SACRAMENTO STATE

Maryjane Rees Language, Speech and Hearing Center
Audiology Clinic Resource Manual

Purpose

The California State University, Sacramento (Sacramento State) Department of Communication Sciences and Disorders Audiology Clinic Resource Manual was developed to serve as a quick reference for student clinician and clinical instructor use with the intent of guiding the beginning clinical practitioner while serving patients in the Audiology Clinic at the Maryjane Rees Language, Speech Language, and Hearing Center (MJRLSHC). The Audiology Clinic Resource Manual contains clinic-specific forms, norms, assessments, clinical procedures and report templates. It is by no means an exhaustive document and protocols described herein may not be appropriate for every patient. Clinical procedures may be modified as necessary, with modifications or alternate judgment calls explicitly explained in the patient's report and chart, as decided by the clinical instructor. Student clinicians are encouraged to print a copy of this document and bring it to on-campus clinic rotations as a resource. Copies of this manual are also found in all audiology clinical spaces.

List of Abbreviations

Use of abbreviations is encouraged in internal clinical record keeping that benefits from shortened terminology, such as when writing clinical notes in the client's electronic record following each visit or when filling out a document with limited space, such as an audiogram. Documents that are likely to be used externally, such as full client reports, should first introduce a particular term in long form and then provide an abbreviation immediately following the term in parentheses; once an abbreviation has been introduced, it can be utilized throughout the remainder of the document. A list of acceptable commonly used abbreviations is summarized below:

Assessment Terms	
AA	Audiologic Assessment
AD	auris dextra or right ear
AS	auris sinistra or left ear
AU	aures unitas or both ears
Re-AA	reassessment
AC	air conduction
BC	bone conduction
SNHL	sensorineural hearing loss
CHL	conductive hearing loss
ABR	auditory brainstem response
OAE	optoacoustic emissions
DPOAE	distortion product OAE
TEOAE	transient evoked OAE
Tymp(s)	tympanogram(s)
ME	middle ear
HF/LF	high frequency/low frequency
HL	hearing loss
OM	otitis media
SNR	signal-to-noise ratio
NR	no response
DNT	did not test
CNT	could not test
VRA	visual reinforcement audiometry
BOA	behavioral observation audiometry
SRT	speech recognition threshold
PTA	pure-tone average
WRT	word recognition testing

Amplification Terms	
HA	hearing aid
HAF	hearing aid fitting
HAE	hearing aid evaluation
HAC	hearing aid check
HAR	hearing aid repair
REM	real ear measurement
ITE	in-the-ear
HS	half shell
ITC	in-the-canal
CIC	completely-in-the-canal
IIC	invisible-in-the-canal
RIC	receiver-in-the-canal
EM	earmold
EMI	earmold impression
EAA	electroacoustic analysis
SAM	Starkey All-Make Repair
General Terms	
PT	patient
w/	with
w/o	without
c/o	complained of
ENT	ear, nose and throat physician
RTC	return to clinic
PRN	as needed
f/u	follow-up
p/u	pick-up
TC/PC	(tele)phone call

All Privacy Related Clinic Forms

Prior to being eligible for services in the MJRLSHC Audiology Clinic, student clinicians are expected to review all new client paperwork to ensure that all requisite forms have been completed by the client. The following forms should be completed by the client, reviewed with the client and scanned to the client's electronic medical record:

- General Information Form
- Center Permission Form
- Client Agreement Form
- Client Emergency Form
- HIPAA Authorization to Disclose Protected Health Information Form
- Notice of Privacy Form
- Request for Information to be Sent Form

Forms will be made available in the reception area of the MJRLSHC, on the website of the Department of Communication Sciences and Disorders (CSAD) and are appended towards the end of this document.

