

Teacher Concern Input in Speech, Language, and Hearing Communication Screening Measures



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INTRODUCTION

- Undetected hearing loss can put children at risk for delays in speech and language development, academic achievement, and social and emotional development (Davis, Elfenbein & Bentler, 1986).
- Delay in speech and language is one of the most common neurodevelopmental difficulties in early childhood with a prevalence of around 6% of children (Bamford et al., 1998).
- Approximately 17% of children in the U.S. have a developmental disability (Zablotsky et al., 2019).
- Timely intervention for speech and hearing concerns is critical to avoid long term negative outcomes in academic and social domains (McGill et al., 2020; Findlen et al., 2019).

- Early identification is essential for children with other learning challenges so timely intervention can be implemented (National Joint Committee on Learning Disabilities, 2006).

- Audiologists often see children before they receive a formal intellectual/developmental disability diagnosis (Bonino, 2025).

- Teachers are able to correctly identify when a student has a communication impairment (McLeod & McKinnon, 2007; Jessup et al., 2008; Holt & O'Neal, 2018).

- The Marion Downs Center is a non-profit health clinic that provides audiology, speech, and language services in both a clinic and community setting. The providers strive to provide service using best practices and by educating patients and families about the impact of hearing and speech challenges. One of the community programs at the Marion Downs Center is called KidScreen, which is a screening program for hearing, speech, language, vision, and development. The KidScreen team provides on-site screenings to several Head Start, Private, and Public schools in the Denver metro area for kids ages 0-18.

OBJECTIVE

The goal of the current project is to analyze the data gathered by MDC's Kidscreen to address two main questions about teacher input in screening practices:

- Can surveying teachers on communication milestones of their students identify more children in need of speech and hearing services when used in addition to screening measures?
- How do teacher responses to questionnaires correlate with speech and hearing screening measures used?

POPULATION

A retrospective review of the existing KidScreen dataset was performed. Data was analyzed for the hearing and speech screening records of children ages 2 years to 5 years 11 months who were screened through the KidScreen program under the Marion Downs Center and whose teachers completed a questionnaire between January 2024 and December 2024.

Acknowledgement

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METHODS

Hearing Screening

- Children 2 years – 4 years 11 months**
- OAEs using an automated screening protocol
 - Tympanometry completed after a refer result on OAEs
- Children 5 years – 5 years 11 months**
- Pure Tones completed at 1000Hz, 2000Hz and 4000Hz, with a 20dBHL pass criteria.
 - Tympanometry completed after refer on Pure Tones at any frequency

