



# ***Intervention services across the nation -- are they enough?***

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Thanks to....

**CDC & DRDC**

**NECAP States**

**ODDACE Grant**

**Students & Team at CU Boulder**

**Interventionists**

**Children & families who participated**

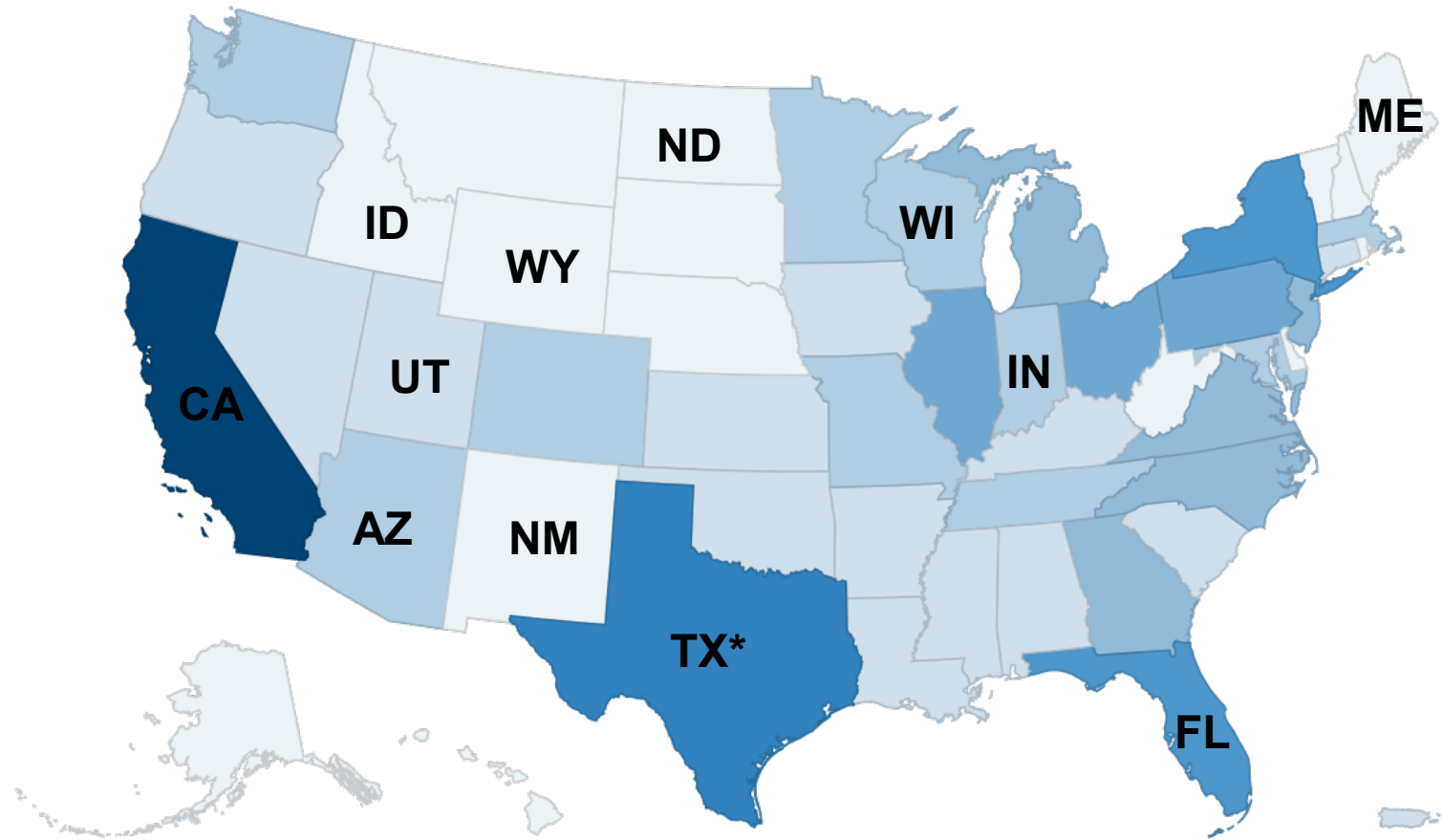


# Today's Topics

- **General program demographic information**  
**(a.k.a. What's happening around the country?)**
  - Amount & type of therapy?
  - Types of providers?
- **Our study**
- **Our results**



