



## The Vermont Parent Infant Program (PIP) Experience With Language Assessments For Deaf, Hard of Hearing and DeafBlind Children Birth to 3 Years of Age

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Vermont Early Hearing Detection & Intervention (VTEHDI) Program and VT Parent Infant Program  
Vermont Department of Health/University of  
Vermont Medical Center (UVMCC)

# VTEHDI and the Parent Infant Program

Part C Program in Vermont: All children who are Deaf, Hard of Hearing or DeafBlind qualify for services.

Providers: Qualified, specialized and licensed

- Teachers of the Deaf and Hard of Hearing
- Speech Language Pathologists
- Educational Audiologists



# Partnering with ODDACE and the University of Colorado

Training: Allison Sedey trained all providers April of 2023.

Language Assessments:

- SKI-HI Language Development Scale (LDS)
- MacArthur-Bates Communicative Development Inventory
- DAYC- 2 Developmental Assessment of Young Children

Timing of Assessments in Vermont:

- 8 months of age
- 14 months of age
- 20 months of age
- 26 months of age
- 32 months of age

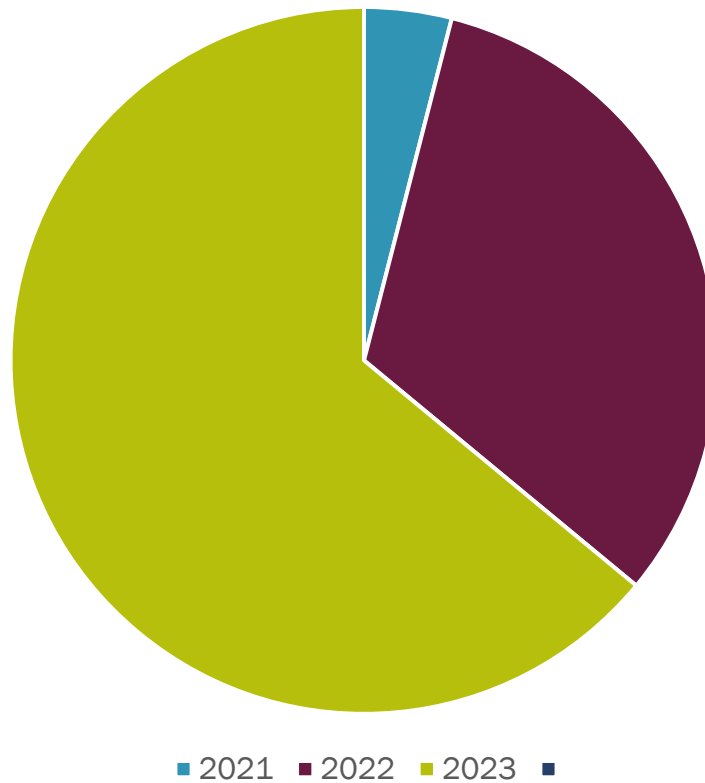


# Vermont Goals For Language Assessments

1. Analyze the language acquisition and developmental milestone data for example by region, race/ethnicity, gender, family structure, socio-economic status, family structure, parent education.
2. Identify services to enhance and improve language acquisition: Results shared with families.
3. Identify EHDI-IS Database enhancements.
4. Annual Report: Aggregate Data including demographics to be shared with key partners.

# Early Intervention Language Assessments

Individual Language Assessments



# Vermont Demographics

<b>Demographic Characteristic</b>	<b>UVM</b>	<b>ODDACE</b>
Hispanic ethnicity	14%	40%
White race	91%	84%
English is the primary language of the home	100%	86%
Passed newborn hearing screening	17%	7%
Acquired loss	13%	4%
Bilateral: Mild/mod hearing levels	82%	64%
Unilateral: Mild/mod hearing levels	75%	40%
Primarily spoken language used with the child	70%	84%
Deaf/hh adult(s) in the home use sign language	0%	29%
Bilateral children with no hearing technology	25%	9%
Unilateral children with no hearing technology	29%	17%
Number of indiv intervention sessions per month	5.4	4.6
Number of min of indiv intervention per month	322	259