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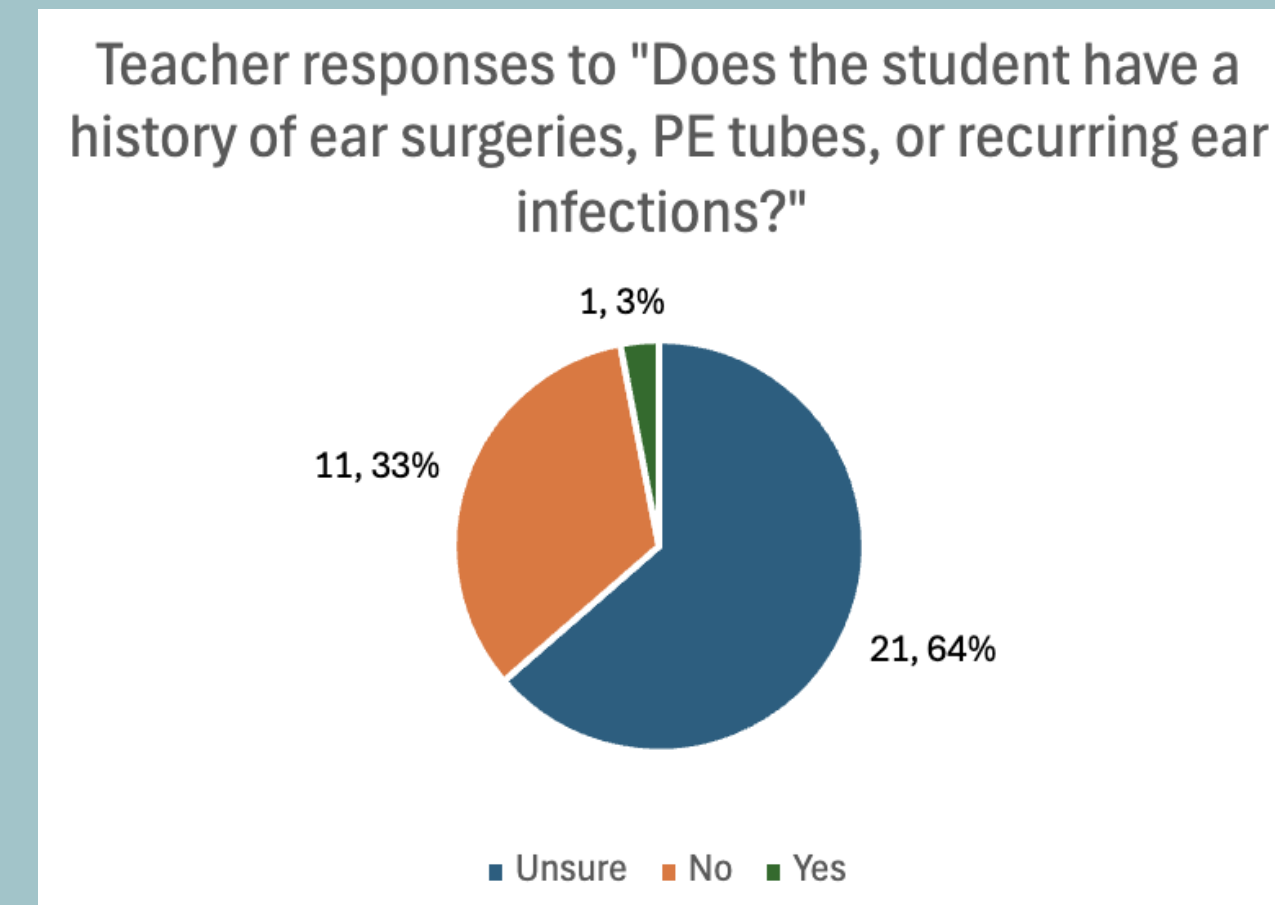
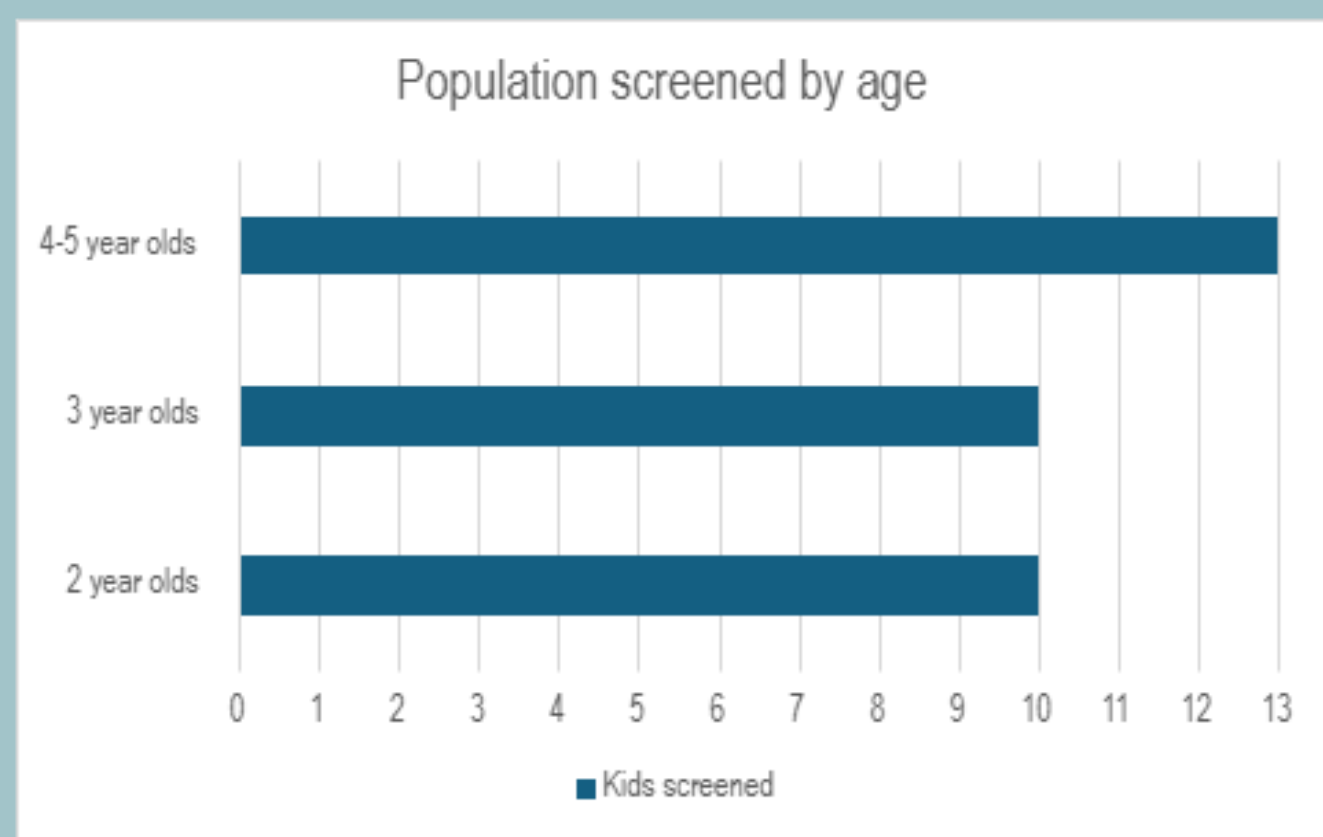