# National Early Childhood Assessment Project: NECAP – States in Analysis



# Part 1 -- What's happening around the country?



# Who provides service?

## **Professional certification**

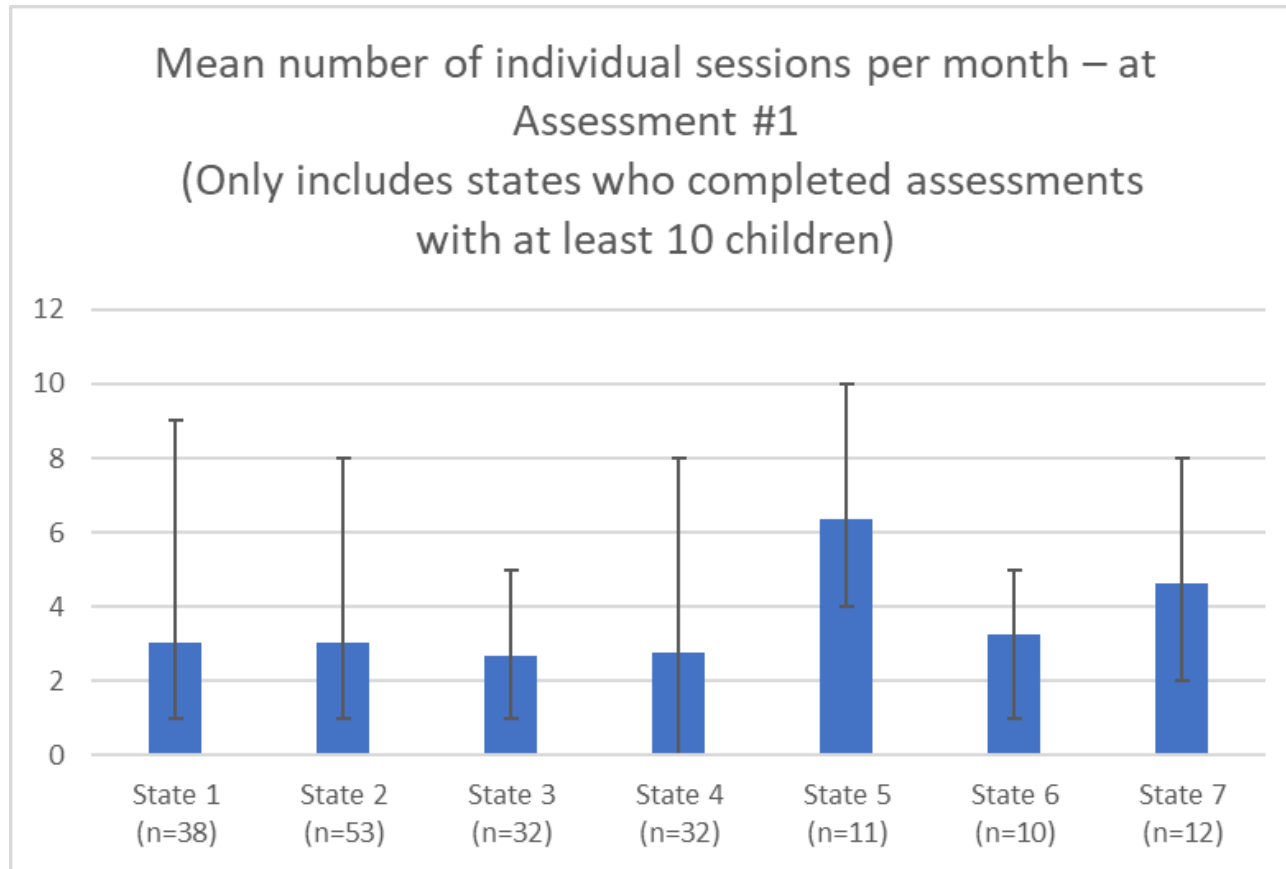
- **All teachers of the deaf/hoh**
- **All speech pathologists**
- **Primarily teachers of the deaf/hoh with one to two speech pathologists**
- **Primarily speech pathologists with one to two teachers of the deaf/hoh**
- **Some speech pathologists; some early childhood specialists**

## **Areas of Expertise**

- **Deafness birth to 21**
- **Deafness birth to 3**
- **Birth to 6 all disabilities**
- **Children of all ages and all disabilities**



