms?

Comparing APD Results with MA Norms

- Child takes APD tests and fails every single test comparing child’s performance with the child’s CA norms (example 10yo)
- Then, the audiologist compares the child’s APD test results to the child’s MA equivalent norms (example 5yo)
- Child passes every APD test using 5yo norms – what does this mean?
- Child’s problems on the APD tests are secondary to the child’s ID – child is performing as would be expected based on the ID factor (MA equivalence = functional age level)
- But, consider if the child failed all but one area of auditory processing comparing results with the child’s MA level norms?
- Child has a specific APD in that one area – and question is whether improving that one ear could increase the child’s IQ and, thus, functional level???
Examples for Practice

- Consider these examples; the previous slide was based on Lucker's publication (provided as reference here)
- Now consider this third example also from that publication
  - 16yo student identified with ID
  - IQ measures were Verbal = 70 and Performance (Non-Verbal) 80
  - Thus, the IQ measure used was 75 (average of the two) or 75% of her CA = 12yo
- APD results: Two areas were normal using CA results
- Of the remaining all but integration (lexical and phonological) were below 12 yo norms = she has a specific APD in phonological and lexical integration or an inability to blend (reading and spelling problems) and comprehend what she hears

Sample Cases Continued

- The first child for whom APD results were normal compared with MA norms was identified and accepted by the school district as NOT having any APD problems, no accommodations needed or treatments for APD
- Second child, school district did not agree to provide any accommodations (FM system was one) and no treatments yet child was found having problems with
  - Speech understanding in noise (that's why the FM was recommended as well as listening in noise exercises)
  - Lexical extraction (also called decoding) in which the child is trying to process each and every word he hears and accommodations were: reduce the amount of information presented in verbal message focusing on only the key, important words, provide visuals (pictures, pointing) to support verbal messages, language therapy to help him better understand (at MA level functioning) how to identify the key important words in verbal messages so that comprehension will improve
Third Case

- School was very resistant to the following discussion
- If non-verbal functioning is much better and sort of borderline compared with verbal, why is the full-scale IQ being used (it was around 75).
- Also, some of the non-verbal (visual, visual-motor) measures were low normal (scaled scores of 8 and 9 for two measures) then the following question arises
- Is this really a young adolescent female with an ID or does she have some verbal processing problems combining APD issues with language issues?
- School district would not do language tests stating that in the past (last SLP testing was in 2nd grade) was consistent with the 70 IQ (her CELF scores and vocabulary scores were in the 70s.
- But, could her lexical processing deficit cause the verbal IQ to be so low?

Part 3: Should School Districts Accept APD as an Acceptable Educational Problem?

- When we consider learning in school, we see that in early grades (Pre-K, Kdg, 1st) the majority of learning is a combination of verbal input, visual input, learning by doing
- However, as we move up in grade, especially after 2nd grade, learning becomes more and more dependent on verbal input and, thus, auditory processing abilities
- Schools traditionally have not accepted APD as an appropriate diagnosis to allow a child to obtain accommodations or special education and related services support
  - The accommodations are through what is called the 504 Accommodations Plan
  - Services are through an IEP which includes accommodations and treatments
What Does the Research Tell Us?

- The only other reference (you can find this online) is to search the IDEA and see what it says about Specific Learning Disabilities (SLD).

What Schools Say?

- My extensive experiences with school districts all over the U.S. has shown that most schools will not accept a diagnosis of APD for a child leading to the child being identified for special education and/or resource services or for accommodations through a 504 accommodations plan.
- Special education services involve having a child work with a special education teacher.
- Resource services can include Speech-Language or SLP services, Occupational Therapy or OT services, counseling services, psychological services.
- Under the Individuals with Disabilities Education Act or IDEA, these are two different categories of services.
- However, both special ed and resource services can be provided through an IEP and accommodations mostly include what the classroom teacher provides but may also include some resource services.
Other Important IDEA Concepts

- LRE is Least Restrictive Environment = the environment in which the child is educated
- Various environments include:
  - The classroom
  - A special education class
  - The SLP “room”
  - The OT room, etc.
  - Within the school the PE (gym), auditorium, Art room, Music room, etc.
- Children with accommodations or IEPs may have placements in different environments depending on their “proven” needs

Proven Needs

- One very important concept in IDEA and ADA (Americans with Disabilities Act) and the Rehabilitation Act under which is section 504 for accommodations is that the SCHOOL (school district) is responsible to identify whether a child has any SPECIAL NEEDS
- This is a big problem among parents who see their children struggling and not doing well in school
- The parents often go to school wanting help (services, accommodations, special resources, etc.) for their child
- But, the parents fight with the school/school district to get these factors when the school/district has not identified that the child has any “educational disability”
APD as an Educational Disability

- School/districts will usually state that APD is NOT identified as an educational disability
- We know it as a medically related disability based on ICD-10 diagnoses
- The question arises do school districts accept medical disabilities as educational disabilities?
- Answer: ALL THE TIME – the most common one is ADHD
- ADHD is a medical (not an educational) disability, but children with ADHD are given Section 504 accommodations or IEPs by school/districts all the time
  - These medical disabilities fall under what is called Other Health Impairment or OHI
- The question arises, is APD an OHI?