Case History Forms

Prior to beginning an initial assessment, student clinicians should complete a thorough age-appropriate case history. Case histories should at a minimum identify a client's primary concerns and the characteristics thereof. Case history forms can help guide effective case history taking for beginning clinical practitioners. For children 0 to 12 months of age, the infant case history form should be used. For children 1 to 18 years of age, the pediatric case history form should be used. For individuals 18 years and older, the adult case history form should be used. If the client indicates that dizziness or vertigo are a primary complaint, the vestibular case history form should be filled out in addition to the age-appropriate audiologic case history form. The provided case history forms are by no means exhaustive and should be supplemented with follow-up questions in an oral interview. The following case history forms will be made available in the reception area of the MJRLSHC, on the CSAD website and are appended towards the end of this document.

- Infant Case History Form (0-12 months)
- Pediatric Case History Form (1-17 years)
- Adult Case History Form (18+ years)
- Vestibular Case History Form (all ages; in progress)

Otoscopy

Following the case history and before continuing on to any assessment, a thorough otoscopic inspection should be completed to assess for cerumen impactions, pathology, collapsed canals, foreign bodies, etc. Otoscopy should be performed during every visit (i.e., initial visit, hearing aid fitting, hearing aid follow-up visits, vestibular evaluations, etc.).

Acoustic Immittance Measures

Unless otherwise indicated, tympanometry should be completed on all clients as a minimum acoustic immittance measure using a positive to negative sweep. Acoustic reflex threshold testing should be completed on all clients new to the clinic who are being seen for an audiologic evaluation, with ipsilateral and contralateral reflexes probed at 500, 1000, and 2000 Hz, unless contraindicated.

Sample Instructions for Tympanometry

There are many ways to instruct your clients re: testing procedures. You will need to modify your instructions depending on the client you are working with and their ability to understand your directions. Here are some sample instructions to get you started:

"I am going to put a soft rubber tip in your ear. You might hear a hum and feel a puff of air or a little pressure. You don't have to do anything for this test other than sit nice and still."

Tympanometry Normative Data

The following is tympanometric normative data aggregated from a variety of sources:

	Tympanometric Peak Pressure (TPP)	**Static Admittance (SA)**	**Ear Canal Volume (ECV)**	**Tympanometric Width (TW)**
Adults	-150 to +25 daPa	0.3-1.4 ml	0.6-1.4 cc or ml	50-110 daPa
Children	-150 to +25 daPa	0.3-1.4 ml	0.4-1.0 cc or ml	<200 daPa
Infants	-150 to +25 daPa	0.3-1.4 ml	0.2-1.0 cc or ml	<235 daPa

Aggregated from Margolis and Heller (1987), ASHA (1990), Clark et al. (2007) In Roeser (ed.), Audiology: Diagnosis

Tympanogram Types

Following Jerger (1970), tympanograms can be categorized by type and are summarized below:

Type	**TPP**	**SA**	**ECV**	**Clinical Findings**
A	WNL	WNL	WNL	normal middle ear function
A_s	WNL	<0.3 ml	WNL	abnormal stiffness (ex: otosclerosis)
A_d	WNL	>1.4 ml	WNL	excessive movement (ex: disarticulation)
B	no peak	<0.3 ml	out of range, low	constriction in/of EAM
B	no peal	<0.3 ml	WNL	middle ear pathology
B	no peak	<0.3 ml	out of range, high	perforation
C	out of range	WNL	WNL	Eustachian tube dysfunction

Sample Wording for Report Writing for Tympanometry

Tympanometry was performed using a 226 Hz probe tone to evaluate middle ear status. Peak pressure, static admittance and ear canal volume were within normal limits bilaterally, constituting Jerger Type A tympanograms. Tympanometric values obtained are documented below:

Ear	Peak Pressure	Static Admittance	Ear Canal Volume	Tympanogram Type
Right	0 daPa	1.0 ml	1.0 cc	A
Left	-5 daPa	0.9 ml	1.1 cc	A

Sample Instructions for Acoustic Reflex and Acoustic Reflex Decay Testing

There are many ways to instruct your clients re: testing procedures. You will need to modify your instructions depending on the client you are working with and their ability to understand your directions. Here are some sample instructions to get you started:

"I am going to put (a) soft rubber tip(s) in your ears. You might hear a hum and then a sequence of loud beeps and tones. You don't have to do anything for this test other than sit nice and still."

