

***Outcomes of Children with Mild/Moderate
Hearing Levels: A Multi-State Perspective***

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Presenter

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Today's Topics

- Present language outcome data for children with mild/mod hearing levels
- Compare outcomes to children with mod/sev to profound hearing levels
- Identify strengths and challenges for children who are hard of hearing
- Recommend areas for assessment and intervention

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Birth to 3 years

NECAP Project Overview

- NECAP = National Early Childhood Assessment Project
- CDC-supported project to collect language outcome data on deaf and hard-of-hearing children birth to 5 across the United States
- Current continuation of this project now called ODDACE (“odyssey”)

Number of Participants and Assessments

- 719 children assessed
- Assessments conducted every 6 mos
- Each child assessed 1 to 7 times

Participant Characteristics

- 8 to 39 months of age
- Bilateral hearing loss
- No addit disabilities thought to interfere with speech/language development
- Primary home language = English
- Reside in 14 different states

Communication Approach

Approach	Percent
Spoken language	72%
Spoken only	32%
Spoken w/ occasional sign	40%
Sign with spoken language	23%
Sign only	5%

Assessment: MacArthur-Bates Communicative Dev. Inventories

- Assesses expressive spoken and sign vocabulary
- Parent-report instrument – Parent checks words child can produce in spoken and/or sign language

Assessment: Minnesota Child Development Inventory (CDI)

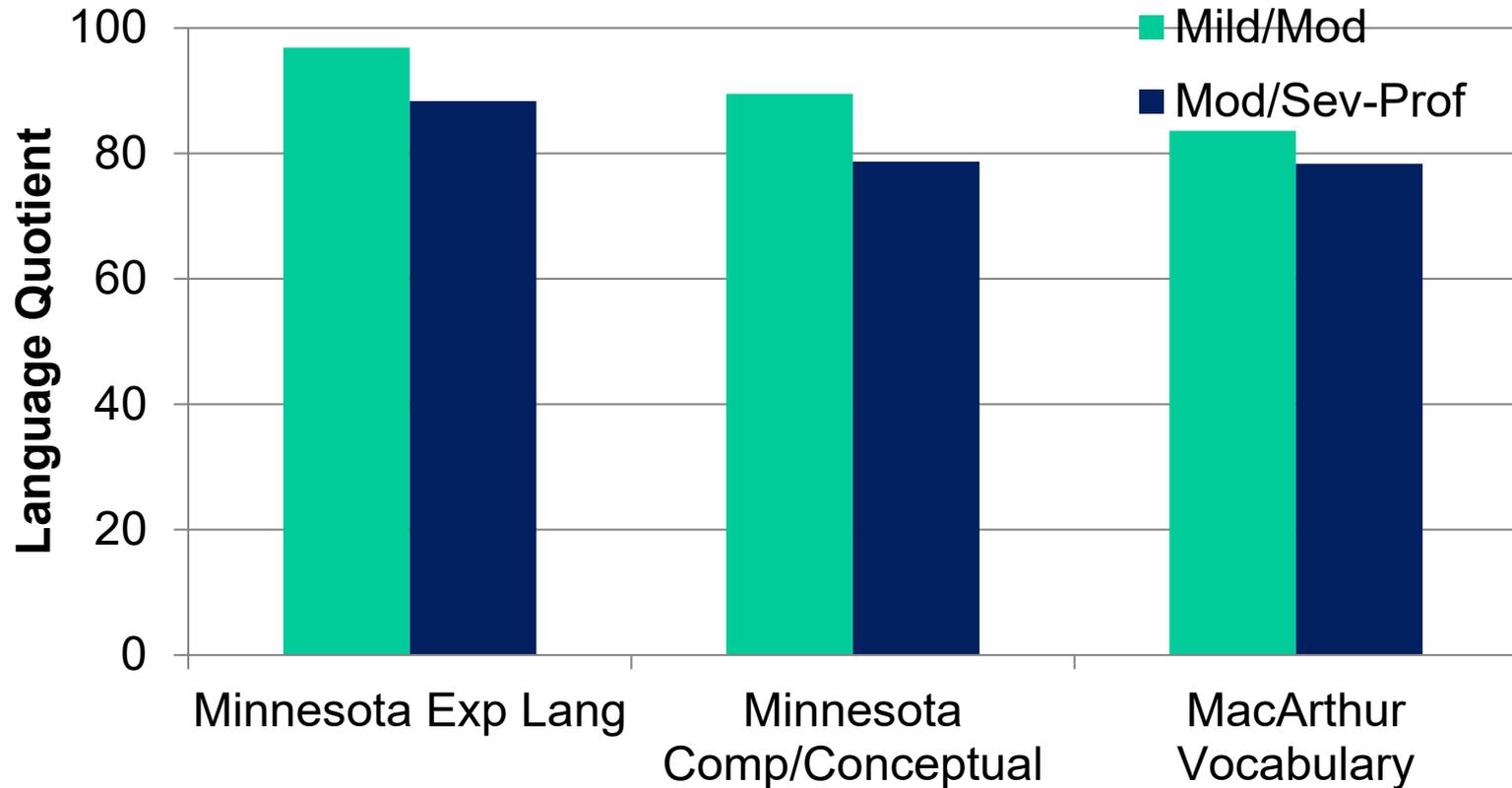
- Areas assessed:
 - Expressive Language
 - Language Comprehension and Conceptual/Cognitive-Linguistic Language
- Parent-report instrument – Parent indicates skills their child can do in spoken and/or sign language

