



**Natural Sleep
Auditory Brainstem Response
Evaluations: Our Reality at
Kaiser Permanente Colorado**

Types of ABR Cases

	NBHS Follow up ABR	ABR in KASC with an ENT Procedure	ABR in KASC without an ENT Procedure	Natural Sleep ABR
2016	103	18	8	35
2017	153	18	5	25
2018	144	25	4	43
2019	112	24	3	47

Why Pursue a Natural Sleep ABR ?

- **MEDICALLY FRAGILE**
 - Extreme Prematurity
 - Post Meningitis
 - Diseases/Conditions
 - Lysosomal Storage Disease
 - GSW, attempted suicide
- **CONGENITAL CMV (Cytomegalovirus)**
- **SYNDROMES**
 - Trisomy 21, Down Syndrome
 - Waardenburg Syndrome
 - Usher's Syndrome
- **AUTISM or SUSPECTED AUTISM**

EVOKED POTENTIAL REPORT

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Franklin Facility
2045 Franklin St.
Denver, CO 80205

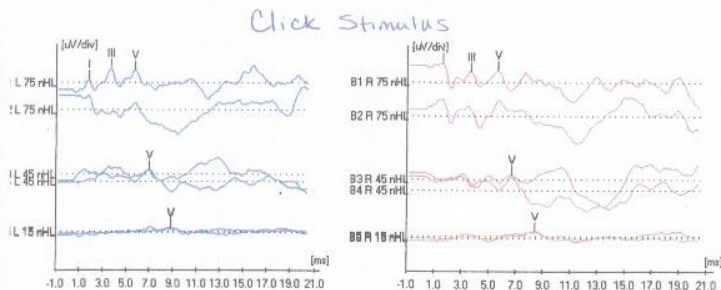
Patient: ██████ Birth date: 09/20/96 Physician:
ID#: ██████ Test date: 06/20/19 1:43:56 PM Test by: Herzberger-Kimball, M.S
06/27/19 8:15:08 AM L. Herzberger-Kimball, M.S

Gender: Male

Results:

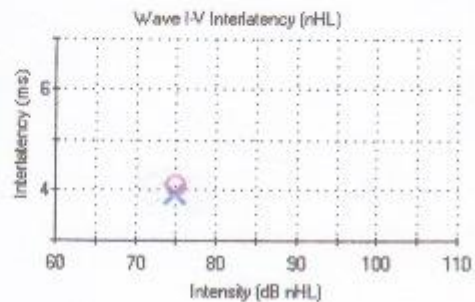
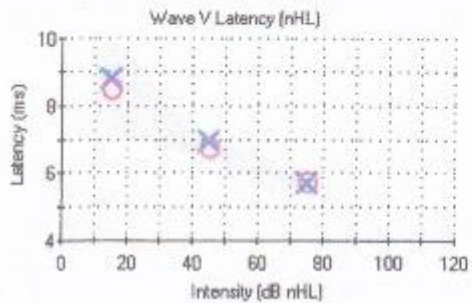
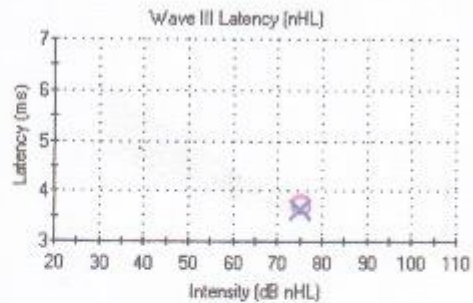
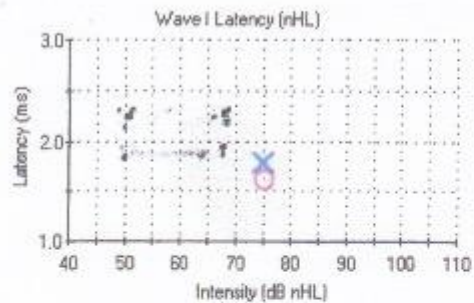
L. Herzberger-Kimball, M.S, CCCA

Replicable waveforms obtained to a click stimulus via air conduction presentation at 75, 45 and 15 dBnHL, bilaterally. A reversal of the polarity demonstrates a cochlear microphonic and replicable waveforms bilaterally. Absolute and InterPeak latencies are within normal limits bilaterally re: adult normative data. Latency/Intensity Function (LIF) curves follow the normal curve bilaterally re: the adult normative data. Replicable waveforms obtained to frequency specific stimuli, Tone Burst stimuli, at the following frequencies and intensity levels: 4000 Hz: 65 and 20 dBnHL, bilaterally; 2000 Hz: 65 and 20 dBnHL, bilaterally; 1000 Hz: 65 and 30 dBnHL, bilaterally; 500 Hz: 65 and 35 dBnHL, bilaterally. These results suggest normal auditory sensitivity for at least the 500-4000 Hz range bilaterally. It should be noted that the waveforms for 1000 and 500 Hz at 65 dBnHL printed in this report were obtained on June 20, 2019.



Collection Parameters						Latencies (ms)					Interlatencies (ms)		
Wave	Transducer	Ear	Intensity	Type	Frequency	I	II	III	IV	V	I-III	III-V	I-V
A1	Insert Earphones	Left	75dB nHL	Click	N/A	1.78		3.62		5.70	1.83	2.08	3.92
A2	Insert Earphones	Left	75dB nHL	Click	N/A								
A3	Insert Earphones	Left	45dB nHL	Click	N/A					6.95			
A4	Insert Earphones	Left	45dB nHL	Click	N/A					6.95			
A5	Insert Earphones	Left	15dB nHL	Click	N/A					8.78			
A6	Insert Earphones	Left	15dB nHL	Click	N/A					8.78			
B1	Insert Earphones	Right	75dB nHL	Click	N/A	1.62		3.70		5.70	2.08	3.00	4.08
B2	Insert Earphones	Right	75dB nHL	Click	N/A								
B3	Insert Earphones	Right	45dB nHL	Click	N/A					6.70			
B4	Insert Earphones	Right	45dB nHL	Click	N/A					6.70			

B5	Insert Earphones	Right	15dB nHL	Click	N/A	8.45
B6	Insert Earphones	Right	15dB nHL	Click	N/A	8.45

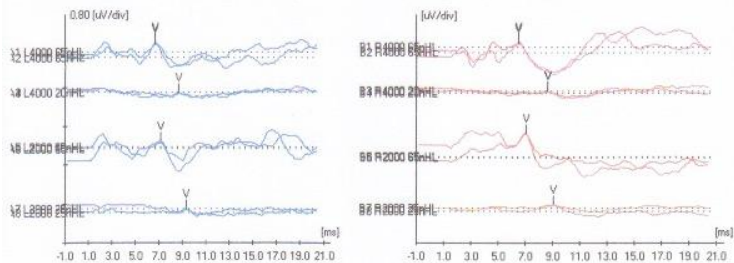


EVOKED POTENTIAL REPORT

Kaiser Permanente
Franklin Facility
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Denver, CO 80205