APD as an OHI

- Recently in one of the latest ASHA Leader journals there is an article, or letter, or statement that some school district was ordered by the courts in a court case brought on by the parents that the child’s diagnosis of APD was a medical based other health impairment (OHI) which required the school district to provide the child what is called FAPE (Free and Appropriate Public Education)
- Thus, the school district had to identify the child as OHI, provide the child with an IEP and accommodations in the IEP
- But, is this new? Or Has this been recognized before?
- In the latest publication cited earlier – authored by this presenter – the courts involved with Northern California Public School hearings identified that children with APD could be identified with OHI or SLD so long as the following is true......
What is the Underlying Foundation for a Child Getting an IEP or 504?

- There must be evidence that the child has learning problems in the standard educational environment
- If the environment has to be changed (such as the listening environment) the child might only need a 504 Plan
- If the child is found to not be learning and requires special education help or resource (SLP) help, the child needs an IEP
- So, is this new?
- Let's take a close look at what this presenter published in his cited publications and what the IDEA actually states

Is APD an Accepted Specific Learning Disability or SLD?

- First we need to ask, what is the definition of SLD – let's look at the definition from the original special education law called Public Law (PL) 94-142
- The following is a summary focusing on the key factors from the definition of SLD
- A specific learning disability is a disorder in understanding language spoken……due to a problem with listen……that may be called a perceptual disorder
- The key points: understanding spoken language – listening problem – perceptual disorder
- All these factors would be part of the definition of an auditory processing disorder or APD!!!
- This is what the presenter has emphasized in his publications
APD IS an SLD

- Thus, if a child is found to have a specific APD problem, the child could have a specific learning disability
- But, the most important thing is does the SCHOOL/DISTRICT identify that the child is having learning problems?
- Just because the parents see the child not performing well in school or having problems with homework, or studying or understanding what is going on in school does not mean the child has a learning disability
- The parents MUST HAVE WRITTEN EVIDENCE from school personnel proving that the child is having problems learning
- Then, if the child is identified with an APD and the audiologist can PROVE the APD problems could be contributing to the learning problems, the child has an SLD and is entitled to the LRE, and a FAPE

The Problems

- The most common problem this professional finds is the school district not providing or having evidence that the child is having learning problem
- And the parents being the only party concerned with how the child is performing in school
- Then the parents get a private evaluation of auditory processing which the school/district rejects as evidence
- This is valid for the school district since APD testing does NOT evaluate educational achievement/abilities
- Additionally, the majority of the audiological APD reports I have read reveal that most audiologists do NOT know how to interpret APD test findings affecting school performance
Overview of APD Issues and Their Educational Effects

- This webinar is not long enough for me to go in depth into this factor, so only some cursory information is all that can be presented.
- Most APD evals I see from audiologists do NOT evaluate auditory phonological processing also called phonemic awareness.
  - Yet, deficits in phonemic awareness can underlie problems with reading and spelling as well as understanding new and unfamiliar words in lectures and class discussions.
  - Thus, all APD evals should have formal, standardized measures of auditory phonological processing.
- Most audiologists with whom this presenter has interacted take a neurophysiological approach in explain APD and interpreting test results.
  - School districts do not understand neurophysiological factors such as the Central Auditory Pathways or corpus callosum.

Overview of APD Issues and Their Educational Effects (continued)

- Auditory lexical integration (Lucker's model/approach LMSIA)
  - Lexical means words and integration means the ability for pieces to be put together to form the whole and the brains ability to identify the individual pieces or segments.
  - Audiologists usually refer to this as dichotic listening.
  - Educationally in indicates that the child has problems putting pieces of information together to form the meaningful whole for comprehension.
- Consider the following:
  - Christopher Columbus - sailing across the Atlantic Ocean
  - Three ships - Finding a new world
  - Spain - the world is round/the world is flat
  - Hispanola - 1492
Overview of APD Issues and Their Educational Effects (continued)

- Speech Understanding in Noise
  - Many times classrooms are not quiet, they have some background noises
  - Most audiologists this professional knows do ONE measure of SIN
  - Yet, ASHA and AAA say diagnose APD with failure on two or more tests
  - So, why not use at least two different measures of each area, especially SIN
  - Lucker’s research showed that about 50% of subjects with APD failed at least one measure of APD, but less than 25% failed two measures and even fewer failed 3 measures and about 10% failed all four measures used
    - Thus, how do we identify the true SIN problems?
  - Lucker says failure on at least two different measures of SIN
    - Most common accommodation is give the child an FM system
    - But an FM system does not teach the child to hear and understand better in noise

Conclusion

- APD IS an educational problem
- It is identified in IDEA as a SLD
- Need to have evidence that the child has learning problems
- Also, make the APD report educationally appropriate not medically or audiologically appropriate only
Summary Conclusion

- Part 1: There is no evidence supporting that we cannot test children below 7 or 8 years old – support early intervention and what parents want for their children

- Part 2: There is a method to evaluate if a child identified with ID has a specific APD – consider Lucker's approach using the IQ to identify the child's mental age equivalent and use the norms for that mental age value

- Part 3: APD IS an educational disability so long as there is evidence the APD problems are interfering with the child’s abilities to obtain and Free and Appropriate Public Education (FAPD)

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