Determining Language Quotient

Language Age/Chronological Age x 100

- If $LQ = 100$, Language Age = CA
- If $LQ < 100$, Language Age < CA
- If $LQ > 100$, Language Age > CA

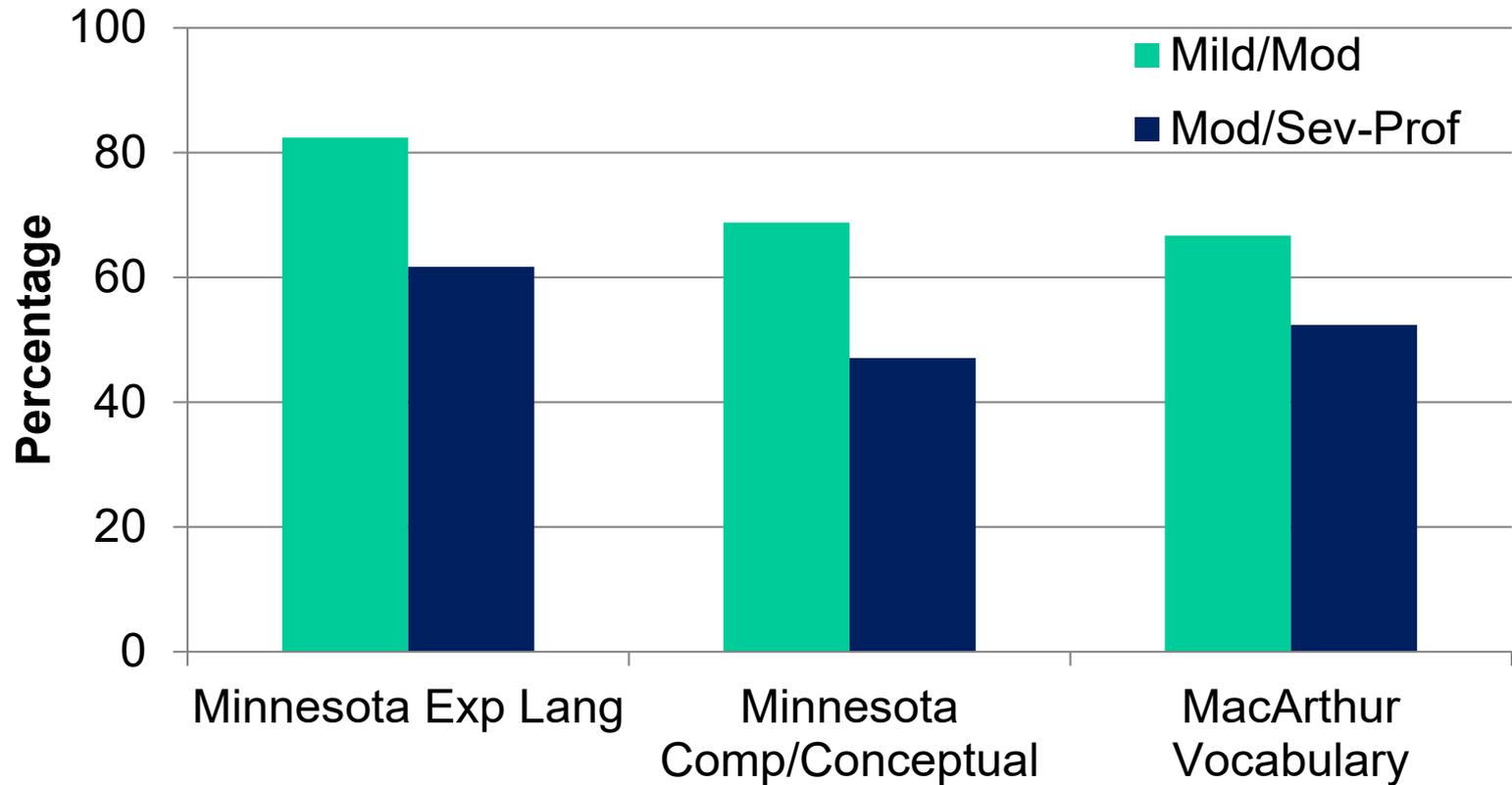
Language Outcomes: Minnesota CDI and MacArthur (all assessments)