# How much service?



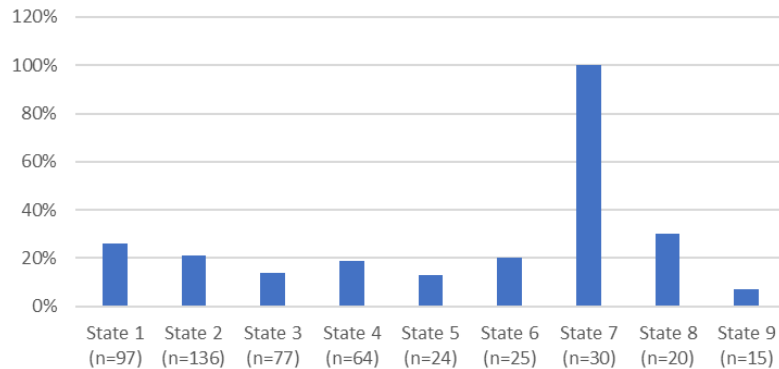
# What other service?



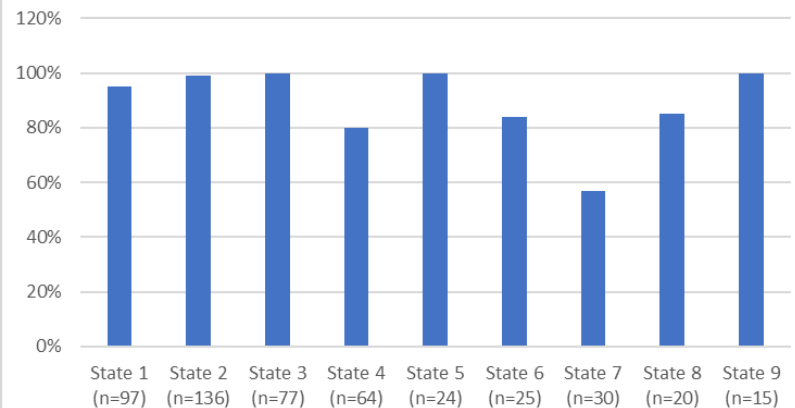
# Where is the service?



Intervention Outside Home (Clinic, Hospital, Private Practice, etc.)



Intervention in the Home



# Research Questions

- (1) Does a relationship exist between language scores and the amount of services a child receives?**
- (2) If there is a relationship, what is the causal direction of any such relationship?**



# **Part 2 -- Study Design, Methods & Participants**



# Data Analyzed

National Early Childhood Assessment Project  
University of Colorado - Boulder  
Department of Speech, Language and Hearing Sciences  
AUTHORIZATION FOR RELEASE OF AUDIOLOGIC INFORMATION

I give permission to: \_\_\_\_\_  
(Name of audiologist or physician)

at: \_\_\_\_\_  
(Name of agency, hospital, or facility)

(Address of facility; include number, street, city, state, and zip code)

to release all audiologic information (audiograms, audiology reports, and other hearing test results) gathered on:

(Child's name) \_\_\_\_\_ (Child's date of birth) \_\_\_\_\_

(Parent's or guardian's name) \_\_\_\_\_

(Address; include number, street, city, state, and zip code)

This audiologic information should be released and sent to:


Dr. Allison Sedey, NECAP Coordinator  
University of Colorado - Boulder  
400 UCS  
Boulder, CO 80309

This release will continue to be in effect for one year from the date stated below.  
I understand that I may revoke this authorization in writing at anytime.

(Signature) \_\_\_\_\_ (Date) \_\_\_\_\_

(Relationship to Child) \_\_\_\_\_

Child's Name \_\_\_\_\_ Sex \_\_\_\_\_  
Birthdate \_\_\_\_\_ Today's Date \_\_\_\_\_

 **MacArthur-Bates CDI Words and Gestures**

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1440 S. 46th Ave., Suite 100  
Seattle, WA 98148-3200  
www.cdi-communication.com

Picture Mark \_\_\_\_\_  
Gestures Mark \_\_\_\_\_

**PART I: EARLY WORDS**

**A. FIRST SIGNS OF UNDERSTANDING**  
Before children begin to speak, they show signs of understanding language by responding to familiar words and phrases. Below are some common examples. Does your child do any of these? Yes No

1. Respond when name is called (e.g., by turning and looking at parent) \_\_\_\_\_  
2. Respond to "no" (e.g., stop playing what mother is doing, at least for a moment) \_\_\_\_\_  
3. Respond to "listen/look/look at" by looking around for 10 sec \_\_\_\_\_