Acoustic Reflex Threshold (ART) Normative Data

The following are 90th percentile cutoff values for contralateral ARTs at 500, 1000, and 2000 Hz as a function of threshold of hearing at the stimulus frequency adapted from Gelfand et al. (1990):

Auditory Threshold (dB HL)	**Acoustic Reflex Threshold Frequency**		
	500 Hz	**1000 Hz**	**2000 Hz**
0	95	95	95
5	95	95	95
10	95	95	95
15	95	95	95
20	95	95	95
25	95	95	95
30	95	95	100
35	95	95	100
40	95	95	100
45	95	95	105
50	100	100	105
55	105	105	110
60	105	110	115
65	110	110	115
70	115	115	120
75	120	120	125
80	120	125	>125
85	>125	>125	>125
≥90	>125	>125	>125

Sample Wording for Report Writing for ARTs and Acoustic Reflex Decay

Contralateral and ipsilateral acoustic reflex thresholds (ARTs) were obtained bilaterally at 500 Hz, 1000 Hz, and 2000 Hz. ARTs were present and within normal limits across all test frequencies bilaterally (re: Gelfand, 1990), summarized below:

Stim Ear	**Ipsilateral ARTs (dB HL)**			**Contralateral ARTs (dB HL)**			**Acoustic Reflex Decay**	
	500 Hz	**1000 Hz**	**2000 Hz**	**500 Hz**	**1000 Hz**	**2000 Hz**	**500 Hz**	**1000 Hz**
R	80	80	80	95	85	90	neg	neg
L	80	85	85	90	95	90	neg	neg

Pure-Tone Audiometry

Prior to obtaining air-conduction and bone-conduction thresholds, the patient should be comfortably seated in the sound booth and instructed on the procedure. Then, select the appropriate transducer (supra-aural, circumaural, insert, bone conduction oscillator). Supra-aural and insert earphones are appropriate for air-conduction threshold measurements from 125 Hz through 8000 Hz, while circumaural earphones are used for extended high-frequency measurements within their respective frequency and intensity response ranges. For clinical consistency, insert transducers will be chosen for air-conduction testing unless otherwise indicated. Transducers are calibrated for specific equipment and cannot be interchanged between audiometers.

Prior to testing, ensure that an appropriate stimulus (continuous, warble, pulsed, narrow band noise) has been selected. For clinical consistency, insert transducers will be chosen for air-conduction testing unless otherwise indicated. Transducers are calibrated for specific equipment and cannot be interchanged between audiometers. For clinical consistency, pulsed tones should be used, unless otherwise indicated, as they increase a patient's awareness of the stimulus (Burk & Wiley, 2004).

Sample Instructions for Pure-Tone Audiometry

There are many ways to instruct your clients re: testing procedures. You will need to modify your instructions depending on the client you are working with and their ability to understand your directions. Here are some sample instructions to get you started:

"I am going to place some earphones on/in your ears. You will hear some beeps and tones. Every time you hear a beep or a tone, press the button, even if the sound is very soft and quiet. Do you have any questions?"