# Vermont Demographics Continued

<b>Sex</b>	<b>UVM</b>	<b>ODDACE</b>
Boy	50%	55%
Girl	50%	45%

<b>Ethnicity</b>	<b>UVM</b>	<b>ODDACE</b>
Not Hispanic	86%	60%
Hispanic	14%	40%

<b>Race</b>	<b>UVM</b>	<b>ODDACE</b>
White	91%	84%
Native/American Indian	0%	1%
Hawaiian/Pacific Islander	0%	<1%
Black/African American	0%	4%
Asian	0%	3%
Two or more races	9%	7%

# Demographics Continued

Additional disabilities thought to interfere with speech/language development	UVM	ODDACE
No additional disabilities	70%	76%
Has additional disabilities	30%	24%

Laterality	UVM	ODDACE
Bilateral	69%	70%
Unilateral	31%	30%

Newborn hearing screening result	UVM	ODDACE
Referred	78%	89%
Passed	17%	7%
Not screened	0%	3%
Result unknown	4%	1%
Onset of hearing loss	UVM	ODDACE
Congenital	74%	91%
Acquired	13%	4%
Unknown	13%	5%



# Demographics Bilateral versus Unilateral

Degree of hearing loss (children with bilateral loss)	UVM	ODDACE
Mild	55%	41%
Moderate	27%	23%
Moderate-severe	9%	12%
Severe	0%	7%
Severe or profound	9%	9%
Profound	0%	7%

Degree of hearing loss (children with unilateral loss)	UVM	ODDACE
Mild	50%	16%
Moderate	25%	24%
Moderate-severe	0%	23%
Severe	0%	15%
Severe or profound	24%	10%
Profound	0%	12%

# Hearing Technology

Type of Amplification (children with bilateral loss)	UVM	ODDACE
Hearing aids	56%	62%
Cochlear implant	6%	18%
Cochlear implant + hearing aid	0%	2%
Bone conduction aid	13%	9%
None	25%	9%

# Communication Mode

	UVM	ODDACE
Primarily spoken language	70%	84%
Spoken language only	17%	40%
Spoken language with very occasional sign	52%	44%
Sign + spoken language	30%	15%
Sign language only	0%	1%

# DAYC-2 Mean Standard Scores

Subscale	UVM Bilateral	ODDACE Bilateral
Cognitive	104	103
Communication	102	96
Receptive	102	94
Expressive	101	97
Social-Emotional	107	105
Physical	94	97
Gross Motor	93	99
Fine Motor	95	95
Adaptive Behavior	100	102

# DAYC-2 Continued

Subscale	UVM Bilateral	ODDACE Bilateral
Cognitive	100%	95%
Communication	91%	77%
Receptive	100%	73%
Expressive	82%	80%
Social-Emotional	100%	96%
Physical	86%	95%
Gross Motor	75%	92%
Fine Motor	100%	97%
Adaptive Behavior	87%	93%

# MacArthur English Words and Sentences (CA = 19 to 30 months)

## *Percentiles: Words Produced*

Words produced	UVM Bilateral	ODDACE Bilateral
Mean	31 <sup>st</sup>	24 <sup>th</sup>
Range	5 <sup>th</sup> to 73 <sup>rd</sup>	<5 <sup>th</sup> to >99 <sup>th</sup>
Percent within average range	87%	61%
Percent at or above 50 <sup>th</sup> %ile	25%	17%

## *Percentiles: Irregular Nouns and Verbs (based on MacArthur's completed in English)*

Irregular Nouns & Verbs	UVM Bilateral	ODDACE Bilateral
Mean	32 <sup>nd</sup>	29 <sup>th</sup>
Range	5 <sup>th</sup> to 70 <sup>th</sup>	<5 <sup>th</sup> to >99 <sup>th</sup>
Percent within average range	71%	85%
Percent at or above 50 <sup>th</sup> %ile	43%	16%