**B. PHRASES (2E)**  
In the box below, please mark the phrases that your child seems to understand.

	understands	understands	understands
Are you hungry?			
Are you tired/sleepy?			
Be careful!			
Be quiet!			
Clap your hands!			
Change diaper!			
Come here/come up!			
Daddy/mommy's name!			
Go play/stand there!			
Don't do that!			
Start to laugh!			
Give it to me/bring!			
Give me a kiss!			
Go get _____!			
Goodbye/bye!			
Hold still!			
Let's go bye-bye!			
Look/look here!			
Open your mouth!			
Go down!			
Start it out!			
Stop it!			
Time to go/sleep/night!			
Throw the ball!			
You're wrong!			
Where to go for a ride?			

National Early Childhood Assessment Project: NECAP  
INITIAL DEMOGRAPHIC FORM

NOTE: To be completed by the parent and/or the early intervention provider the first time the child is assessed with NECAP.

GENERAL INFORMATION: Today's date: \_\_\_\_/\_\_\_\_/\_\_\_\_  
mon day year

Child's Name: \_\_\_\_\_

Parents' names: \_\_\_\_\_ Phone: \_\_\_\_\_

Address: \_\_\_\_\_ City: \_\_\_\_\_

State: \_\_\_\_\_ Zip Code: \_\_\_\_\_

Parents' e-mail address: \_\_\_\_\_

Birthdate of child: \_\_\_\_/\_\_\_\_/\_\_\_\_ Gender of child: \_\_\_\_ Boy \_\_\_\_ Girl  
mon day year

1. Family qualifies for Medicaid or state equivalent: \_\_\_\_ yes \_\_\_\_ no \_\_\_\_ unknown  
(Qualifies based on income; if qualifies but does not receive assistance, still check "yes")

2. Ethnicity of child: \_\_\_\_ Hispanic/Latino \_\_\_\_ NOT Hispanic/Latino

3. Race of child (check all that apply):  
\_\_\_\_ White \_\_\_\_ Native Hawaiian or Other Pacific Islander  
\_\_\_\_ Black or African American \_\_\_\_ American Indian or Alaska Native  
\_\_\_\_ Asian \_\_\_\_ Other (Please specify: \_\_\_\_\_)

4. Languages used at home with the child: (Please check all that apply)  
\_\_\_\_ Spoken English \_\_\_\_ Spanish  
\_\_\_\_ Sign Language \_\_\_\_ Other (Specify: \_\_\_\_\_)

HEARING INFORMATION:

1. Did the child fail a newborn hearing screening? \_\_\_\_ yes \_\_\_\_ no \_\_\_\_ did not receive

2. Onset of hearing loss: \_\_\_\_ Present at birth \_\_\_\_ Acquired after birth \_\_\_\_ Don't know  
If acquired, at what age? \_\_\_\_ months of age

3. Age at which hearing loss was confirmed by an audiologist: \_\_\_\_ months of age

4. Age at which first received amplification: \_\_\_\_ months of age

# Participants Included in Analysis



BILATERAL HEARING LOSS -  
ONSET OF HEARING LOSS: 97%  
CONGENITAL, 3% ACQUIRED (ALL  
PRIOR TO 8 MONTHS OF AGE)



