

RI EARLY INTERVENTION and RI EHDI

Measuring Language Outcomes in Children Who Are Deaf or Hard of Hearing

Background and Implementation

BACKGROUND

The RI Department of Health's Early Hearing Detection and Intervention (EHDI) Program receives federal funding to improve outcomes for DHH children. This funding is specifically for the State EHDI programs to ensure DHH infants and children up to age 3 are identified as soon as possible and receive appropriate follow-up services to optimize language, literacy, cognitive, social, and emotional development.

Approximately 1.8 of every 1,000 U.S. newborns are documented as being identified early as congenitally Deaf or hard-of-hearing (DHH). Children continue to be identified as DHH through early childhood, and by kindergarten, the prevalence more than doubles.

Despite success in achieving near-universal newborn hearing screening rates, significant gaps remain, including timely diagnostic audiological evaluation, enrollment in Early Intervention services and reducing loss to follow-up and documentation. Additional challenges include limited family engagement, DHH-specific support services, parent knowledge about the availability and importance of EI, and pediatric provider knowledge of the 1-3-6 recommendations.

The RI EDHI program is funded by HRSA, the Health Resources and Services Administration, Maternal and Child Health, and is charged with monitoring "statewide newborn, infant, and young child hearing screening, evaluation, diagnosis, and intervention programs and systems." Requirements for this funding include:

- Engaging EHDI system stakeholders at the state/territory level to improve language acquisition outcomes,
- Identifying, collecting, and reporting language acquisition outcomes
- Disaggregating data to identify populations and address disparities in language acquisition outcomes

MEASURING LANGUAGE OUTCOMES

Early Intervention has been working with the RI EHDI Program to develop a plan to collect and document language outcomes in children who are Deaf and hard of hearing. RI EHDI has contracted with Dr. Allison Sedey from the University of Colorado-Boulder. Dr. Sedey has

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worked with numerous other states to score their assessment tools, collect data, and report that data back to the state from which it originated.

WHY THIS IS IMPORTANT

The acquisition of language is directly tied to cognition and early literacy. Deaf and Hard of Hearing children do not acquire language in the way their hearing peers do. Hearing children pick up on what they hear on television, when those around them are talking, and when they are spoken to in their native language. Deaf or HH children do not have the opportunity to incidentally pick up on all the language that surrounds them. Without proper intervention, these delays in early language compound as the complexity and the demand for language grow. Data show that children who are Deaf or Hard of Hearing fail to make progress beyond the identification of a limited number of words ([Scarborough, 2001](#)). Normative data indicate that approximately half of Deaf students read below the fourth-grade level at the end of high school ([Traxler, 2000](#)). Most hearing children are competent language users when they begin to map reading onto existing phonological, syntactic, and semantic skills. The frequently reported low literacy levels among deaf students are, in part, due to the discrepancy between their incomplete spoken language system and the demands of reading a speech-based system ([Perfetti & Sandak, 2000](#)). ¹

In RI, we want to measure the language development for our Deaf and Hard-of-Hearing toddlers, then make data-driven decisions on how to make improvements.

THE PLAN

Beginning Fall 2025

- Training on the administration of the MacArthur Bates Communicative Development Inventories (MBCDI) for all staff who work with children who are DHH. Will be 2 sessions available. Participants choose 1.

¹ Geers AE, Hayes H. Reading, writing, and phonological processing skills of adolescents with 10 or more years of cochlear implant experience. *Ear Hear.* 2011 Feb;32(1 Suppl):49S-59S. doi: 10.1097/AUD.0b013e3181fa41fa. PMID: 21258612; PMCID: PMC3023978.

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<ul style="list-style-type: none">• RI Early Intervention providers will begin to administer the MBCDI to all children identified as Deaf or Hard of Hearing as close to schedule as possible (15, 24, and 33 months old, all +/- 3 months)
<ul style="list-style-type: none">• EI will obtain parental consent to share the MBCDI record form, assessment cover sheet, and the child and family demographics information
<ul style="list-style-type: none">• MBCDI record forms will be sent, via secure email to Allison Sedey, Ph.D., CCC-SLP, CCC-A, Early Language Outcomes Lab (ĒLO) at the University of Colorado-Boulder for scoring, data entry, and sharing of results back to EI and EHDI
<ul style="list-style-type: none">• EI will share results of the MBCDI with the family
<ul style="list-style-type: none">• EHDI will enter MBCDI scores into KIDSNET for ongoing assessment of progress

(See [Appendix A](#) for more information on the MacArthur Bates evaluation tool.)