Procedure for Obtaining Air-Conduction Thresholds

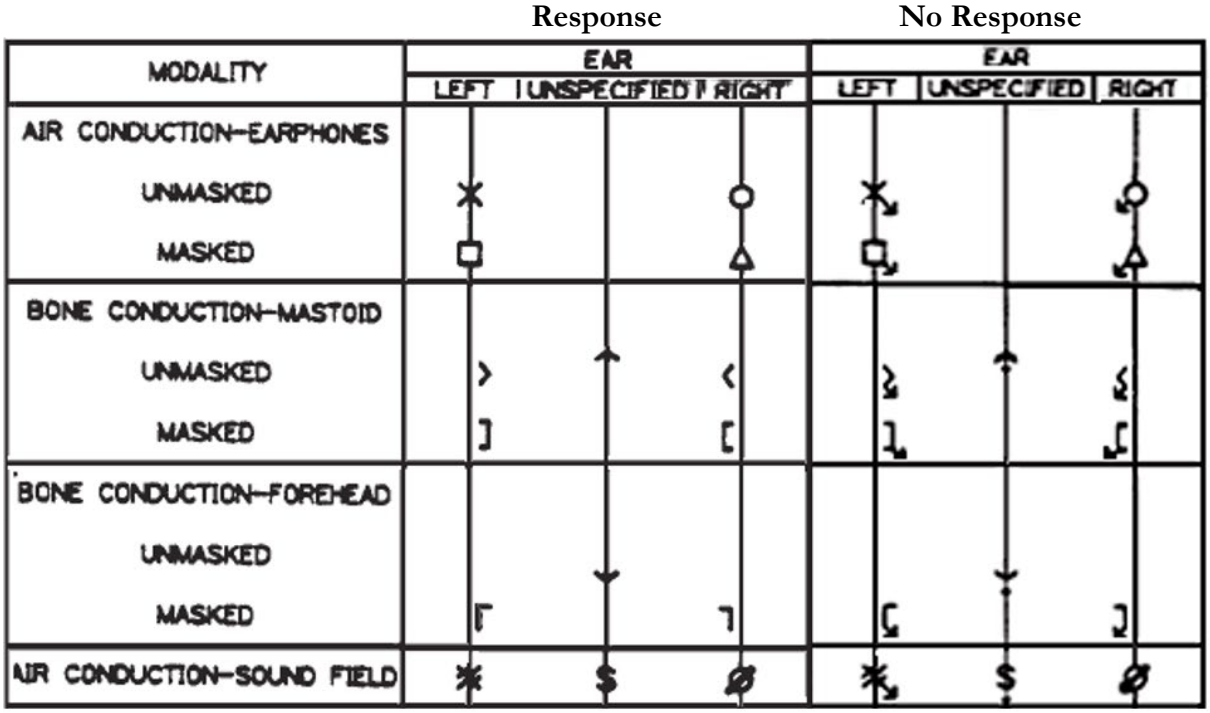
A number of methods (ascending, descending, etc.) have been proposed for obtaining air-conduction pure-tone thresholds. Choice of method will depend on the client. For clinical consistency, thresholds will be obtained using the following modified ASHA recommended (2005) Modified Hughson-Westlake Procedure:

- Present tone at presumed audible level (30 dB HL for individual with normal hearing, 70 dB HL for individual suspected of hearing loss), starting with the better ear
- If no response, increase intensity of tone in 20 dB steps until client responds
    - If no response at limits of audiometer, record no response
- Once client responds, reduce intensity of tone by 10 dB steps until no response
- Begin threshold seeking using "up 5, down 10" procedure
- Threshold is considered a response on 50% on ascending trials or 2 out of 3 responses at a single intensity level (ANSI S3.21)
- Octave frequencies should be tested in the following order: 1000 Hz, 2000 Hz, 4000 Hz, 8000 Hz, re-test 1000 Hz, 500 Hz, 250 Hz
    - Interoctave frequencies should be tested if there is a difference of ≥20 dB between adjacent test frequencies or when noise-induced hearing loss is suspected or hearing aids will be recommended

- For clinical consistency, interoctave frequencies at 3000 and 6000 Hz will be routinely assessed as this provides a more complete profile of the patient's hearing status
- If a low-frequency hearing loss is suspected or documented, threshold should additionally be established at 125 Hz

Interpretation

Audiometric Symbols



Modified from ASHA (1990)

Calculating Pure-Tone Average (PTA)

A pure-tone average may be calculated to predict the softest level at which the patient is expected to receive speech. Depending on the configuration of the hearing loss, either a three-frequency or two-frequency PTA will be calculated.

Three-Frequency PTA

For patients with relatively flat hearing losses, the three-frequency PTA should adequately predict the softest level at which a patient can receive speech and should be a good indicator of the Speech Reception Threshold (SRT). To calculate the three-frequency PTA, average the air-conduction thresholds obtained at 500 Hz, 1000 Hz, and 2000 Hz for each ear and round off to the nearest whole dB.