Patient: ██████████ Birth date: 09/20/96 Physician: ██████████
 ID#: ██████████ Test date: 06/27/19 8:15:08 AM Test: Hörzberger-Kimball, M.S.
 Gender: Male
 Results:

4000-2000 Hz Tone Burst Stimuli



Collection Parameters

Wave	Transducer	Ear	Intensity	Type	Frequency
A1	Insert Earphones	Left	65dB nHL	Tone Burst	4000
A2	Insert Earphones	Left	65dB nHL	Tone Burst	4000
A3	Insert Earphones	Left	20dB nHL	Tone Burst	4000
A4	Insert Earphones	Left	20dB nHL	Tone Burst	4000
A5	Insert Earphones	Left	65dB nHL	Tone Burst	2000
A6	Insert Earphones	Left	65dB nHL	Tone Burst	2000
A7	Insert Earphones	Left	25dB nHL	Tone Burst	2000
A8	Insert Earphones	Left	25dB nHL	Tone Burst	2000
B1	Insert Earphones	Right	65dB nHL	Tone Burst	4000
B2	Insert Earphones	Right	65dB nHL	Tone Burst	4000
B3	Insert Earphones	Right	20dB nHL	Tone Burst	4000
B4	Insert Earphones	Right	20dB nHL	Tone Burst	4000
B5	Insert Earphones	Right	65dB nHL	Tone Burst	2000
B6	Insert Earphones	Right	65dB nHL	Tone Burst	2000
B7	Insert Earphones	Right	25dB nHL	Tone Burst	2000

Latencies (ms)

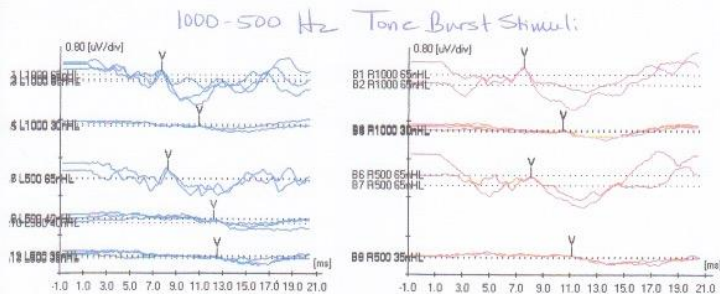
Interlatencies (ms)

Latencies (ms)					Interlatencies (ms)		
I	II	III	IV	V	I-III	III-V	I-V
				6.70			
				6.70			
				8.70			
				8.70			
				7.12			
				7.12			
				9.28			
				9.28			
				6.53			
				6.53			
				8.62			
				8.62			
				7.03			
				7.03			
				9.03			

EVOKED POTENTIAL REPORT

Kaiser Permanente
Franklin Facility
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Denver, CO 80205

Patient: [REDACTED] Birth date: 09/20/96 Physician:
 ID#: [REDACTED] Test date: 06/20/19 1:43:56 PM Test: Herzberger-Kimball, M.S.
 Gender: Male 06/27/19 8:15:08 AM L. Herzberger-Kimball, M.S.
 Results:

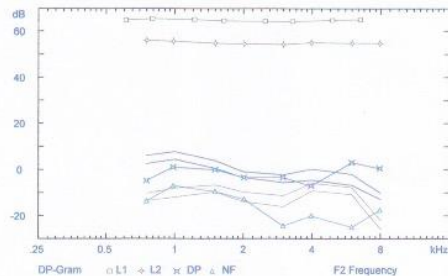


Collection Parameters						Latencies (ms)					Interlatencies (ms)		
Wave	Transducer	Ear	Intensity	Type	Frequency	I	II	III	IV	V	I-III	III-V	I-V
A1	Insert Earphones	Left	65dB nHL	Tone Burst	1000					7.70			
A2	Insert Earphones	Left	65dB nHL	Tone Burst	1000					7.70			
A3	Insert Earphones	Left	65dB nHL	Tone Burst	1000					7.70			
A4	Insert Earphones	Left	30dB nHL	Tone Burst	1000					10.86			
A5	Insert Earphones	Left	30dB nHL	Tone Burst	1000					10.86			
A6	Insert Earphones	Left	65dB nHL	Tone Burst	500					8.28			
A7	Insert Earphones	Left	65dB nHL	Tone Burst	500					8.28			
A8	Insert Earphones	Left	40dB nHL	Tone Burst	500					12.20			
A9	Insert Earphones	Left	40dB nHL	Tone Burst	500					12.20			
A10	Insert Earphones	Left	40dB nHL	Tone Burst	500					12.20			
A11	Insert Earphones	Left	35dB nHL	Tone Burst	500					12.53			
A12	Insert Earphones	Left	35dB nHL	Tone Burst	500					12.53			
A13	Insert Earphones	Left	35dB nHL	Tone Burst	500					12.53			
B1	Insert Earphones	Right	65dB nHL	Tone Burst	1000					7.53			

Kaiser Permanente Audiology
 2045 Franklin St.
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 202-861-3404

Patient: ██████████
 Birthdate: ██████████
 ID: ██████████
 Comment:

Ear: Left



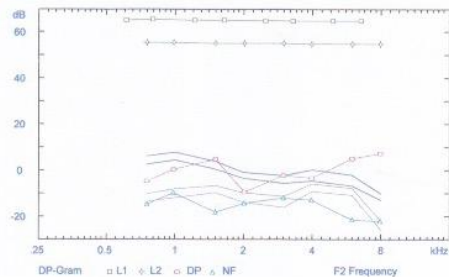
Left: 27-Jun-19: -: 750-8000 Hz Diagnostic Test - High Noise: 19F27D23.OAE

L1(dB)	L2(dB)	F1(Hz)	F2(Hz)	GM(Hz)	DP(dB)	NF(dB)	DP-NF(dB)
65.0	54.9	6516	7969	7206	0.6	-17.7	18.3
64.9	54.9	4922	6000	5434	3.1	-25.2	28.3
64.4	55.2	3281	3984	3616	-7.1	-20.0	12.9
64.4	54.2	2484	3000	2730	-3.5	-24.6	21.1
64.5	54.5	1641	2016	1818	-3.3	-13.0	9.7
65.2	54.9	1219	1500	1352	-0.1	-9.5	9.4
65.4	55.6	797	984	886	1.1	-7.1	8.2
64.7	55.9	609	750	676	-4.8	-13.8	9.0

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 202-86-3404

Patient: [REDACTED]
 Birthdate: [REDACTED]
 ID: [REDACTED]
 Comment:

Ear: Right



Right: 27-Jun-19: -: 750-8000 Hz Diagnostic Test - High Noise: 19F27D22.OAE

L1(dB)	L2(dB)	F1(Hz)	F2(Hz)	GM(Hz)	DP(dB)	NF(dB)	DP-NF(dB)
65.0	54.9	6516	7969	7206	7.3	-22.0	29.3
64.9	54.8	4922	6000	5434	5.0	-21.5	26.5
64.9	54.8	3281	3984	3616	-3.4	-13.0	9.6
64.8	55.0	2484	3000	2730	-2.4	-12.0	9.6
65.2	55.1	1641	2016	1818	-9.6	-14.4	4.8
65.1	55.2	1219	1500	1352	4.6	-18.2	22.8
65.5	55.3	797	984	886	0.2	-9.8	10.0
65.0	55.4	609	750	676	-4.9	-14.7	9.8

Why Pursue a Natural Sleep ABR ?