The MBCDI is a parent report, norm-referenced instrument that captures important information about a child’s developing abilities in early language, including vocabulary, comprehension, word production, gestures, and grammar. It is available in both English and Spanish. The tool has been adapted with permission by the team at the University of Colorado-Boulder for children whose families use both spoken and sign language.

The MBCDI is available as a fillable PDF form or can be printed and completed by hand.

THE MBCDI CONSENT, COVERSHEET, RECORD FORM, and DEMOGRAPHICS

CONSENT

See Appendix B.

With parental permission, each MBCDI record form will be sent to Dr. Sedey at the University of Colorado, along with three forms: a) Release of Information, b) Coversheet, and c) Demographics. The consent will cover the:

- Sharing the MBCDI record form with Dr Sedey
- Sharing the demographics form with Dr Sedey

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- Entering the child's MBCDI results and demographics for scoring and sharing of results back to EI and EHDI
- Allowing the child's MBCDI results to be shared with the RI EHDI program,
- Allowing RI EHDI to enter the child's MBCDI scores into the KIDSNET database for analysis.

Once scored, the EI provider will receive a short report of the child's MBCDI scores to review with the parents.

Remind families that the child's data will only be shared with the parties identified on the release form and cannot be re-released without the parents' specific permission.

COVERSHEET

See Appendix C.

The EI provider should complete the Coversheet, checking in with the family for information if needed.

DEMOGRAPHICS

See Appendix D.

EI should work with the family to complete as much of the demographics form as possible. This information will be used to help RI EI and RI EHDI better understand other factors that may impact a child's ability to acquire language and inform the language outcomes data. For example, a child who is Deaf only should acquire language at the same rate as their typical peers. Children who are Deaf Plus may have other developmental concerns that will impact the rate at which they acquire language. This distinction will be important when looking at data over time.

RESULTS

See Appendix E.

The University of Colorado will score the MBCDI, record and store this data, and return a narrative report and a summary sheet tailored to the assessment completed (i.e., WG = Words & Gestures, WS = Words & Sentences, Lev3 = Level 3).

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APPENDIX A

The MacArthur-Bates Communicative Development Inventories (MBCDIs) are instruments that can be used to measure a child's early language development across a variety of abilities, including vocabulary comprehension, production, gestures, and grammar.

3 Age-Based Versions Available:

Words and Gestures: 8-18 months <ul style="list-style-type: none">• <i>Receptive vocabulary</i>• <i>Expressive vocabulary</i>• <i>Communicative gestures</i>• <i>Symbolic play and use of objects</i>	Words and Sentences (18-30 months): <ul style="list-style-type: none">• <i>Productive vocabulary</i>• <i>Early phases of grammar</i>
Level 3 (31-37 months) <ul style="list-style-type: none">• <i>Vocabulary production</i>• <i>Grammar</i>• <i>Advanced language use</i>	

Administration Format: parent report with support from their EI provider; forms should be reviewed for accuracy by the EI provider, and families should be re-instructed and supported as needed to observe and report all information as accurately as possible.

Administration: 20-40 minutes

Reliability (Dale 1989):

- Internal Consistency: good (alphas ranged from 0.67-0.96)
- Test-Retest: good (alphas ranged from 0.86-0.95)

Validity (Dale 1989): tests using the Bayley Scales of Infant Development suggested correlations across MDI vocabulary measures, consistent with a four-month delay between parent report and standardized test.

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APPENDIX B

Parental Consent for Language Outcomes

Sharing Information and Data with ELO at University of Colorado, Boulder and RI EHD



RI Early Intervention Release of Information

Language Outcomes for Children who are Deaf or Hard of Hearing

The purpose of this release is to help agencies in Rhode Island that support families of children who are Deaf or Hard of Hearing to learn more about the children's language strengths and challenges and to identify factors associated with successful language outcomes.

The results of your child's MacArthur-Bates Communicative Development Inventory (MBCDI) assessment and information from the Coversheet and Demographic forms will be:

- Combined with information from other children in a database at the University of Colorado-Boulder.
- Shared with the RI Department of Health, RI Early Hearing Detection and Intervention (RI EHD).
 - RI EHD is the state agency responsible for collecting newborn hearing screening data and audiological reports to ensure all babies receive a hearing screen at birth, and if needed, receive timely diagnostic audiology and early intervention services.
- Entered in your child's KIDSNET record.
 - KIDSNET is Rhode Island's confidential computerized child health information system for all children in RI, administered by the Rhode Island Department of Health. It will be used by RI EHD to analyze data for all children participating in this project.