ENGLISH WAS THE PRIMARY  
WRITTEN LANGUAGE OF THE  
HOME



NO ADDITIONAL DISABILITIES



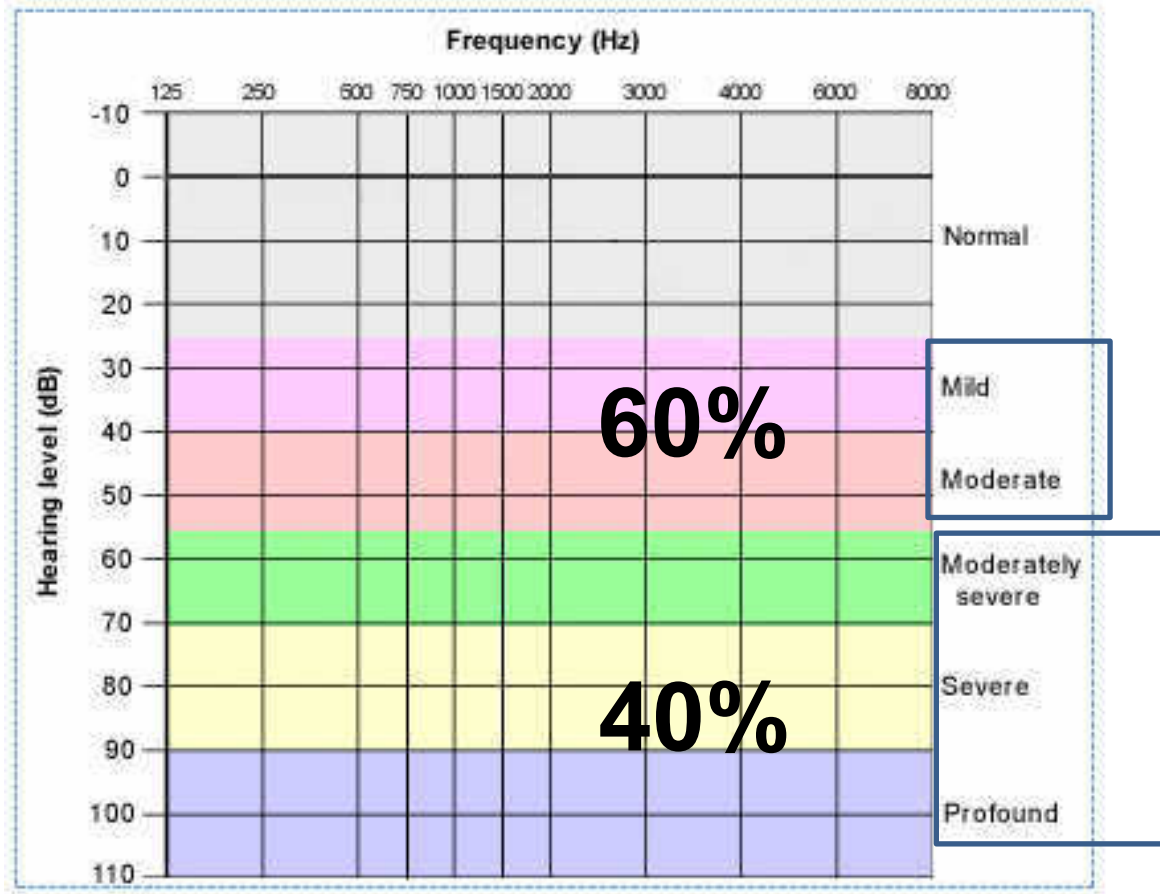
**Table 1.** Participant and Family Demographic Characteristics

Characteristic	Percentage of Participants
Gender	
Male	46%
Female	54%
Ethnicity	
Non-Hispanic	80%
Hispanic	20%
Race	
White	87%
African American/black	2%
Asian	2%
Native American	1%
Hawaiian/Pacific Islander	1%
Mixed race	7%
Communication mode used with the child	
Primarily spoken language	79%
Spoken language only	29%
Spoken with very occasional use of sign	50%
Sign language + spoken language	19%
Sign only	2%
Hearing status of the parent	
Both parents hearing	81.5%
One or both parents deaf/hard of hearing <sup>a</sup>	18.5%
Mother's highest educational degree	
Less than high school	7%
High school	34%
Vocational	5%
Associates	16%
Bachelor's	26%
Graduate	12%

<sup>a</sup>Of the parents who were deaf or hard of hearing, 55% used sign language when communicating with their child.




# Participants



# Participants

**Count 1-3-6 Steps to Open the Door to Your Child's Language and Early Learning**


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 **By 1 Month**  
**Newborn Hearing Screening**  
*Can your baby hear every sound?*

- Newborns should receive several screenings to rule out serious conditions at birth.
- Can your baby hear well? Ask for a hearing screening at birth. The screening will show if your baby's ears are receiving all sounds.
- Most babies sleep right through the fast screening process.
- Use EHDI-PALS to find local facilities for hearing tests.

**By 3 Months**  
**Know for Sure - Diagnostics**  
*Complete testing with a Pediatric Audiologist*

- If your baby doesn't pass the screening in one or both ears, get a full hearing test by someone with special training & equipment who works with babies by three months of age. (Pediatric Audiologist)
- Why the hurry? Babies can avoid sedation with early testing and you'll be helping your baby in a period of rapid brain growth.
- This is a great time to connect with other parents who have children who are deaf/hard of hearing and meet Deaf/hard of hearing adults.