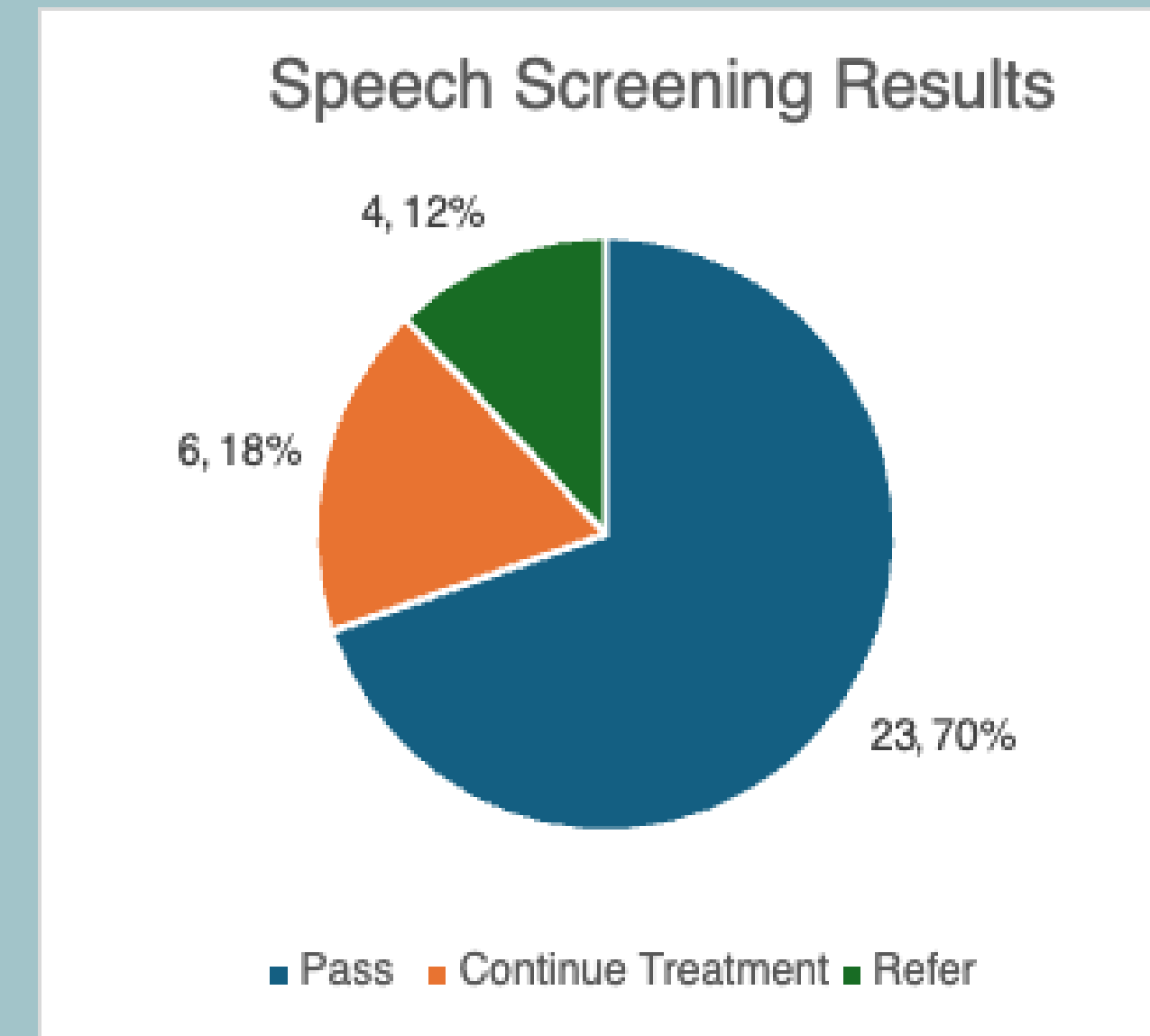
