

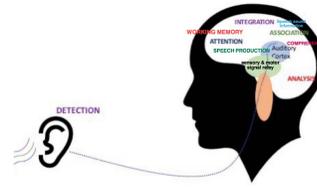
# The Efficacy of Auditory Processing Disorder (APD) Interventions: Parent and Provider Perceptions

Katie Effler, PharmD.; Alexandra Parshall, B.A.; Olivia Wnek, B.S.; Sandra Grether, Ph.D.; Susan Eichert, Au.D.; Lisa Hunter, Ph.D.

Leadership Education in Neurodevelopmental and related Disabilities (LEND) Program  
The Division of Developmental and Behavioral Pediatrics, Cincinnati Children's Hospital Medical Center  
The University of Cincinnati University Center for Excellence in Developmental Disabilities

## Background

- Auditory processing disorder (APD) is a deficit of active listening and is believed to originate in the brain, not the ear (American Academy of Audiology, 2010).
- APD frequently overlaps with speech-language disorders, attention-deficit disorders, and autism spectrum disorder.
- There are many debates and discussions between health professionals, including audiologists and speech-language pathologists, on the diagnosis and treatment efficacy for auditory processing disorder (APD) in school-aged children (Fey et al., 2011).
- Commonly used interventions include computerized trainings and traditional listening treatments (Fey et al., 2011; Sharma et al., 2012; Lotfi et al., 2016).
- Healthcare providers may have differing opinions regarding the options and effectiveness of treatment interventions for patients with APD.
- Parents often have a more personal view of their child's difficulties and the effectiveness of their treatment.



## Aims

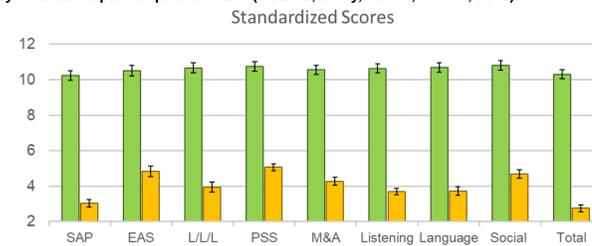
The overall goal of this project is to compare parent and healthcare professional perceptions of effectiveness of the individual child's APD treatment.

### Specific Questions:

- What are the similarities and differences between the diagnosis given and treatment received?
- What are perceptions of effectiveness of APD intervention by providers and families?

## Methods

Participants: 72 children determined to have significant listening difficulties that are defined by a validated parent questionnaire (ECLIPS, Barry, Moore, Tomlin, 2015).



Green bars = age-matched, typically developing children  
Gold bars = 72 children with significant listening difficulties

Fig 1. Results of the ECLIPS Parent Questionnaire for children with APD compared to age-matched typically developing children. Note: Standard score of 10 is average.

### Data Collection:

- A retrospective analysis of each subject's electronic medical record was completed with specific focus on appointments completed in the following categories: audiology, occupational therapy, psychology, and speech-language pathology.
- The number of overall sessions, sessions related to listening, and visit diagnoses were recorded for each child included in the study.
- A survey was sent to providers within audiology, occupational therapy, psychology, and speech-language pathology to assess their perceptions regarding the effectiveness of interventions for listening difficulties.
- A second survey was sent to caregivers of children with reported listening difficulties to assess their perceptions of the effectiveness of interventions offered to their children for listening difficulties.

### Data Analysis:

## Acknowledgements

- This project is funded by the Maternal and Child Health Bureau Grant T73MC00032, and NIH NIH Grant 5R01DC014078 and Cincinnati Children's Hospital Research Foundation.
- The patients, families, and professionals who make this work possible through their participation.

## Results

### Percent Assessed



Fig. 2. Percent of children receiving a diagnostic assessment in each specialty.

### Assessment Results

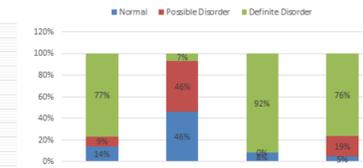


Fig. 3. Percent of diagnostic assessments that were normal vs. possible and/or definite in each specialty.

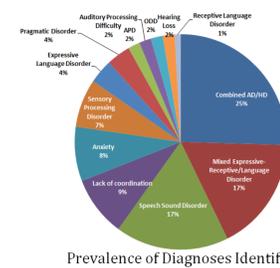


Fig. 4. Types of specific diagnoses identified; many children had more than one diagnosis.

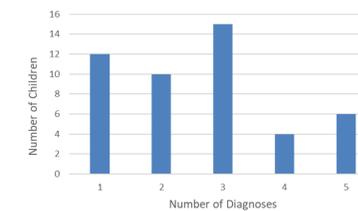


Fig. 5. Number of diagnoses given; 3 diagnoses was most common. Five or more diagnoses are combined into 5.

### Average Number of Intervention Sessions



Fig. 6. Average number of intervention sessions in each specialty, and for auditory processing specifically.

## Conclusions

- Further research is warranted to determine if parent-reported learning difficulties are secondary to their child's auditory concerns, or a primary concern.
- There are many therapies that target functional skills in attention, fine motor skills, language, and sensory processing, but far fewer therapies are designed to specifically intervene with auditory processing skills.
- More research is needed to develop evidence-based listening interventions, as well as to study their effectiveness and transference to skills that are important for learning and language development.

## Next Steps

- Compare parent and healthcare provider questionnaires to analyze differences in views of treatment needs.
- Compile data for a manuscript submission.

## References

- Barry, J.G., Tomlin, D., Moore, D.R., Dillon, H. (2015). Use of questionnaire-based measures in the assessment of listening difficulties in school-aged children. *Ear and Hearing*, 6, 300-313.
- Emanuel, D., Ficca, K. & Korzack, P. (2011). Survey of the diagnosis and management of auditory processing disorder. *American Journal of Audiology*, 20, 48-60.
- Fey, M.E., Richard, G.J., Kamhi, A.G., Medwetsky, L., Paul, D., Ross-Wain, D., et al. (2011). Auditory processing disorder and auditory/language interventions: An evidence-based systematic review. *Language, Speech, and Hearing Services in Schools*, 42, 246-264.
- Lotfi, Y., Moosavi, A., Abdollahi, F.Z., Bakhshi, E., Sadjedi, H. (2016). Effects of an auditory lateralization training in children suspected to central auditory processing disorder. *Journal of Audiology and Otolaryngology*, 20(2):102-108.
- Sharma, M., Purdy, S.C., Kelly, A.S. (2014). The contribution of speech-evoked cortical auditory evoked potentials to the diagnosis and measurement of intervention outcomes in children with auditory processing disorder. *Seminars in Hearing*, 35(1), 51-64.