- GLOBAL DELAYS
- MISSED NEWBORN HEARING SCREENING/FOLLOW UP TO NBHS
- FAMILY HISTORY of HEARING LOSS
- ADOPTION
- MONITORING OF KNOWN HEARING LOSS
- MONITORING STATUS of CONDUCTIVE HEARING LOSS
- MONITORING of ACOUSTIC NEUROMA
- IDENTIFICATION/MONITORING of ANSD
- ? of DEMYELINATING DISEASE
- NONORGANIC/FUNCTIONAL HEARING LOSS

EVOKED POTENTIAL REPORT

Patient: ██████████ Birth date: 08/10/82 Physician: ██████████
 ID#: ██████████ Test date: 01/16/18 12:10:45 PM Test site: Hinzberger-Kimball, M.S.
 Gender: Female *Ami Hinzberger Kimball, MS, CCEA*

Results:

Utilizing a click stimulus at presentation levels of 90, 85, 75 and 65 dBnHL for the left ear and at 95, 90 and 85 dBnHL for the right ear, no replicable responses were obtained bilaterally. When changing the polarity from a rarefaction to a condensation click, the waves do appear to demonstrate a reversal pattern, similar to that seen with auditory neuropathy/dysynchrony. In consideration of the best admitted threshold, a 4000 Hz Tone Burst stimulus was presented at 65 dBnHL for the left ear and at 75 dBnHL for the right ear with no replicable waveforms bilaterally.

Click + 4000 Hz TB Stimuli



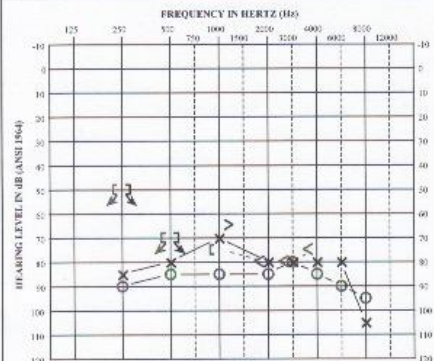
Collection Parameters						Latencies (ms)					Interlatencies (ms)		
Wave	Transducer	Ear	Intensity	Type	Frequency	I	II	III	IV	V	I-III	III-V	I-V
A1	Insert Earphones	Left	90dB nHL	Click	N/A								
A2	Insert Earphones	Left	90dB nHL	Click	N/A								
A3	Insert Earphones	Left	85dB nHL	Click	N/A								
A4	Insert Earphones	Left	85dB nHL	Click	N/A								
A5	Insert Earphones	Left	85dB nHL	Click	N/A								
A6	Insert Earphones	Left	85dB nHL	Click	N/A								
A7	Insert Earphones	Left	85dB nHL	Click	N/A								
A8	Insert Earphones	Left	85dB nHL	Click	N/A								
A9	Insert Earphones	Left	75dB nHL	Click	N/A								
A10	Insert Earphones	Left	75dB nHL	Click	N/A								
A11	Insert Earphones	Left	75dB nHL	Click	N/A								
A12	Insert Earphones	Left	65dB nHL	Click	N/A								
A13	Insert Earphones	Left	65dB nHL	Click	N/A								
A14	Insert Earphones	Left	65dB nHL	Tone Burst	4000								


KAISER PERMANENTE
 Colorado Permanente
 Medical Group, P.C.

NAME: ██████████

Patient Identifier: ██████████

D.O.B: 04/26/1978



Effective Masking Levels To Non-Test Ear

Test Ear	125	250	500	750	1000	1500	2000	3000	4000	6000	8000
AC L											
AC R											
BC L	80	80									
BC R	80	80	90								

Right Left

Air Conduction: Unmasked (O), Masked (△)

Bone Conduction: Unmasked (< >), Masked (□)

Sound Field: Unaided - Aided (S, A)

Comfort Level: Maximum (MC, MC)

Uncomfortable (UC, UC)

Relaxes: Contra (⌣), Ipsi (⌤)

Comments: C/P: V, N/SM: M

Examiner/Assistant: ██████████

Audiometer: GSI AudiostarPro

Transducer: ER-3A Inserts
TDH-50 Headphones

Method: Conventional Audiometry

Reliability: Fair

		Acoustic Reflexes				Reflex Decay	
Stim	Meas	500	1000	2000	4000	500	1000
Right	Contra						
	Ipsi						
Left	Contra						
	Ipsi						

Abs: Absent, CNT: Could Not Test, UdB: Undefined decibel level

Pure Tone Average (PTA)

RIGHT		MONAURAL		LEFT	
Air 34 dBHL [4a]		Air		78 dBHL [4a]	
Bone >78 dBHL [4a]					
UNAIDED			AIDED		

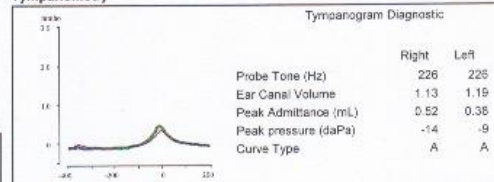
Speech Reception/Awareness Threshold (dBHL)

RIGHT		LEFT	
Air 80 dB [SRT]		Air 75 dB [SRT]	

Word Recognition (dBHL)

RIGHT		LEFT	
32% at 100 dB		52% at 100 dB	

Tympanometry



Thick (red) - right, Thin (blue) - left

Notes

Hearing aid worn, WRS, NUS recorded. See chart notes for details. Hearing aid worn since 07/2017. Audio Recognition threshold was worsened significantly since 07/2017. Recommend aural rehabilitation with HAC to improve in devices and TFC consumption. Recommend...