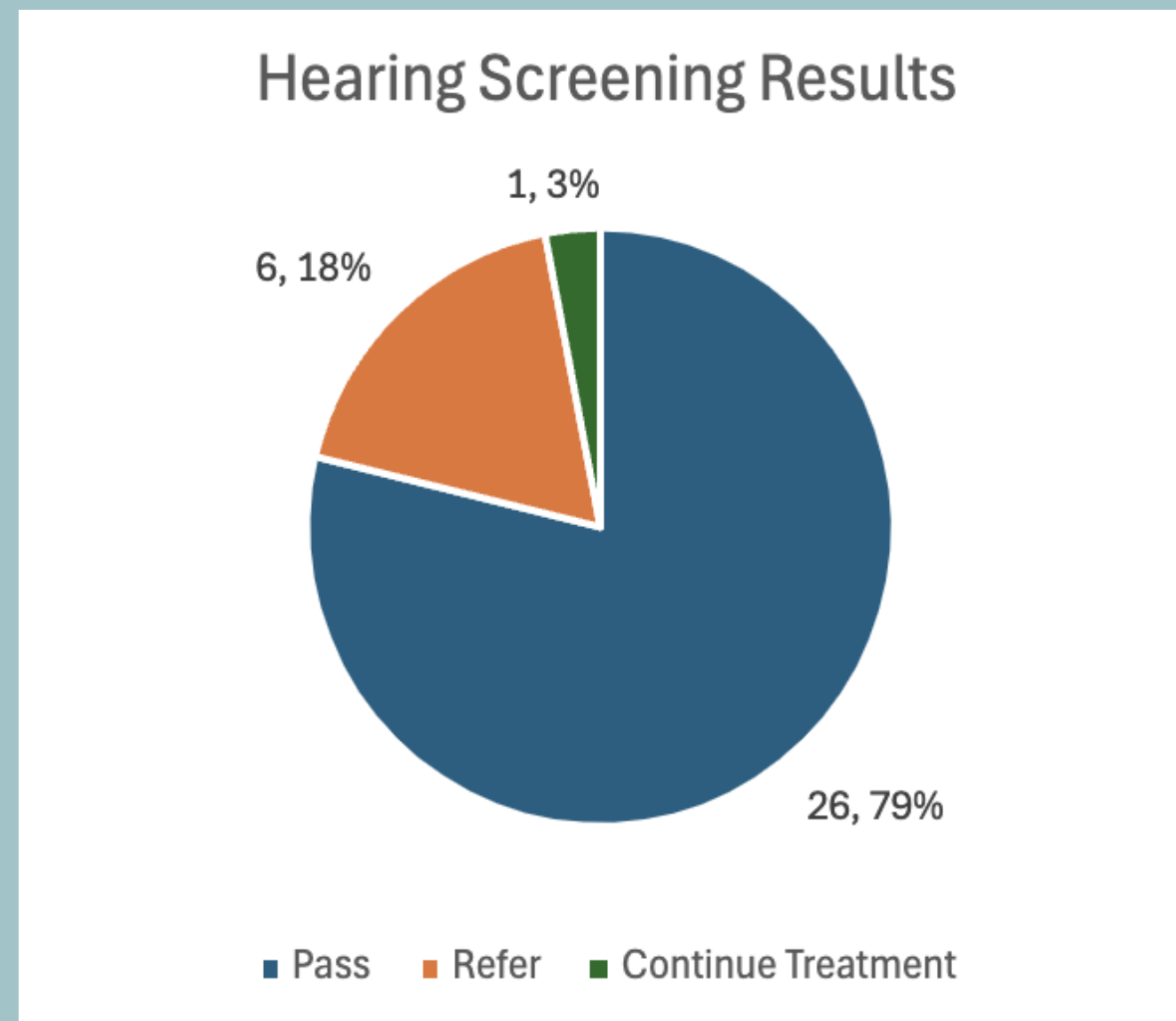
Speech Screening