The results of your child's MacArthur-Bates Communicative Development Inventory will also be returned to your EI Service Coordinator, who will provide you with a copy and review the results with you.

We need your consent to allow us to share the Cover Sheet, MBCDI record form, results, and your demographic data with Dr. Allison Sedey at the University of Colorado-Boulder. Your consent is also needed to allow Dr. Allison Sedey at the University of Colorado-Boulder to share the results of the assessments with the RI Early Hearing Detection and Intervention Program and to allow the RI EHD to enter the results into your child's KIDSNET record.

I give my permission for to share the following information with Dr. Allison Sedey at the University of Colorado – Boulder, 409 UCB, Boulder, CO 80309, Allison.sedey@colorado.edu.

I agree to send the following to Dr Sedey:

- ☐ MacArthur-Bates Communicative Developmental Inventory Record Form (MBCDI)
(This is the record form for the assessment you completed with your EI provider about your child's language skills.)
- ☐ Coversheet *(This form will accompany your child's MBCDI unscored record form when it is sent to Dr. Sedey. It includes the primary languages used the home, and information on your child's hearing loss.)*

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- ☐ Parent/Child Demographics Form-Initial *(This is the form you completed with your EI provider that contains your name, city, state, zip code, your child's date of birth, race, information about your child's hearing loss, and about your household.)*
- ☐ Parent/Child Demographics Form-Follow Up *(This is the form completed when a repeat MacArthur- Bates Communicative Developmental Inventory is completed and sent to Dr. Sedey.)*

I agree to the following:

- ☐ I give my permission for Dr. Allison Sedey at the University of Colorado – Boulder to release the results of my child's *MacArthur-Bates Communicative Development Inventory (MBCDI)*, *Coversheet*, and *Parent/Child Demographics Form-Initial and/or the Parent/Child Demographics Form-Follow Up*, to the RI Early Hearing Detection and Intervention Program (RI EHDI).
- ☐ I give my permission for RI EHDI to enter the results of my child's *MBCDI*, *Coversheet*, and the *Parent/Child Demographics Form-Initial and/or the Parent/Child Demographics Form-Follow Up* information into my child's KIDSNET record.
- ☐ I understand I have the right to refuse to sign this form. I understand that my refusal will not affect my child's enrollment in RI Early Intervention (EI) or the services they receive. My child can continue to be assessed with the MBCDI, and the results will be documented in my child's EI record.
- ☐ I understand the results of my child's MBCDI and Parent/Child Demographics will not be re-released in any form other than to the designees above.
- ☐ I understand I have the right to a copy of this form on request.
- ☐ I understand that I am providing my consent voluntarily, and I understand the information on this form. I have the right to withdraw my consent at any time.

This release will remain in effect for one year from the date stated below. I understand that I may revoke my consent at any time. Revoking my consent does not apply to activities that were already completed with my previous written consent. I must submit a written revocation to Allison Sedey (Allison.sedey@colorado.edu). My EI Service Coordinator can assist me in revoking consent to any part of this release.

Child's Name

Child's Date of Birth

Parent/Guardian Signature

10/13/25

SAVE AS

PRINT

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APPENDIX C
Cover Sheet

Assessment Coversheet

Child's Name: State: Sex: ☐ M ☐ F

Primary home language: ☐ English ☐ Spanish ☐ Other:

Hearing Difference: ☐ Bilateral ☐ Unilateral

Auditory Neuropathy: ☐ Yes ☐ No

Children with **bilateral** hearing difference, check hearing level in the BETTER ear
Children with **unilateral** hearing difference, check hearing level in the AFFECTED ear

- ☐ Mild (PTA = 25 to 40 dB) ☐ Severe (PTA = 71 to 90 dB)
☐ Moderate (PTA = 41 to 55 dB) ☐ Profound (PTA > 90 dB)
☐ Moderate-Severe (PTA = 56 to 70 dB)

Contact information for the *professional who is facilitating this evaluation* in case we have questions (and so we know where to send results):

Name: Phone:
E-Mail:

Send all completed assessments and forms to: elo@colorado.edu

Comments (if any):

form revised & fillable created on 1-9-2023

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Demographics Initial

FAMILY INFORMATION		
1. Is there a deaf or hard-of-hearing adult in the home? <input type="checkbox"/> yes <input type="checkbox"/> no -- If yes, does that person use sign language? <input type="checkbox"/> yes <input type="checkbox"/> no <input type="checkbox"/> N/A		
2. In the table: a) list the adult(s) living with the child by their relationship to the child (e.g., mother) b) include each adult's date of birth, c) check the highest degree completed by each person		
	Adult 1: <input type="text"/> Date of birth: <input type="text"/>	Adult 2: <input type="text"/> Date of birth: <input type="text"/>
Did not complete HS	Last grade completed: <input type="text"/>	Last grade completed: <input type="text"/>
High School Diploma	<input type="checkbox"/>	<input type="checkbox"/>
Vocational Degree	<input type="checkbox"/>	<input type="checkbox"/>
Associate Degree	<input type="checkbox"/>	<input type="checkbox"/>
Bachelor's Degree	<input type="checkbox"/>	<input type="checkbox"/>
Master's Degree	<input type="checkbox"/>	<input type="checkbox"/>
J.D. or Ed D	<input type="checkbox"/>	<input type="checkbox"/>
M.D.	<input type="checkbox"/>	<input type="checkbox"/>
Ph.D.	<input type="checkbox"/>	<input type="checkbox"/>

3. Mode of communication currently used by adults in the home with the child:		
<input type="checkbox"/> spoken language only	<input type="checkbox"/> spoken language with occasional signs	
<input type="checkbox"/> speech + sign	<input type="checkbox"/> sign only (no spoken language)	<input type="checkbox"/> Cued Speech
<input type="checkbox"/> Augmentative/Alternative Communication (AAC) system(s): <input type="text"/>		

4. Mode of communication currently used by the child :		
<input type="checkbox"/> none yet	<input type="checkbox"/> spoken language only	<input type="checkbox"/> spoken language with occasional signs
<input type="checkbox"/> speech + sign	<input type="checkbox"/> sign only (no spoken language)	<input type="checkbox"/> Cued Speech
<input type="checkbox"/> Augmentative/Alternative Communication (AAC) system(s): <input type="text"/>		

5. Age hearing loss was confirmed by an audiologist: <input type="text"/> months of age		
4. Age first received hearing technology: <input type="text"/> months of age		
5. Age intervention associated with communication first started: <input type="text"/> months of age		
6. Cause of hearing loss:		
<input type="checkbox"/> Unknown	<input type="checkbox"/> EVA (Enlarged Vestibular Aqueduct)	
<input type="checkbox"/> Atresia	<input type="checkbox"/> Genetic/hereditary	
<input type="checkbox"/> CHARGE	<input type="checkbox"/> Goldenhar syndrome	
<input type="checkbox"/> Cleft palate	<input type="checkbox"/> Meningitis	
<input type="checkbox"/> CMV (Cytomegalovirus)	<input type="checkbox"/> Ototoxicity	
<input type="checkbox"/> Cochlear dysplasia	<input type="checkbox"/> Pendred syndrome	
<input type="checkbox"/> Cornelia de Lange syndrome	<input type="checkbox"/> Treacher Collins syndrome	
<input type="checkbox"/> Down syndrome	<input type="checkbox"/> Usher syndrome	
<input type="checkbox"/> Auditory nerve absent/insufficiency		
<input type="checkbox"/> Stickler syndrome and/or Pierre Robin sequence		
<input type="checkbox"/> Other (describe): <input type="text"/>		
7. Current hearing technology owned or on loan (even if not currently used):		
<input type="checkbox"/> None	<input type="checkbox"/> Hearing aid(s)	
<input type="checkbox"/> FM/DM system	<input type="checkbox"/> Cochlear implant*	
<input type="checkbox"/> Bone conduction device (BAHA or similar)		
*If the child has a cochlear implant...		
First CI -- Date implanted: <input type="text"/> Date activated: <input type="text"/>		
Second CI -- Date implanted: <input type="text"/> Date activated: <input type="text"/>		
8. Current hearing technology use:		
<input type="checkbox"/> None -- has/had hearing technology but doesn't use		
<input type="checkbox"/> N/A -- never had hearing technology		
<input type="checkbox"/> 1-3 hrs/day <input type="checkbox"/> 4-5 hrs/day <input type="checkbox"/> 6-8 hrs/day <input type="checkbox"/> > 8 hrs/day		