PTA codes: 2a-500/1600, 2b-500/2000, 2c-1000/2000, 3-500/1000/2000, 4-500/1000/2000/3000, *-masked values

EXAMINER SIGNATURE

Date 09/09/2019

EVOKED POTENTIAL REPORT

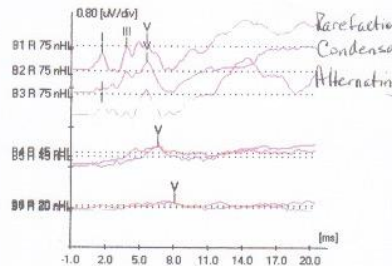
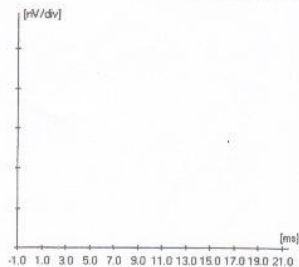
Patient: [REDACTED] Birth date: 04/26/78 Physician:
 ID#: [REDACTED] Test date: 12/10/19 2:18:49 PM Test: Herzberger-Kimball, M.S.
 Gender: Female

Janet Herzberger-Kimball, M.S., CCBt

Results:

RIGHT EAR: Good, replicable waveforms obtained to a click stimulus via air conduction presentation at 75, 45 and 20 dBnHL. A reversal of the polarity demonstrates a cochlear microphonic and replicable waveforms. Absolute and InterPeak latencies are within normal limits re: the adult normative data. Latency/Intensity Function (LIF) curve follows the normal curve re: the adult normative data. These results suggest normal auditory sensitivity for at least some point in the 1000-4000 Hz range. Good, replicable waveforms obtained to frequency specific stimuli, Tone Burst stimuli, at the following frequencies and intensity levels: 4000 Hz: 65, 35, 30 and 25 dBnHL; 2000 Hz: 65, 35 and 30 dBnHL; 1000 Hz: 65, 45 and 35 dBnHL; 500 Hz: 65, 45 and 40 dBnHL. These results suggest normal auditory sensitivity for at least the 500-4000 Hz range. LEFT EAR: Limited results obtained for the left ear due to the patient awakening. Good, replicable waveforms obtained to frequency specific stimuli, Tone Burst stimuli, at the following frequencies and intensity levels: 4000 Hz: 65, 35 and one waveform at 25 dBnHL, not replicated due to patient awakening; 2000 Hz: 35 and 30 dBnHL. These results suggest normal auditory sensitivity at 2000 Hz. The completion of testing has been scheduled for December 19, 2019 @ 2:00.

Click Stimulus



Collection Parameters

ave	Transducer	Ear	Intensity	Type	Frequency
31	Insert Earphones	Right	75dB nHL	Click	N/A
32	Insert Earphones	Right	75dB nHL	Click	N/A
33	Insert Earphones	Right	75dB nHL	Click	N/A
34	Insert Earphones	Right	45dB nHL	Click	N/A
35	Insert Earphones	Right	45dB nHL	Click	N/A
36	Insert Earphones	Right	20dB nHL	Click	N/A
37	Insert Earphones	Right	20dB nHL	Click	N/A

Latencies (ms)

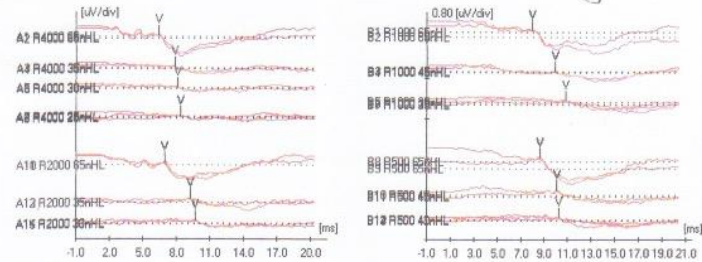
Interlatencies (ms)

Latencies (ms)					Interlatencies (ms)		
I	II	III	IV	V	I-III	III-V	I-V
1.70		3.78		5.62	2.08	1.83	3.92
1.70				5.62			
				6.62			
				6.62			
				8.12			
				8.12			

EVOKED POTENTIAL REPORT

Patient: ██████████ Birth date: 04/26/78 Physician: David Nossin, M.D.
 IDR: ██████████ Test date: 12/10/19 2:18:49 PM Test by: Elizabethberger-Kimball, M.S.
 Gender: Female
 Results:

Tone Burst Stimuli - AC - Right Ear



Collection Parameters

Wave	Transducer	Ear	Intensity	Type	Frequency
A1	Insert Earphones	Right	65dB nHL	Tone Burst	4000
A2	Insert Earphones	Right	65dB nHL	Tone Burst	4000
A3	Insert Earphones	Right	35dB nHL	Tone Burst	4000
A4	Insert Earphones	Right	35dB nHL	Tone Burst	4000
A5	Insert Earphones	Right	30dB nHL	Tone Burst	4000
A6	Insert Earphones	Right	30dB nHL	Tone Burst	4000
A7	Insert Earphones	Right	25dB nHL	Tone Burst	4000
A8	Insert Earphones	Right	25dB nHL	Tone Burst	4000
A9	Insert Earphones	Right	25dB nHL	Tone Burst	4000
A10	Insert Earphones	Right	65dB nHL	Tone Burst	2000
A11	Insert Earphones	Right	65dB nHL	Tone Burst	2000
A12	Insert Earphones	Right	35dB nHL	Tone Burst	2000
A13	Insert Earphones	Right	35dB nHL	Tone Burst	2000
A14	Insert Earphones	Right	30dB nHL	Tone Burst	2000
A15	Insert Earphones	Right	30dB nHL	Tone Burst	2000

Latencies (ms)

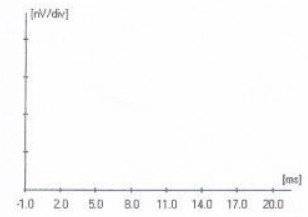
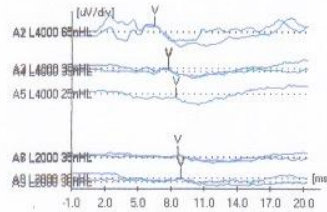
Interlatencies (ms)

Latencies (ms)					Interlatencies (ms)		
I	II	III	IV	V	I-III	III-V	I-V
					6.45		
					6.45		
					7.87		
					7.87		
					8.12		
					8.12		
					8.37		
					8.37		
					8.37		
					6.95		
					6.95		
					9.28		
					9.28		
					9.70		
					9.70		

EVOKED POTENTIAL REPORT

Patient: [REDACTED] Birth date: 04/26/78 Physician: [REDACTED]
 ID#: [REDACTED] Test date: 12/10/19 2:18:49 PM Tech: Blzyberger-Kimball, M.S.
 Gender: Female
 Results:

Tone Burst Stimuli - AC - left Ear



Collection Parameters

Wave	Transducer	Ear	Intensity	Type	Frequency
A1	Insert Earphones	Left	65dB nHL	Tone Burst	4000
A2	Insert Earphones	Left	65dB nHL	Tone Burst	4000
A3	Insert Earphones	Left	35dB nHL	Tone Burst	4000
A4	Insert Earphones	Left	35dB nHL	Tone Burst	4000
A5	Insert Earphones	Left	25dB nHL	Tone Burst	4000
A6	Insert Earphones	Left	35dB nHL	Tone Burst	2000
A7	Insert Earphones	Left	35dB nHL	Tone Burst	2000
A8	Insert Earphones	Left	30dB nHL	Tone Burst	2000
A9	Insert Earphones	Left	30dB nHL	Tone Burst	2000