 **By 6 Months**  
**Begin Early Intervention-The Key**  
*Qualified experts in early childhood hearing loss*

- All babies identified with hearing loss in one or both ears should receive critical language and developmental services by 6 months of age.
- "EI" support from birth to age three can help a child enter school with skills on track with typically hearing children.
- Families can enroll as soon as a hearing loss is identified.
- Signing a release of information helps professionals support you in getting your baby to the next step.
- Contact your local EI Coordinator (at the link below) and ask for experienced birth-to-three providers in your area.

"Early intervention changed our daughter's life. We are grateful for the early identification and the team who surrounded our family." A parent of a child with hearing loss

**74% Met**

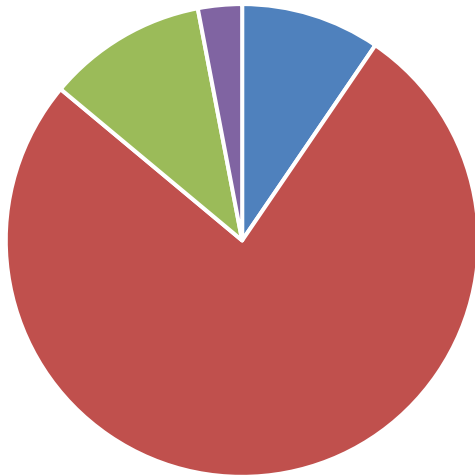
**26% Did Not Meet**



# Participants

## 1<sup>st</sup> Assessment

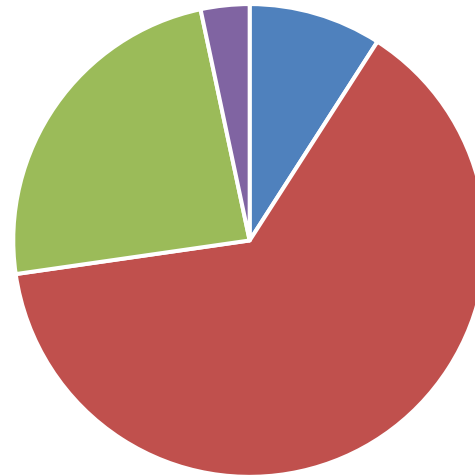
Type of Amplification



- None (9.5%)
- Hearing Aids (76.3%)
- CI (10.9%)
- Bone Conduction (3.3%)

## Final Assessment

Type of Amplification



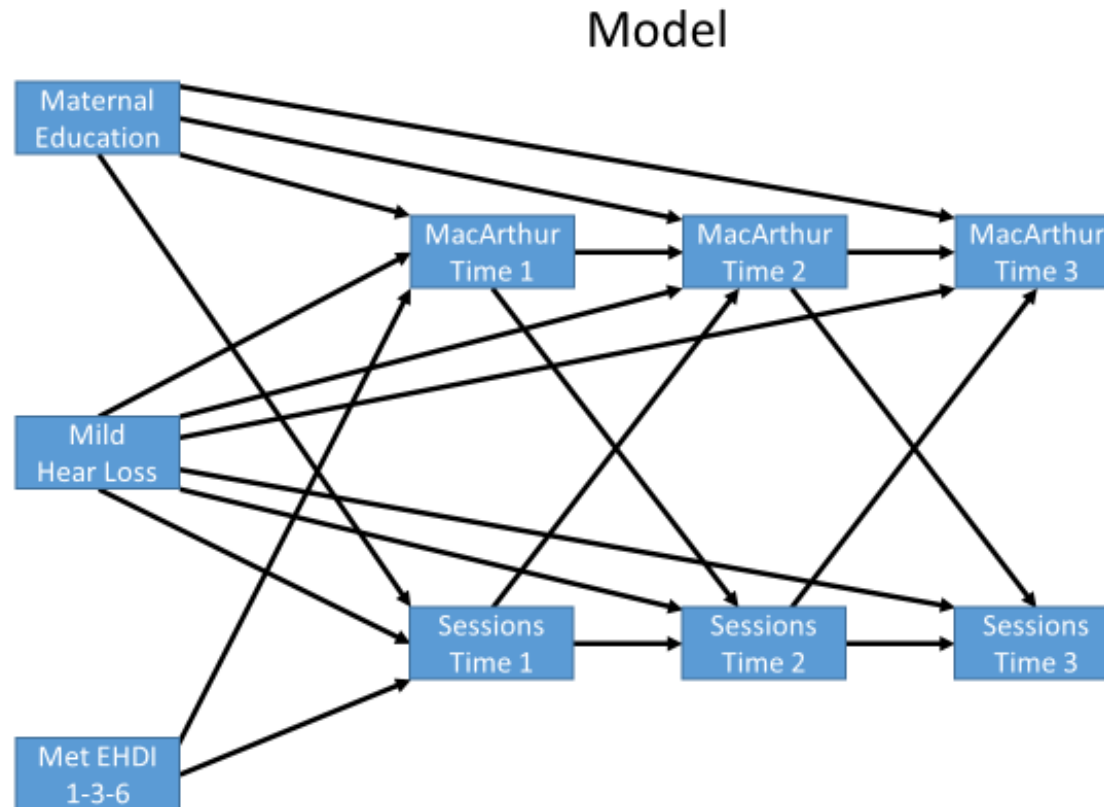
- None (9%)
- Hearing Aids (63%)
- CI (23.7%)
- Bone Conduction (3.3%)