ADDITIONAL DISABILITIES			
Please check issues that are formally diagnosed and/or suspected:			
<input type="checkbox"/> No other disabilities	<input type="checkbox"/> Vision impairment or blind		
<input type="checkbox"/> Brain injury	<input type="checkbox"/> Seizures/Epilepsy		
<input type="checkbox"/> Cerebral palsy (CP)	<input type="checkbox"/> Emotional		
<input type="checkbox"/> Cognitive delay	<input type="checkbox"/> Motor		
<input type="checkbox"/> Autism Spectrum Disorder	<input type="checkbox"/> Behavioral		
<input type="checkbox"/> Balance disorder	<input type="checkbox"/> Cleft lip/palate		
<input type="checkbox"/> Significant medical issues	<input type="checkbox"/> Sensory/Motor processing/integration		
<input type="checkbox"/> Other disability (please explain): <input type="text"/>			
Rate the effect of any disabilities the child has (other than hearing loss) on his/her speech/language development:			
<input type="checkbox"/> 1 No disabilities other than hearing loss			
<input type="checkbox"/> 2 One or more other disabilities, but they do not interfere with speech/language			
<input type="checkbox"/> 3 One or more other disabilities that provide minimal obstacles to speech/language			
<input type="checkbox"/> 4 One or more other disabilities that provide moderate obstacles to speech/language			
<input type="checkbox"/> 5 One or more other disabilities that provide significant obstacles to speech/language			
EDUCATION AND INTERVENTION			
Child attends preschool/kindergarten (do NOT include daycare): <input type="checkbox"/> Yes <input type="checkbox"/> No			
If yes, please complete the following:			
Name of School: <input type="text"/> Teacher's Name: <input type="text"/>			
In this table include services that the child/family currently receives at least once a month . Do not include services that happen while the child is in school. List each intervention just ONCE (wherever it fits best).			
Type of Intervention	Typical delivery mode	Sessions per month	Minutes per session
Early intervention in the home associated with communication	<input type="checkbox"/> telehealth <input type="checkbox"/> in person <input type="checkbox"/> hybrid	<input type="text"/>	<input type="text"/>
Interventionist's Name: <input type="text"/>			
Program/Agency's Name: <input type="text"/>			
Early intervention (individual) outside the home associated with communication (e.g., in a clinic, hospital, private office)	<input type="checkbox"/> telehealth <input type="checkbox"/> in person <input type="checkbox"/> hybrid	<input type="text"/>	<input type="text"/>
Interventionist's Name: <input type="text"/>			
Clinic/Facility's Name: <input type="text"/>			
Speech or auditory therapy in the home	<input type="checkbox"/> telehealth <input type="checkbox"/> in person <input type="checkbox"/> hybrid	<input type="text"/>	<input type="text"/>
Speech Therapist's Name: <input type="text"/>			
Program/Agency's Name: <input type="text"/>			
Speech or auditory therapy (individual) outside the home	<input type="checkbox"/> telehealth <input type="checkbox"/> in person <input type="checkbox"/> hybrid	<input type="text"/>	<input type="text"/>
Speech Therapist's Name: <input type="text"/>			
Clinic/Facility's Name: <input type="text"/>			
Deaf/Hard-of-hearing instruction	<input type="checkbox"/> telehealth <input type="checkbox"/> in person <input type="checkbox"/> hybrid	<input type="text"/>	<input type="text"/>
Mentor/Instructor's Name: <input type="text"/>			
Program/Agency's Name: <input type="text"/>			
Sign language class in the home	<input type="checkbox"/> telehealth <input type="checkbox"/> in person <input type="checkbox"/> hybrid	<input type="text"/>	<input type="text"/>
Teacher's Name: <input type="text"/>			
Program's Name: <input type="text"/>			
Early intervention (toddler) group	<input type="checkbox"/> telehealth <input type="checkbox"/> in person <input type="checkbox"/> hybrid	<input type="text"/>	<input type="text"/>
Interventionist/Teacher's Name: <input type="text"/>			
Facility/School's Name: <input type="text"/>			
Occupational Therapy (OT)	<input type="checkbox"/> telehealth <input type="checkbox"/> in person <input type="checkbox"/> hybrid	<input type="text"/>	<input type="text"/>
Physical Therapy (PT)	<input type="checkbox"/> telehealth <input type="checkbox"/> in person <input type="checkbox"/> hybrid	<input type="text"/>	<input type="text"/>
Other - describe: <input type="text"/>	<input type="checkbox"/> telehealth <input type="checkbox"/> in person <input type="checkbox"/> hybrid	<input type="text"/>	<input type="text"/>
Program/Agency: <input type="text"/>			