Latencies (ms)

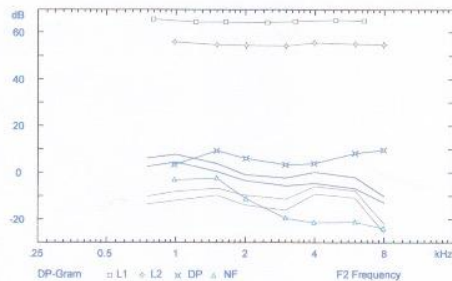
Interlatencies (ms)

Latencies (ms)					Interlatencies (ms)		
I	II	III	IV	V	I-III	III-V	I-V
					6.53		
					6.53		
					7.78		
					7.78		
					8.45		
					8.62		
					8.62		
					8.87		
					8.87		

Kaiser Permanente Audiology
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 202-86-3404

Patient: [REDACTED]
 Birthdate: 04/26/1978
 ID: [REDACTED]
 Comment:

Ear: Left



Left: 10-Dec-19: -: 750-8000 Hz Diagnostic Test - High Noise: 19L10D02.OAE

L1(dB)	L2(dB)	F1(Hz)	F2(Hz)	GM(Hz)	DP(dB)	NF(dB)	DP-NF(dB)
65.2	54.7	6516	7969	7206	9.7	-24.0	33.7
65.3	55.0	4922	6000	5434	8.3	-21.3	29.6
64.9	55.5	3281	3984	3616	3.9	-21.4	25.3
64.2	54.2	2484	3000	2730	3.2	-19.6	22.8
64.5	54.5	1641	2016	1818	6.2	-11.1	17.3
64.5	54.8	1219	1500	1352	9.3	-2.2	11.5
65.6	55.8	797	984	886	3.2	-3.2	6.4

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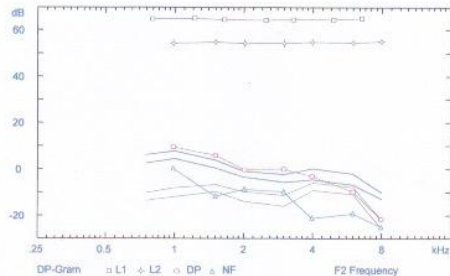
Patient: [REDACTED]

Birthdate: 04/26/1978

ID: [REDACTED]

Comment:

Ear: Right



Right: 10-Dec-19: -: 750-8000 Hz Diagnostic Test - High Noise: 19L10D01.OAE

L1(dB)	L2(dB)	F1(Hz)	F2(Hz)	GM(Hz)	DP(dB)	NF(dB)	DP-NF(dB)
65.1	55.0	6516	7969	7206	-21.8	-25.2	3.4
64.4	54.4	4922	6000	5434	-9.7	-19.3	9.6
64.6	54.8	3281	3984	3616	-3.0	-21.2	18.2
64.2	54.4	2484	3000	2730	-0.1	-9.8	9.7
64.5	54.4	1641	2016	1818	-0.4	-8.8	8.4
65.0	54.9	1219	1500	1352	5.9	-11.8	17.7
64.8	54.4	797	984	886	9.4	0.2	9.2

Why Pursue a Natural Sleep ABR ?

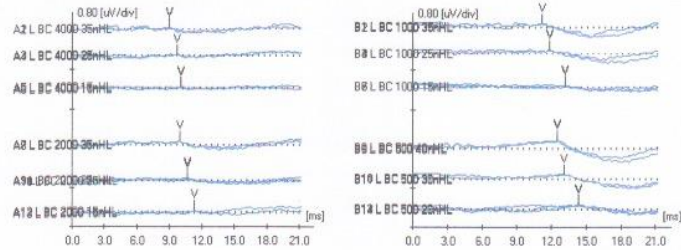
- CLEFT LIP and PALATE/CRANIOFACIAL INVOLVEMENT
- MICROTIA/ATRESIA
- SPEECH/LANGUAGE CONCERNS
- FAILED ABR following MYRINGOTOMY and PE TUBE PLACEMENT
- AVOIDANCE OF ANESTHESIA
- TIME
 - Scheduling of OR time
 - Pre Operative Appointment
 - Review by Anesthesiology
 - KASC vs. Rocky Mountain Children's Hospital

EVOKED POTENTIAL REPORT

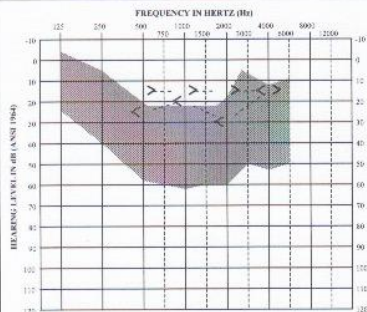
Kaiser Permanente
Franklin Facility
2045 Franklin St.
Denver, CO 80205

Patient: ██████████ Birth date: 08/29/18 Physician: ██████████
 ID#: ██████████ Test date: 01/03/19 9:53:31 AM Tech: Ritzberger-Kimball, M.S.
 Gender: Male
 Results:

Tone Burst Stimuli - BC - Left Mastoid



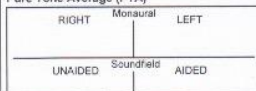
Collection Parameters						Latencies (ms)					Interlatencies (ms)		
Wave	Transducer	Ear	Intensity	Type	Frequency	I	II	III	IV	V	I-III	III-V	I-V
A1	Bone Oscillator	Left	35dB nHL	Tone Burst	4000					9.00			
A2	Bone Oscillator	Left	35dB nHL	Tone Burst	4000					9.00			
A3	Bone Oscillator	Left	25dB nHL	Tone Burst	4000					9.67			
A4	Bone Oscillator	Left	25dB nHL	Tone Burst	4000					9.67			
A5	Bone Oscillator	Left	15dB nHL	Tone Burst	4000					10.00			
A6	Bone Oscillator	Left	15dB nHL	Tone Burst	4000					10.00			
A7	Bone Oscillator	Left	35dB nHL	Tone Burst	2000					9.92			
A8	Bone Oscillator	Left	35dB nHL	Tone Burst	2000					9.92			
A9	Bone Oscillator	Left	25dB nHL	Tone Burst	2000					10.66			
A10	Bone Oscillator	Left	25dB nHL	Tone Burst	2000					10.66			
A11	Bone Oscillator	Left	25dB nHL	Tone Burst	2000					10.66			
A12	Bone Oscillator	Left	15dB nHL	Tone Burst	2000					11.33			
A13	Bone Oscillator	Left	15dB nHL	Tone Burst	2000					11.33			
B1	Bone Oscillator	Left	35dB nHL	Tone Burst	1000					11.16			
B2	Bone Oscillator	Left	35dB nHL	Tone Burst	1000					11.16			