# Model



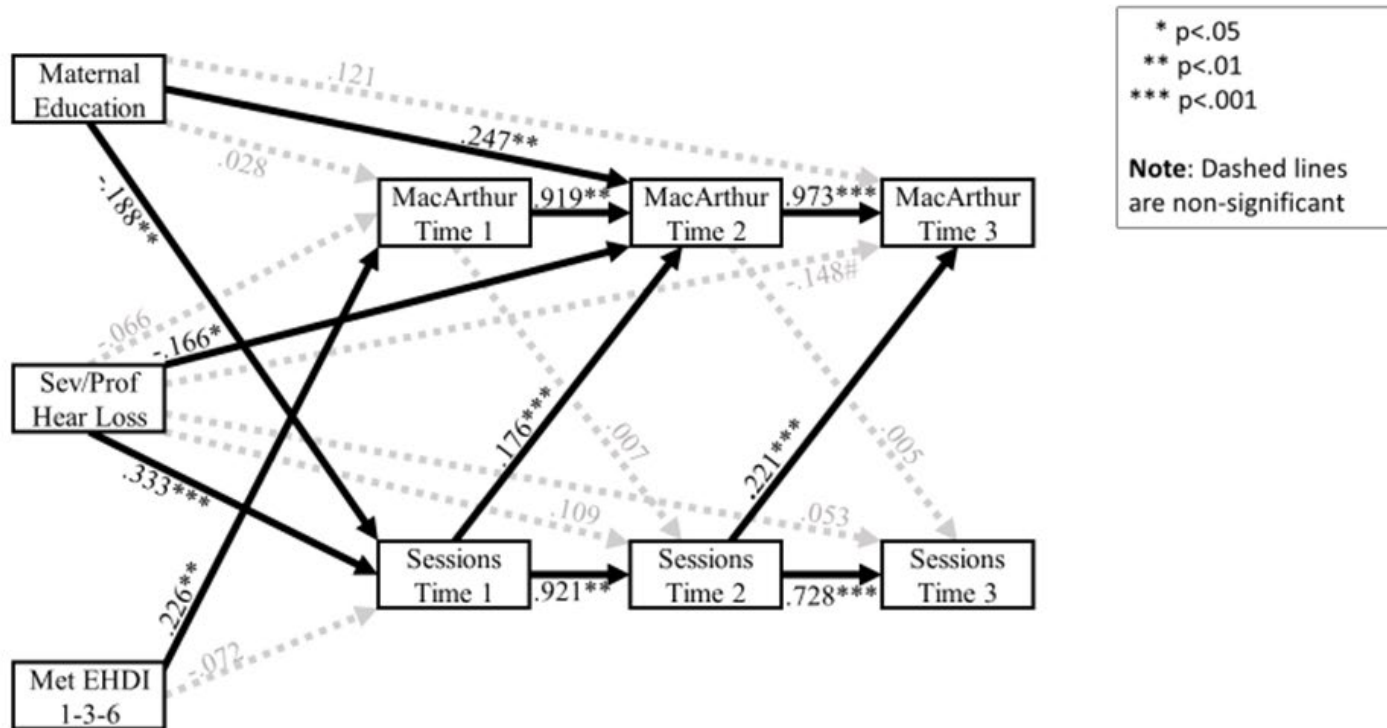
# Structural equation model predicting MacArthur performance and number of sessions over time



# **Part 3 -- Analysis & Results**



# Results of Structural Equation Model



# Findings

- **Hearing Loss:**

- Having a mild/moderate hearing loss, rather than moderate/severe to profound hearing loss, was associated with fewer sessions at both Time 1 and Time 3, and was marginally significant at Time 2.
- A mild/moderate hearing loss, rather than moderate/severe to profound, was also associated with higher MacArthur scores at Time 2.