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Appendix E

SAMPLE REPORTS

MacArthur Communicative Development Inventory: Words and Sentences (2007)

This measure provides an estimate, based on parent report, of how a child uses words and sentences to communicate. It is normed on hearing children from 16 to 30 months.

Name: AJ Sex: Male
Date of Birth: XX/XX/2021 Date of Evaluation: XX/XX/2023 Age: 25 months

Note: N/A = Not Applicable – child's chronological age is outside the test norms.

PART I: Words Children Use			
Vocabulary Checklist			
Total Words Produced	94	Words Spoken Only	35
Age Score	19 mos.	Words Signed Only	3
Percentile	13th	Words Both Spoken & Signed	56

How Children Use Words		
	Response	% of 25-month-olds who do this sometimes/often
Talks about the past	No	76%
Talks about things that will happen in the future	No	79%
Talks about things that are out of view, missing, or not present	Sometimes	91%
Understands when someone asks for something not present	Sometimes	95%
Names the owner of an object when the owner is not present	No	94%

PART II: Sentences & Grammar		
Word Endings		
	Response	% of 25-month-olds who do this sometimes/often
Uses plural endings ("___s" as in "dogs")	Sometimes	69%
Uses possessive endings ("___s" as in "mommy's")	No	74%
Uses progressive endings ("___ing" as in "running")	Sometimes	65%
Uses past tense endings ("___ed" as in "walked")	No	36%

Irregular Nouns & Verbs		Longest Sentences	
Total	1	Average of 3 Longest Sentences	3.50
Age Score	22-23 mos.	Age Score	24-25 mos.
Percentile	30th	Percentile	45th

Combining Words		
	Response	% of 25-month-olds who do this sometimes/often
Is the child combining words?	Yes	88%

DEVELOPMENTAL ASSESSMENT

Outcomes & Developmental Data Assistance Center (ODDAC)

Name: JP Age: 15 months
Date of Birth: XX/XX/XXXX Date of Testing: XX/XX/2023

Overall Development

Developmental Assessment of Young Children – 2 (DAYC-2). This assessment was normed on hearing children between 1 month and 5 years, 11 months of age. It provides developmental information in seven areas. It also includes an overall composite score. JP's composite score fell at the 81st percentile. Age equivalent scores and percentile ranks for each of the seven domains are provided below.

Areas within Age Expectations	Developmental Age (months)	Percentile Rank
Cognitive	18	73
Receptive Communication	12	34
Expressive Communication	14	47
Social-Emotional	27	97
Gross Motor	20	77
Adaptive Behavior	22	93

Areas below Age Expectations	Developmental Age (months)	Percentile Rank
Fine Motor	6	10

For standard scores and a graphic representation of JP's results, please see the DAYC-2 graph accompanying this report.

Language

MacArthur Communicative Development Inventory: Words and Gestures. This measure provides an estimate, based on parent report, of the words and gestures a child uses to communicate. It is normed on hearing children from 8 to 16 months of age.

Phrases: JP understands 20 out of the list of 28 phrases. This is typical of a child at 15 months of age and falls at the 50th percentile.

Receptive Vocabulary: JP understands 143 words from the list of 396 words. This is typical of a child at 15 months of age and falls at the 50th percentile.

Expressive Vocabulary: JP uses 8 words from the list of 396 words. This is typical of a child at 14 months of age and falls at the 30th percentile. Of the words JP uses, 3 are produced using spoken language only, 5 are produced using sign language only, and none are produced using both spoken and sign language.

Gestures: JP uses 15 out of the list of 18 early gestures. This is typical of a child between 16 and 17 months of age and falls at the 85th percentile. He uses 20 out of the list of 45 later gestures. This is typical of a child between 14 and 15 months of age and falls at the 40th percentile. He uses 35 out of the list of 63 total gestures. This is typical of a child at 15 months of age and falls at the 48th percentile.

For additional information about how JP uses words, please refer to the MacArthur summary sheet accompanying this report.