Comparisons of Mild/Mod vs. Mod/Sev to Profound Levels

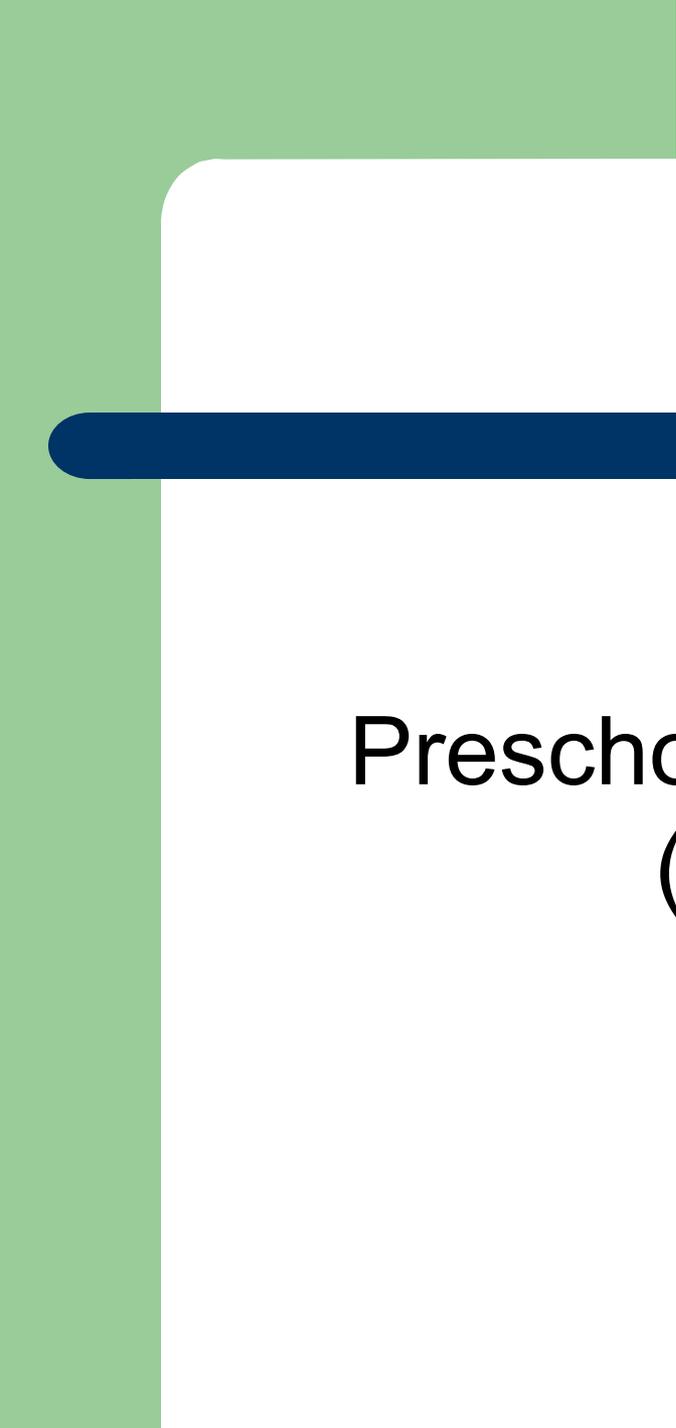
- t-tests performed using most recent assessment for each child
- Significant differences ($p < .001$) by degree of hearing loss for all three language measures:

Percent of children within the average range (all assessments)



Children with Mild/Mod Loss: Areas well below Age Expectations

- Expressive vocabulary size
- Conceptual/cognitive-linguistic language
- Examples:
 - Knows the meaning of “same” and “different”
 - Answers “what do you do with a ____?”
 - Understands what “full” and “empty” mean
 - Talks about the future (what is “going to” happen)

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Preschool and Early Elementary (4- to 7-year-olds)

Participant Characteristics

- 4 to 7 years of age
- Bilateral hearing loss
- Degree of loss
 - Mild/Moderate: n = 50
 - Mod-Sev to Profound: n = 83

Number of Participants and Assessments

- Assessments conducted annually
- Each child assessed 1 to 4 times

= 320 assessments completed

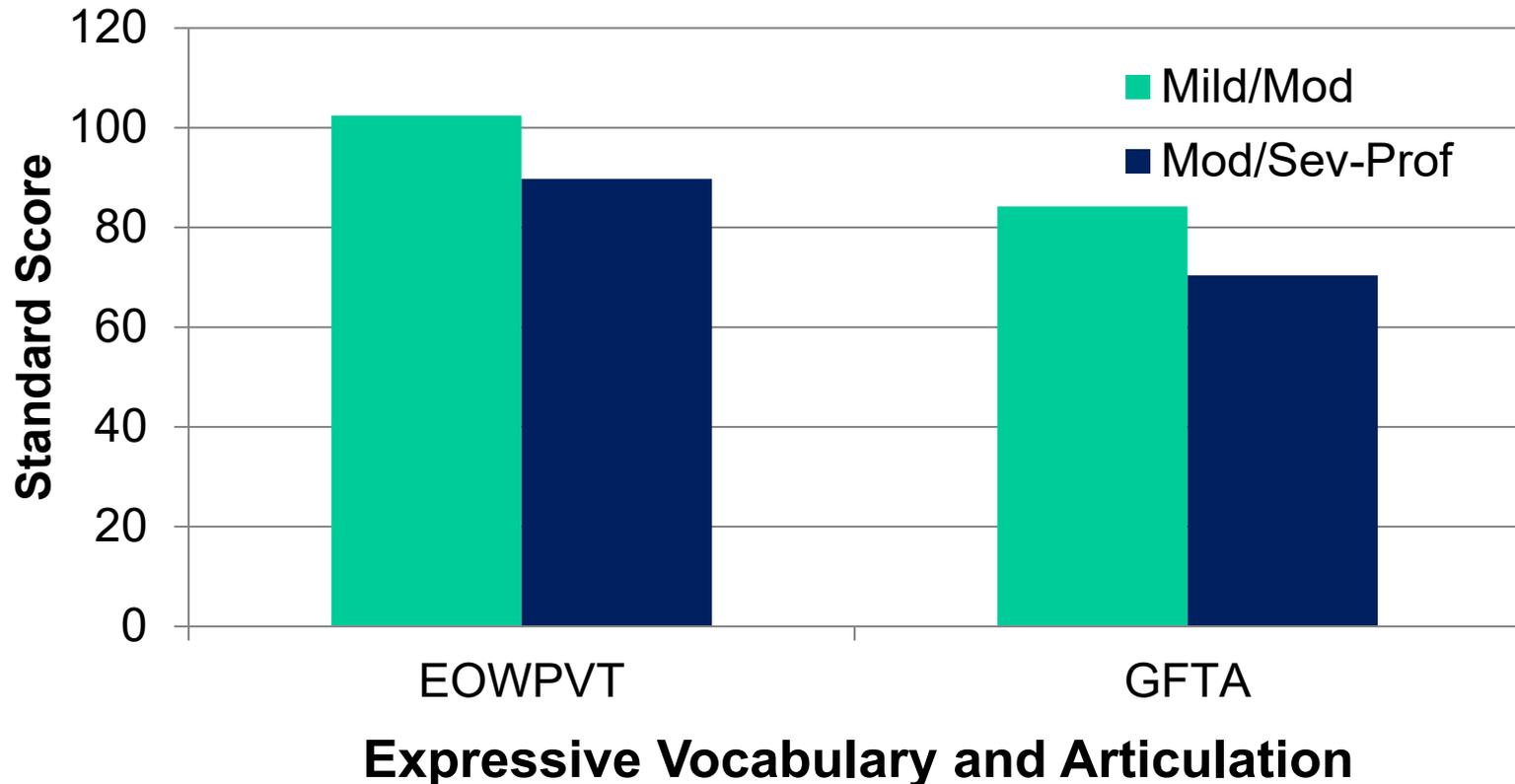
Participant Characteristics

- No addit disabilities thought to interfere with speech/language development
- Primary home language = English
- Reside in Colorado
- Majority of children used primarily spoken language; some used speech + sign