Effective Masking Levels To Non-Test Ear

Test Ear	125	250	500	750	1000	1500	2000	3000	4000	6000	8000
AC L											
AC R											
BC L											
BC R											

Pure Tone Average (PTA)



Speech Reception/Awareness Threshold (dBHL)



Word Recognition (dBHL)



PTA codes: 2a-500/1000, 2b-500/2000, 2c-1000/2000
 3-500/1000/2000 4-500/1000/2000/3000. * - masked values

Air Conduction	Right	Left
Unmasked	I	I
Masked	O	X
Bone Conduction		
Unmasked	<	>
Masked	[]
Sound Field	S	A
Unaided - Aided		
Conflict Level	MC	MC
Maximum		
Characterizable	UC	UC
Reflexes		
Conc.	-	-
Ipsi	-	-
Contralateral	C	P / V
	N	PNC / M

Examiner/Assistant:

Linda Herzberger-Kimball
 MS, CCC-A

Audiometer:

Transducer:

Bone Oscillator

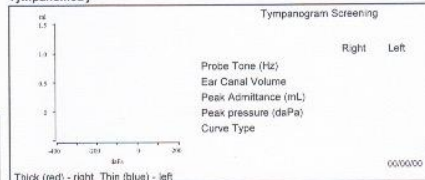
Method: ABR, natural sleep

Reliability: Good

Stim	Meas	Acoustic Reflexes				Reflex Decay	
		500	1000	2000	4000	500	1000
Right	Contra						
	Ipsi						
Left	Contra						
	Ipsi						

Abs - Absent CNT - Could Not Test UdB - Undefined decibel level

Tympanometry



Thick (red) - right Thin (blue) - left

Notes

ABR derived audiogram from testing on January 3 and February 15, 2019, results are dBnHL.

EXAMINER SIGNATURE

Date 03/01/2019

Why Pursue a Natural Sleep ABR ?

- COST to the PARENT
 - Co-Pay for audiology appointment vs. KASC (Kaiser Ambulatory Surgery Center)
 - Range for audiology appointment co-pay: \$10-\$30
 - Range for KASC co-pay: \$50-\$1500
- COST to Kaiser Permanente

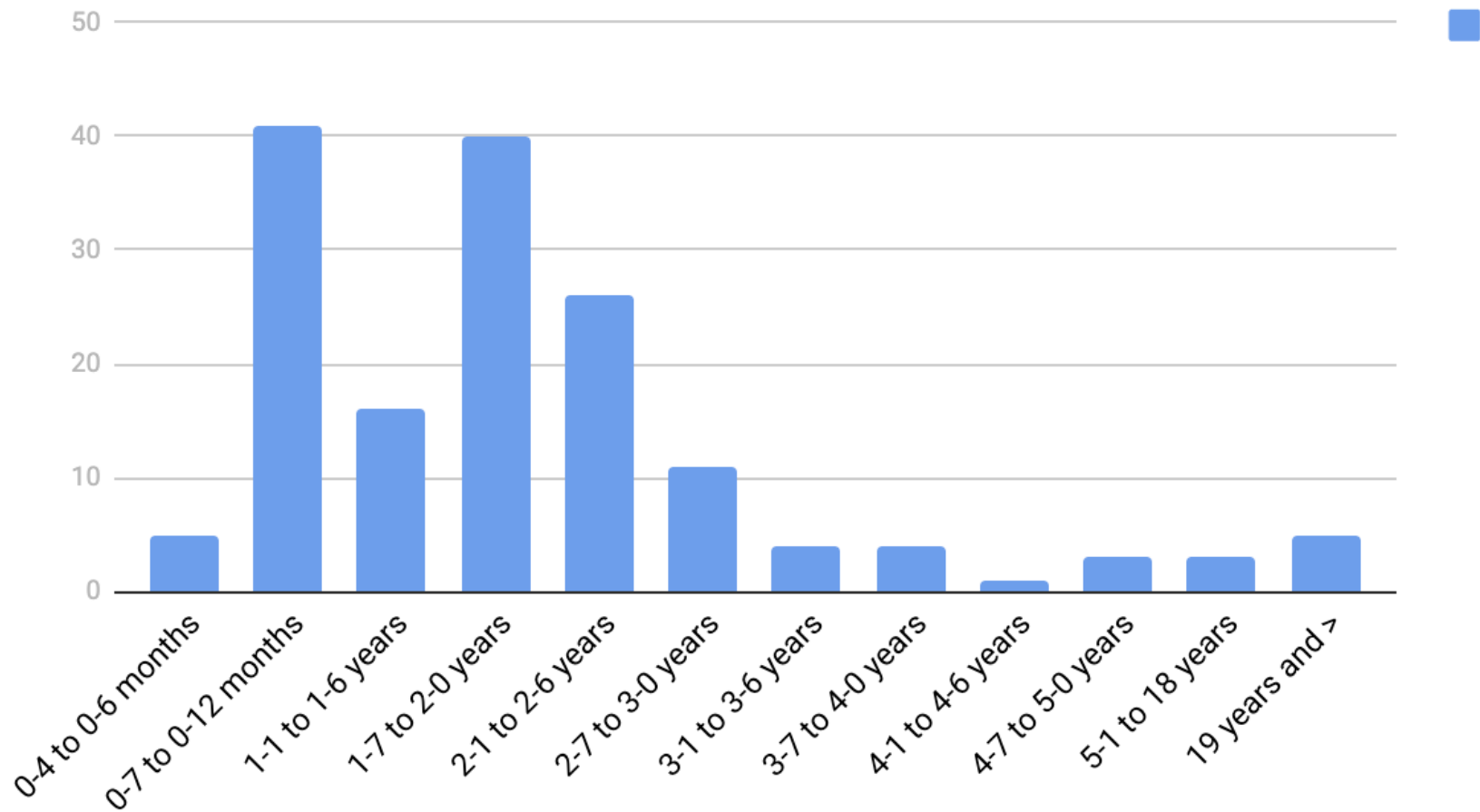
Natural Sleep ABR Cases

	Natural Sleep ABR Appointments/ Patients	Completed ABR Results 1 Appointment	Completed ABR Results 2 Appointments	Partial ABR Results	Failed Attempt
2016	39/35	26	4	3	2
2017	26/25	20	1	0	4
2018	46/43	38	3	2	0
2019	51/47	36	4	5	2

SUCCESS RATE

2016	94.29%
2017	80.00%
2018	100%
2019	95.74%
OVERALL	94.67%

AGE RANGES of NATURAL SLEEP ABRs



PARENT INSTRUCTIONS

ABR testing can only be performed when a child is sleeping and still. Children are most likely to sleep for the time required if they are scheduled appropriately and arrive tired. For the younger child, being ready to eat will usually help. Following these instructions will help ensure the best possible test environment for your child.

