

# Videos to Supplement the Infant-Toddler Meaningful Auditory Integration Scale

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## Background

- The *Infant-Toddler Meaningful Auditory Integrations Scale (IT-MAIS)*; Zimmerman-Phillips, et al., 2001) is a caregiver-report tool used to assess a child's functional auditory development.
- The *IT-MAIS* is used in the clinic and the laboratory as a means to explore cochlear implant (CI) candidacy and track listening development post-implantation.
- Barker and colleagues (2016) used Rasch Analysis and showed that caregivers' intra-rater reliability on the *IT-MAIS* is weak.
- The *IT-MAIS*' weak psychometric properties lower the measure's overall reliability and cause concern over the consistency of its results both in the laboratory and the clinic.
- We propose supplementing the *IT-MAIS* with videos in hopes of improving intra-rater reliability.

## Aim

Take a first step in improving the *IT-MAIS*' intra-rater reliability by creating videos with strong face validity that can be used to supplement the *IT-MAIS*.

## Methods

**design:** a non-experimental qualitative study comprised of two phases

### participants:

- naïve caregivers:** parent or guardian of a typically developing child 3 years old or younger
- pediatric audiologists:** pediatric audiologists who use the *IT-MAIS* at least once per month

### Phase I

- we created 6 written video scenarios for each IT-MAIS question
- 10 pediatric audiologists judged how representative each scenario was of the corresponding *IT-MAIS* question

### Phase II

- we filmed the top 2 representative videos from Phase I



- 25 naïve caregivers and 25 pediatric audiologists judged how representative the videos were of their corresponding *IT-MAIS* question

## Results

We calculated the **M ratings** of pediatric audiologists (n = 25) and naïve caregivers (n = 25) for each video.

- 1 = the scenario was least representative of the question
- 7 = the video was most representative of the question.

See the table below for results, where the blue, highlighted cells show the top-rated scenarios.

IT-MAIS Question		video scenario	audiologists' M ratings	caregivers' M ratings
		a	b	
1. Is the child's vocal behavior affected while wearing his/her sensory aid (hearing aid or cochlear implant)?	a	4.29	4.68	
	b	6	5.36	
2. Does the child produce well-formed syllables and syllable sequences that are recognized as "speech"?	a	3.13	3.12	
	b	4.12	4.6	
3. Does the child spontaneously respond to his/her name in quiet with auditory cues only (no visual cues)?	a	5.56	5.68	
	b	6.63	5.96	
4. Does the child spontaneously respond to his/her name in the presence of background noise with auditory cues only (no visual cues)?	a	4.96	5.12	
	b	6.68	6.64	
5. Does the child spontaneously alert to environmental sounds in the home without being told or prompted to do so?	a	1.8	2.28	
	b	4.24	3.96	
6. Does the child spontaneously alert to environmental sounds in new environments?	a	6.0	6.16	
	b	5.56	5.28	
7. Does the child RECOGNIZE auditory signals that are part of his/her everyday routines?	a	5.48	5.52	
	b	6.72	6.52	
8. Does the child demonstrate the ability to discriminate spontaneously between two speakers with auditory cues only (i.e., no visual cues)?	a	6.6	4.5	
	b	6.4	6.16	
9. Does the child spontaneously know the difference between speech and non-speech stimuli with listening alone?	a	4.44	4.48	
	b	4.96	4.32	
10. Does the child spontaneously associate vocal tone (anger, excitement, anxiety) with its meaning based on hearing alone?	a	3.72	4.28	
	b	3.88	3.6	

- videos for 8 *IT-MAIS* questions have strong face validity
- videos for 2 *IT-MAIS* questions have weak face validity

## Discussion

- We successfully created videos with strong face validity that correspond with 8 of the 10 *IT-MAIS* questions.
- There are a number of reasons that 2 videos demonstrated poor face validity: 1) Phase I scenarios do not represent their respective *IT-MAIS* question; 2) poor video quality; or 3) the *IT-MAIS* questions are poorly worded.
- Before we are able to supplement the *IT-MAIS* we need to ensure ALL questions have videos with strong face validity.
- We are currently creating new videos for *IT-MAIS* questions 9 & 10 as a means to methodologically explore our aforementioned hypotheses.

## References

Barker, B. A., Donovan, N. J., Schubert, A. D., & Walker, E. A. (2016). Using Rasch analysis to examine the item-level psychometrics of the Infant-Toddler Meaningful Auditory Integration Scale. *Speech, Language and Hearing*, 1-14. doi:10.1080/2050571X.2016.1243747

Zimmerman-Phillips, S., Osberger, M. J., & Robbins, A. M. (2001). Infant-toddler meaningful auditory integration scale. Sylmar, CA: Advanced Bionics Corporation.

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