Two-Frequency PTA

For patients with sharply falling or rising hearing loss configurations, a two-frequency PTA might more adequately characterize the softest level at which a patient can receive speech and should be a good indicator of the Speech Reception Threshold (SRT). To calculate the two-frequency PTA, average the two best of the three consecutive air-conduction thresholds obtained at 500 Hz, 1000 Hz, and 2000 Hz for each ear and round off to the nearest whole dB.

Hearing Loss Assessment Parameters

Degree of Hearing Loss

Threshold in dB HL	Degree of Hearing Loss
≤ 15	Within normal limits
16-25	Slight
26-40	Mild
41-55	Moderate
56-70	Moderately-severe
71-90	Severe
≥90	Profound

Modified from Clark, J. G. (1981)

Configuration of Hearing Loss

Configuration	Description
Flat	≤5 dB difference/octave
Gradually sloping (or rising)	6-10 dB difference/octave
Sharply sloping (or rising)	11-15 dB difference/octave
Precipitously sloping (or rising)	≥16 dB difference/octave
Rising	Better hearing in the high frequencies
Trough or Saucer	≥20 dB more loss at middle frequencies than at 250 Hz and 8000 Hz
Notch	Sharply poorer at one frequency with recover at the adjacent frequencies

Table 5.5 modified from Harrell, R. (2002). In J. Katz (Ed.). *Handbook of Clinical Audiology.*

Type of Hearing Loss

When classifying a hearing loss as either sensorineural, conductive or mixed, relative air-conduction (AC) thresholds, bone-conduction (BC) thresholds and clinically significant air-bone gaps (ABGs) are considered. An ABG is clinically significant is the AC threshold is more than 10 dB poorer than the BC threshold at a given frequency.

Hearing Loss Type	AC WNL	BC WNL	Significant ABG
Sensorineural	No	No	No
Mixed	No	No	Yes
Conductive	No	Yes	Yes

Symmetry

Following Cohn et al. (1999), a hearing loss is considered asymmetric if there is a difference of

≥ than 10 dB at 3 test frequencies, or

≥ than 15 dB at 2 test frequencies, or

≥ than 20 dB at 1 test frequency.

Sample Wording for Report Writing for Pure-Tone Testing

An otoscopic inspection was conducted prior to testing and revealed clear canals with easily visualized tympanic membranes free of known pathology, bilaterally. Pure-tone audiometry indicated hearing within normal limits for the right ear and slight (500-2000 Hz) gradually sloping to mild (3000-8000 Hz) sensorineural hearing loss in the left ear. The 3-frequency pure tone average (PTA) was 7 dB HL for the right ear and 22 dB HL for the left ear.

Speech Recognition Threshold (SRT) Testing Procedure

SRTs can be obtained using monitored live voice or recorded stimuli. Following Huff & Nerbonne (1982), the following SRT testing procedure should be implemented:

- Instruct patient on task.
- Familiarize the patient with spondees at MLV.
- Present one spondee at a level approximately 30 dB above estimated PTA.
    - If the patient responds incorrectly, increase intensity of next presentation by 20 dB.
    - If the patient responds correctly, decrease the level of next presentation by 10 dB.
- Continue presenting words at levels decreasing by 10 dB until patient responds incorrectly. At this level, present up to five words.
    - If the patient identifies fewer than three words correctly, increase the level by 5 dB and repeat procedure.
    - If the patient identifies three or more words correctly, decrease the level by 5 dB.
- SRT threshold is considered the lowest intensity level at which three out of five words are identified correctly (Stach, 2010).

Sample Instructions for Obtaining SRT

There are many ways to instruct your clients re: testing procedures. You will need to modify your instructions depending on the client you are working with and their ability to understand your directions. Here are some sample instructions to get you started:

"I am going to play you/say a list of words, like baseball, hot dog, mushroom. Repeat the words that you hear. As we go on, the words are going to get super soft and quiet. If you're not sure what the word is, give it a guess."