1. If your child has regular sleeping patterns, scheduling your appointment at the child's natural naptime is **VERY IMPORTANT**. Keep your child up later the night before and get them up earlier on the day of testing. Do **NOT** let them fall asleep in the car. This is **CRITICAL!** Sing songs, have another adult ride with you that can engage them while in the car, consider coming down to the area an hour or more prior to the appointment and walking around the zoo, the park, the children's museum, etc., any activity so that the child is sleepy upon arrival.

2. For the child that is still nursing or taking a bottle, try to hold off feeding him/her until you get to the appointment. Try staggering feedings so that the child is ready to eat shortly after arrival. After the audiologist has prepared your baby for the test, you can nurse, feed your baby a bottle or give them a snack so he or she falls asleep naturally. The test can take place while your child sleeps in your arms, in his or her carrier or in our Fisher Price Rock and Play, whichever is most comfortable for you and your baby/child. If your child will sleep in a “Pack and Play” that you have, please feel free to bring it and we will allow time for set up.

3. Please leave any siblings at home or with another adult in the waiting room who can supervise them during the appointment. ABR appointments can be very long and children are typically unable to sit quietly for the length of time required. We ask that only one or two parents/family members attend the

4. Please bring anything that comforts your child. If they typically sleep with a swaddle or sleep sack, please bring it and plan on using it. If there is a favorite blanket, stuffed animal or cuddly, please bring it.
5. Interference from cell phones can affect the results of the test. Please turn all mobile devices OFF (not vibrate/silent) during your child's ABR.



AUDIOLOGIST'S TOOLS

1. SCHEDULING

- a. Natural nap time is key
- b. Flexibility with appointment times
- c. Length of testing: 3- 4 hours depending on child's history
- d. Best option for an appointment: LAST appointment of the day
- e. Always schedule these children yourself.

2. SWADDLES and SLEEP SACKS

3. WHERE TO SLEEP?

- a. Recliner - Parent holding
- b. Fisher Price Rock and Play
- c. Pack and Play (furnished by parents)

4. WARM BLANKETS

5. CELL PHONE

- a. Flashlight
- b. Music

MAGICAL MUSIC to HELP BABIES SLEEP



Lullabies Lullaby For Babies To Go To Sleep

<https://www.youtube.com/watch?v=IOR5b4YJHwo&feature=youtu.be>

PITFALLS



PITFALLS

1. Timing is EVERYTHING! Flexibility with scheduling is key. A supportive administration is imperative.
2. Parents role in success.
 - a. Higher than average no-show/cancellation rate
 - b. Attitude
 - c. Anxiety
3. Children get **SICK**.
4. Are results imperative?

Why Pursue a Natural Sleep ABR ?

- **ABSOLUTELY NO OTHER WAY TO GET THE INFORMATION!!**

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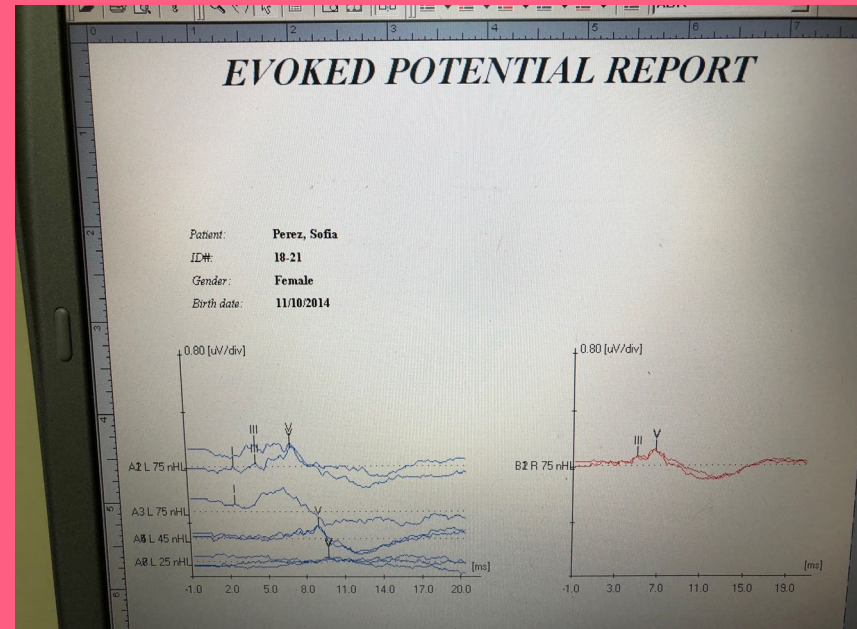
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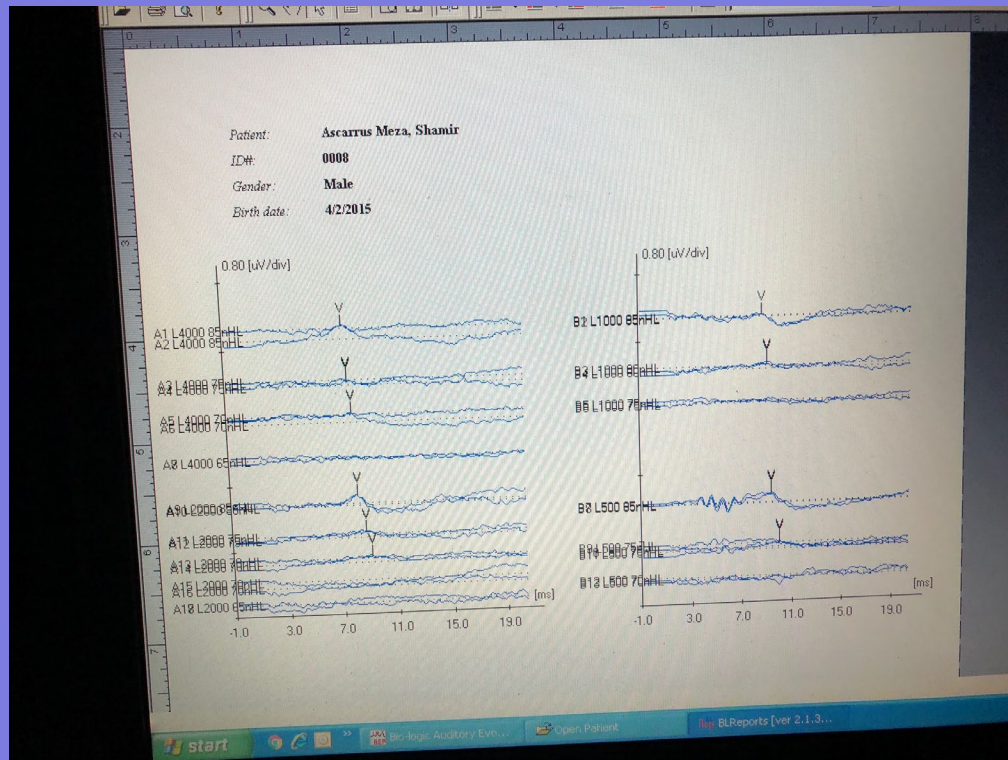
8