- Children 2 year to 5 years 11 months**
- Assessed on speech clarity and articulation using age-appropriate speech sounds and assessing clarity during uninterrupted speech
 - If the child would not or could not participate in the screening measure, teachers were asked if a concern for speech and language was present.

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RESULTS

Screening Results (n = 34)

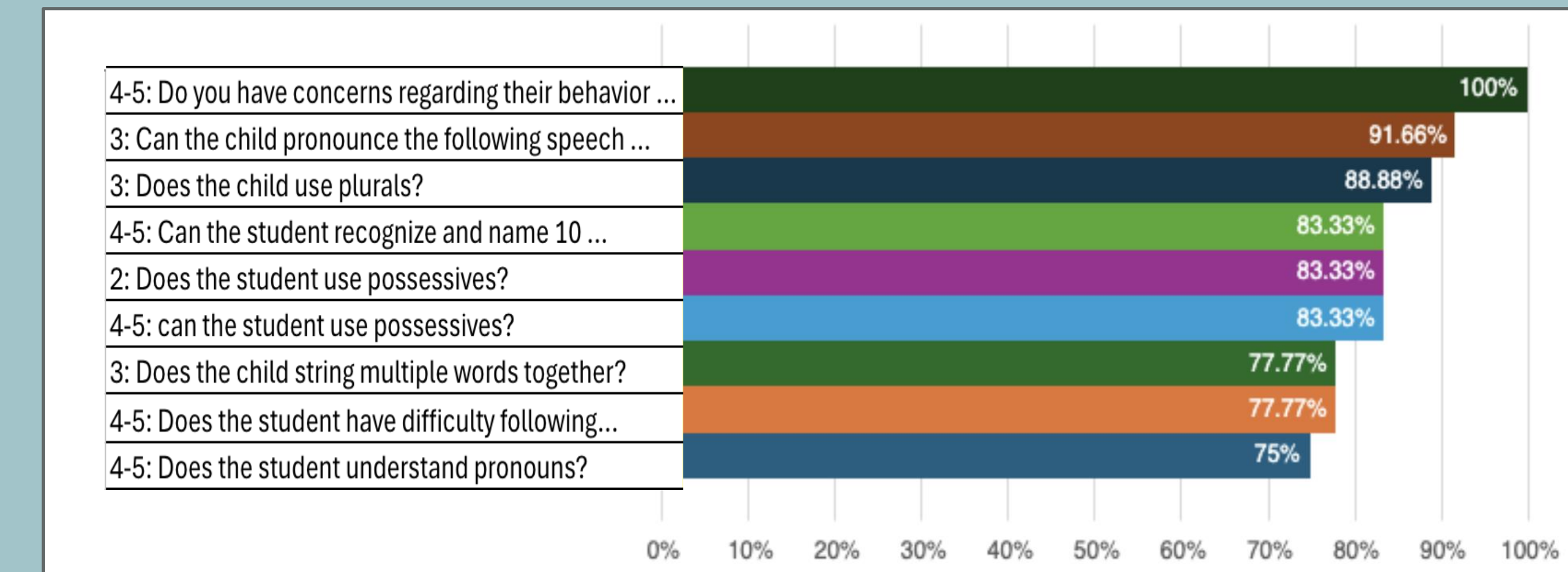


Teacher questionnaire result when compared to screening results

		Pass/Refer on hearing and speech screening		
		pass	refer	total
pass or refer teacher questionnaire	pass	16	2	18
	refer	4	5	9
	total	20	7	27

		Pass/Refer on hearing and speech screening		
		pass	refer	total
pass or refer teacher questionnaire	pass	59.26%	7.41%	66.66%
	refer	14.81%	18.52%	33.33%
	total	74.07%	25.93%	100%

Questionnaire questions of which the answers most highly correlated with speech and hearing screening results



Teacher Questionnaire

Teachers completed questionnaires for their students who were being screened. The questionnaires consisted of 7 or 8 questions yes/no/unsure questions pulled from the H.E.A.R. Checklist and ASHA's communication milestones

2-year-olds	3-year-olds	4-5-year-olds
1. Does the student string 2 or more words together?	1. Does the child string multiple words together?	1. Can the student recognize and name 10 or more letters?
2. Does the student follow 2 step directions?	2. Can the child pronounce the following speech sounds correctly in words (p, b, m, h, w, d, & n)?	2. Does the student understand pronouns?
3. Does the student use words to ask for help?	3. Does the student recognize actions?	3. Can the student use possessives?
4. Does the student use possessives?	4. Does the student use plurals?	4. Can the student answer hypothetical questions?
5. Does the student have a history of ear surgeries, PE tubes, or recurring ear infections?	5. Does the student have a history of ear surgeries, PE tubes, or recurring ear infections?	5. Does the student have failing grades or retention?
6. Does the student have difficulty following directions?	6. Does the student have difficulty following directions?	6. Does the student have a history of ear surgeries, PE tubes, or recurring ear infections?
7. Do you have concerns regarding their behavior or attention?	7. Do you have concerns regarding their behavior or attention?	7. Does the student have difficulty following directions?
		8. Do you have concerns regarding their behavior or attention?

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CONCLUSIONS & DISCUSSION

- Teachers' responses on questionnaires were highly correlated with the student's screening results. Teachers' responses matched the students screening results 77.78% indicating teachers are a reliable source of information on whether a referral to speech pathology or audiology is needed.

- The question "Do you have concerns regarding their behavior or attention" was the most sensitive question for 4-5-year-olds with 100% of teacher responses correlating with the student's screening results.

- Teachers typically did not know whether a student had a history of ear surgeries, PE tubes or recurring ear infections with 64% answering they were unsure.

- 14.81% of students had teachers who indicated a communication concern may be present who were not referred on hearing and speech screening measures. This indicates there is a percentage of students who may be missed by the screening measures which are commonly used in speech and hearing screening tools. These children may benefit from a referral to a speech pathologist or audiologist.

- 2-year-olds had the least amount of questionnaire questions which were highly correlated with screening outcomes. Further investigation is needed to determine more sensitive questions to ask teachers about 2-year-olds communication development.

- The speech screenings performed assessed speech clarity and articulation, however some of the teacher questionnaire questions asked about the student's language abilities. Further investigation should be performed to determine if a language screening measures should be used as a part of the screening process.

- A larger sample size is needed to make greater inferences of the efficacy of teacher questionnaires in speech and hearing screenings of children ages 2-5 years old.

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