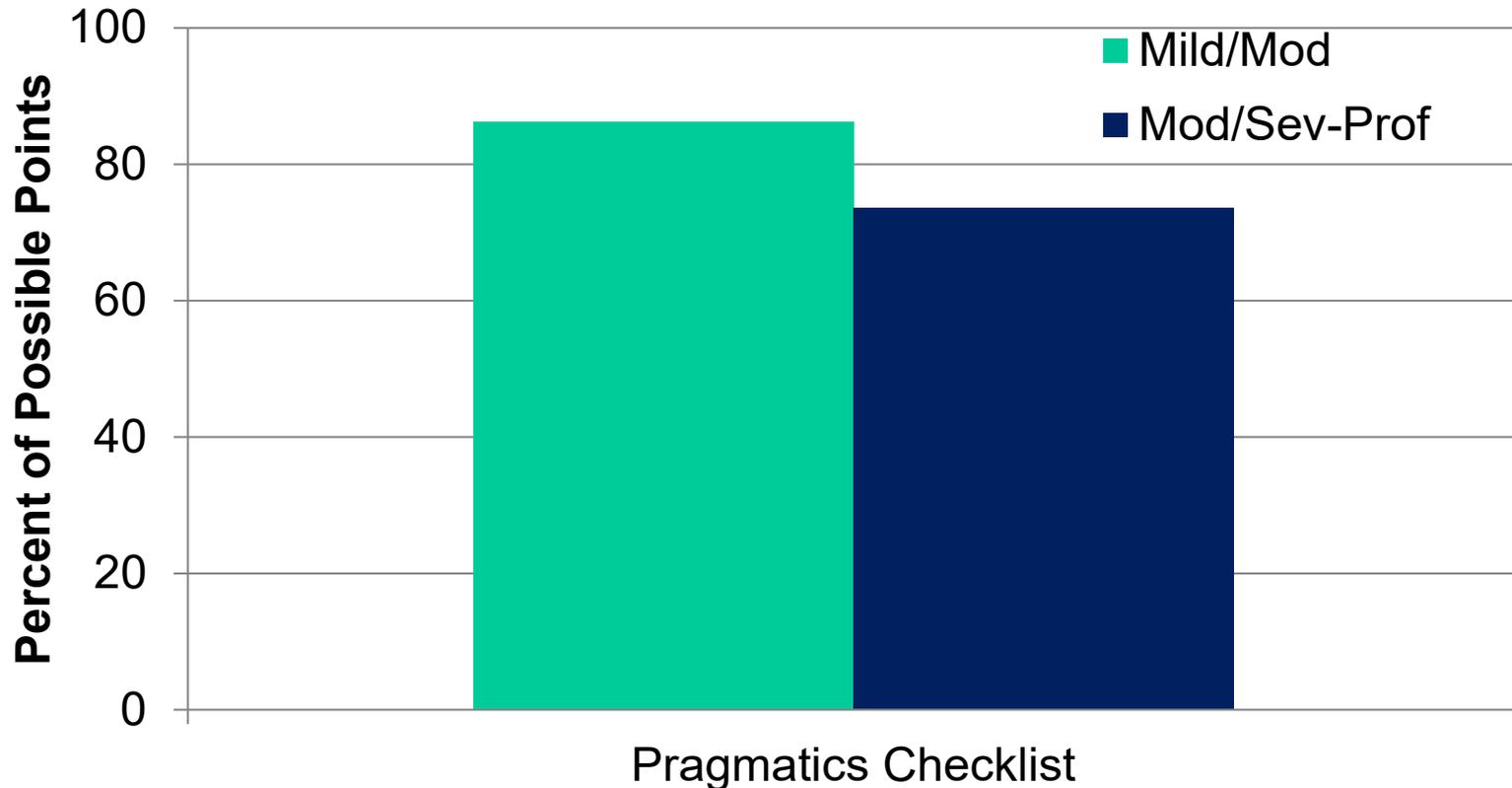
Assessments Completed

- Expressive Vocabulary – EOWPVT
- Articulation – GFTA
- Expressive Language – Pragmatics Checklist

Expressive Vocabulary and Articulation (all assessments)



Pragmatics Checklist



Comparisons of Mild/Mod vs. Mod/Sev to Profound Levels

- t-tests performed using most recent assessment for each child
- Significant differences ($p < .05$) by degree of hearing loss for all 3 speech and language measures:

Children with Mild/Mod Loss: Area within Age Expectations

- Expressive Vocabulary – EOWPVT

Children with Mild/Mod Loss: Areas below Age Expectations

- Articulation – GFTA
 - Mean standard score = 84
 - Mean for hearing children = 100
- Expressive Language – Pragmatics Checklist
 - Mean percent of possible points = 86%
 - Mean for hearing children = ~100%

Conclusions: Birth to 3 years

- Children with mild/mod hearing levels, on average, achieve higher language scores than children with mod/sev to profound hearing levels
- However, one-third of children with mild/mod loss exhibit delays in expressive vocabulary and conceptual language skills

Conclusions: 4 to 7 years

- Children with mild/mod hearing levels, on average, achieve higher language scores than children with mod/sev to profound hearing levels
- However, children with mild/mod loss, on average exhibit delays in speech articulation and pragmatic language skills

Focus of Assessment and Intervention for Children who are HOH

- Speech articulation (for those using spoken language)
- Diversity and depth of expressive vocabulary
- Use of conceptual and abstract language (cognitive-linguistic skills)
- Pragmatic language skills