Sofia 3-11

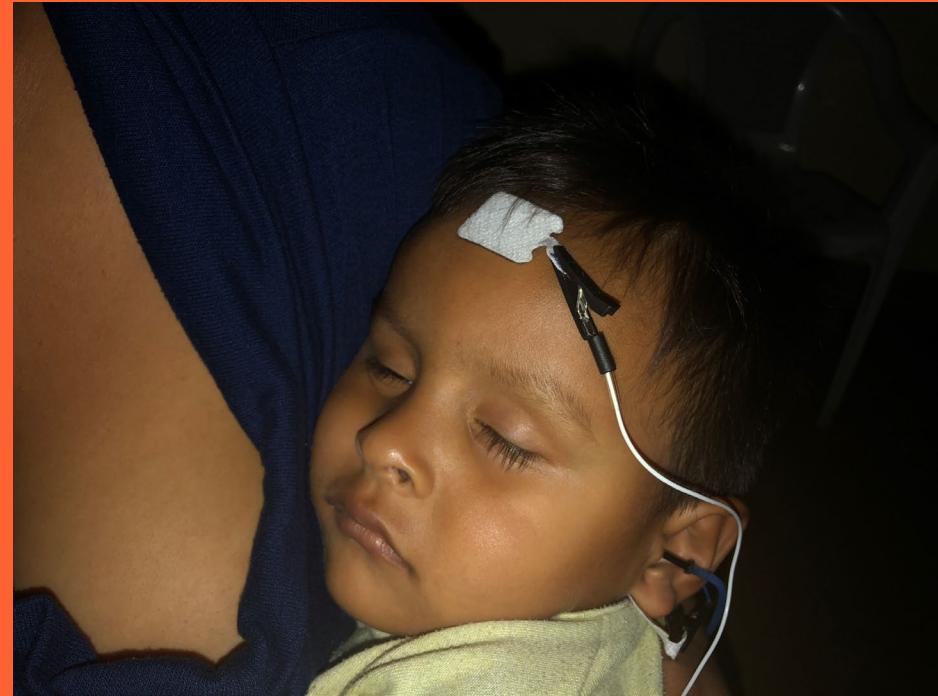
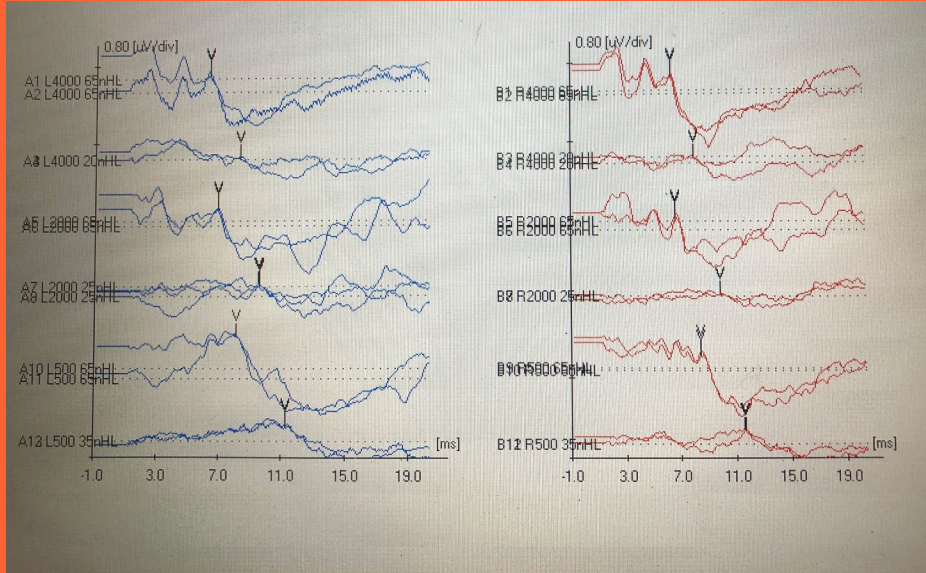




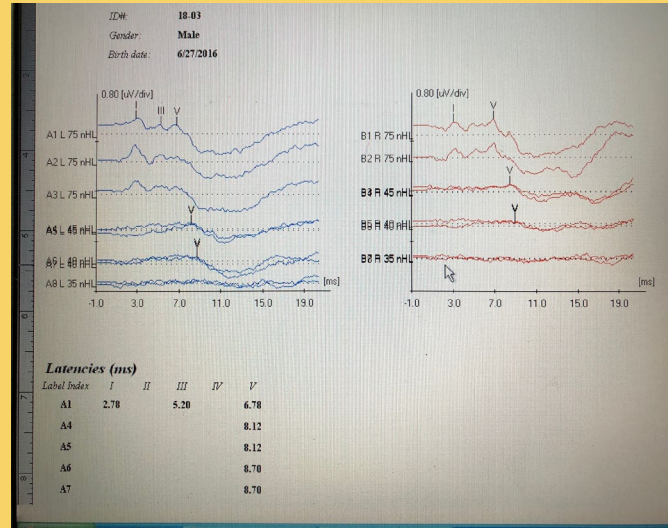
Shamir 3-7



José 1-7

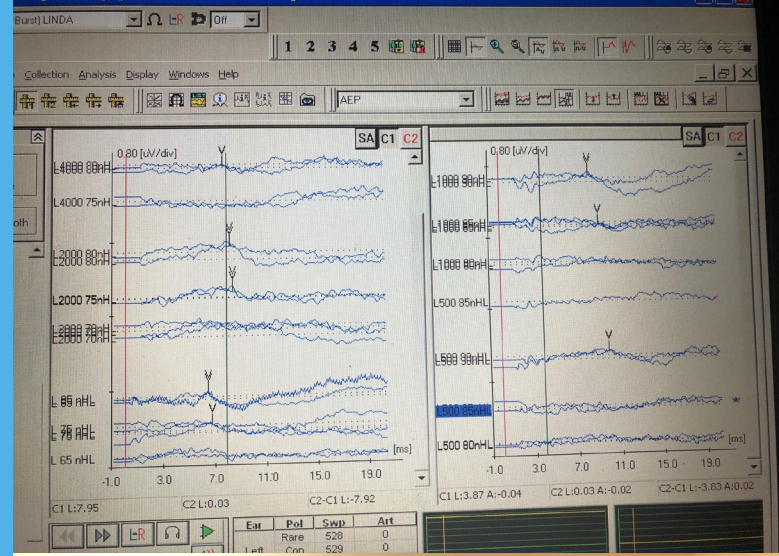


Thiago 2-4





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Welcome to the World
Lily Eloriaga!!
February 18, 2020



**Natural Sleep
Auditory Brainstem Response Evaluations: Our
Reality at
Kaiser Permanente Colorado**