# MacArthur Bates Continued

*Percentiles: Mean of the 3 Longest Utterances (M3L)*

Mean of 3 longest Utterances	UVM Bilateral	ODDACE Bilateral
Mean	24 <sup>th</sup>	27 <sup>th</sup>
Range	<5 <sup>th</sup> to 88 <sup>th</sup>	<5 <sup>th</sup> to >99 <sup>th</sup>
Percent within average range	56%	61%
Percent at or above 50 <sup>th</sup> %ile	19%	21%

# SKI Hi Language Development Scale

## *Mean Scores on the SKI-HI Language Development Scale*

	Bilateral Loss			Unilateral Loss	
Subscale	UVM	ODDACE		UVM	ODDACE
Receptive language	98	100		104	109
Expressive language	91	92		93	104

## *Percentage of children with a language quotient at or above 80*

	Bilateral Loss			Unilateral Loss	
Subscale	UVM	ODDACE		UVM	ODDACE
Receptive language	87%	82%		100%	83%
Expressive language	87%	74%		86%	75%



# SUMMARY

Measures in which children from UVM performed **similarly** to children from other programs participating in ODDACE

**DAYC-2:** Mean standard score and % of children in the average range

- Cognitive
- Expressive Language
- Social-Emotional
- Fine Motor
- Adaptive Behavior

**MacArthur Irregular Nouns and Verbs:** Mean percentile

**MacArthur Average of 3 Longest Utterances:** Mean percentile

**SKI-HI LDS - Bilateral Children:** Mean Language Quotient

# SUMMARY

Measures in which children from UVM performed **lower** than children from other programs participating in ODDACE

**DAYC-2:** Mean standard score and % of children in the average range

- Gross Motor

**MacArthur Irregular Nouns and Verbs:** % of children in the average range

**MacArthur Average of 3 Longest Utterances:** % of children in the average range

**SKI-HI LDS - Unilateral Children:** Mean Language Quotient

# SUMMARY

Measures in which children from UVM performed **higher** than children from other programs participating in ODDACE

**DAYC-2:** Mean standard score and % of children in the average range

- Receptive Language

**MacArthur Expressive Vocabulary:** Mean percentile and % of children in the average range

**SKI-HI LDS – Unilateral and Bilateral Children:** % of children in the average range

# Childhood Hearing Health System (CHHS) Test Database

## Language Outcomes

Additional disabilities thought to impact speech/language development

Yes
  No
  Unknown

### Developmental Assessment of Young Children (DAYC-2)

Date Completed:

Chronological Age (months):

### Scoring

Category	Cognitive	Communication	Social-Emotional	Physical	Adaptive	Receptive Language	Expressive Language	Gross Motor	Fine Motor	General Development
Age (Months) (Range 0.5 - 72.0)	<input type="text" value="###"/>	<input type="text" value="###"/>	<input type="text" value="###"/>	<input type="text" value="###"/>	<input type="text" value="###"/>	<input type="text" value="###"/>	<input type="text" value="###"/>	<input type="text" value="###"/>	<input type="text" value="###"/>	<input type="text" value="###"/>
Percentile (Range 0.05 - 99.95)	<input type="text" value="###"/>	<input type="text" value="###"/>	<input type="text" value="###"/>	<input type="text" value="###"/>	<input type="text" value="###"/>	<input type="text" value="###"/>	<input type="text" value="###"/>	<input type="text" value="###"/>	<input type="text" value="###"/>	<input type="text" value="###"/>

### MacArthur CDI: Words Produced

English Form
  Spanish Form

Date Completed:

Chronological Age (months):

= Select MacArthur Type =

Percentile (Range: 4.0 - 99.5)

NA - child not within test norms

Developmental Quotient

Expressive Vocabulary (Months): (Range 7.0 - 38.0)

NA - child not within test norms

Quotient:

Notes

# Questions....



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