- **Maternal Education:**

- Maternal education was negatively related to the number of sessions at Time 1, with children of more educated mothers initially receiving fewer sessions.
- Finally, maternal education was positively related to MacArthur scores at Time 2, reflecting higher language skills for children of more educated mothers.

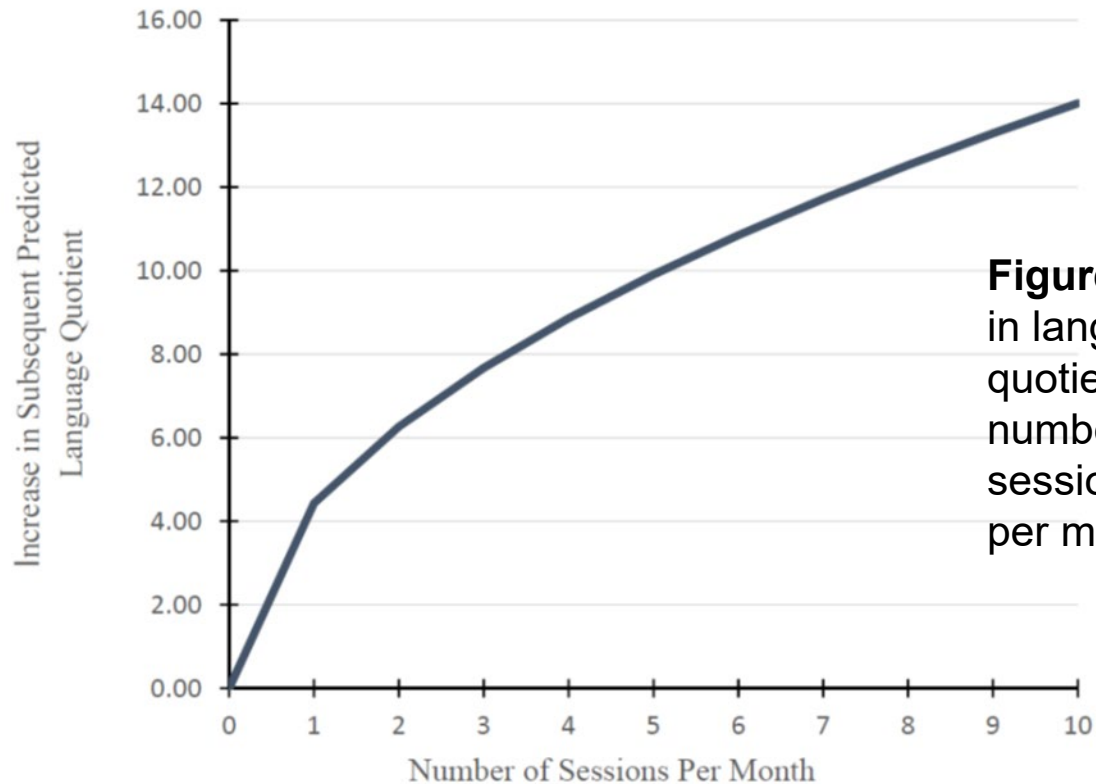


# Findings

- **Language Scores – Intensity of Intervention**
  - increased number of sessions at Time 1 predicting future MacArthur scores at Time 2,
  - and number of sessions at Time 2 predicted future MacArthur score at Time 3
- **Additionally –**
  - In contrast, language scores at Time 1 were not associated with the subsequent number of sessions at Time 2; however, higher language scores at Time 2 were predictive of subsequently fewer sessions at Time 3.



# Findings



**Figure.** Increase in language quotient by number of sessions reported per month.



**To the providers...**

**To the Part C supervisors...**

**To the pediatricians...**

**To the parents...**

**The message.**



**Our work continues...**

**ODDACE (Outcomes and Developmental  
Data Assistance Center for Early Hearing  
Detection and Intervention)**



# Thank you for attending!

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