SRT and PTA Agreement

SRT is frequently used to cross-check pure-tone results, to estimate what an individual's hearing sensitivity might be, and to determine suprathreshold test levels for speech perception testing procedures. When using SRT to cross-check pure-tone results, the following values are considered:

SRT-PTA within	Agreement
±6 dB	good
±7 to ±12 dB	fair
≥±13 dB	poor

Speech Perception or Word Recognition Testing (WRT) Testing Procedure

Speech perception or WRT procedures will vary depending on the word list chosen. Following Made and Flexer (2014), choice of word list will depend on the auditory language age and ability of the patient. For test/re-test considerations and normative reference purposes, the MJRLSHC will use full 50-word NU-6 ordered by difficulty lists presented using recorded test materials for all adults, unless otherwise indicated. Following Guthrie and Mackersie (2008), the following presentations levels will be used for WRTs:

- 2000 Hz Threshold <50 dB HL: 25 dB SL
- 2000 Hz Threshold 50–55 dB HL: 20 dB SL
- 2000 Hz Threshold 60–65 dB HL: 15 dB SL
- 2000 Hz Threshold 70–75 dB HL: 10 dB SL

Some of the more commonly used of the many available test protocols are listed below:

Auditory Language Age	Speech Perception Assessment
<2	Early Speech Perception Test (ESP)
>2 and <5	Northwestern University Children's Perception of Speech (NU-CHIPS)
>4 and <6	Word Intelligibility by Picture Identification (WIPI)
>5 and <13	Phonetically Balanced Kindergarten Word Lists (PBK)
>12	Northwestern University 6 (NU-6)
	Maryland CNC (CNC)
	Central Institute for the Deaf W-22 (CID W-22)

Sample Instructions for Speech Perception or WRT

There are many ways to instruct your clients re: testing procedures. You will need to modify your instructions depending on the client you are working with and their ability to understand your directions, as well as the testing materials that have been selected. Here are some sample instructions for an older child or adult to get you started:

"You are going to listen to some more words. This time, the words will stay nice and loud. Repeat the words that you hear. (If the word occurs in a carrier phrase, give the patient an example of what they might hear. Let them know that they only have to repeat the word and don't have to repeat the carrier phrase.) If you're not sure what the word is, give it a guess."

Sample Wording for Report Writing for Speech Audiometry

Speech audiometry was performed. Speech recognition thresholds (SRTs) were obtained via female monitored live voice and were in good agreement with the PTA at 5 dB HL in the right ear and 15 dB HL in the left ear, indicating acceptable test validity. Word recognition testing was administered via male recorded NU-6 ordered by difficulty word list (10 words). The patient scored 100% in the right ear at 45 dB HL (25 dB SL re: 2000 Hz AC threshold) and 100% in the left ear at 55 dB HL (25 dB SL re: 2000 Hz AC threshold). These results are expected for the right ear and better than expected based on the patient's PTAs (re: Dubno et al., 1995).

The following table was adapted from Thorton and Raffin (1978) and should be referenced when comparing WRS from different testing sessions to determine if scores are significantly different:

Score %	N=50	N=25
0	0-4	0-8
2	0-10	
4	0-14	0-20
6	2-18	
8	2-22	0-28
10	2-24	
12	4-26	4-32
14	4-30	
16	6-32	4-40
18	6-34	
20	8-36	4-44
22	8-40	
24	10-42	8-48
26	12-44	
28	14-46	8-52
30	14-48	
32	16-50	12-56
34	18-52	
36	20-54	16-60
38	22-56	
40	22-58	16-64
42	24-60	
44	26-62	20-68
46	28-64	
48	30-66	24-72
50	32-68	

Score %	N=50	N=25
52	34-70	28-76
54	36-72	
56	38-74	32-80
58	40-76	
60	42-78	36-84
62	44-78	
64	46-80	40-64
66	48-82	
68	50-84	44-88
70	52-86	
72	54-86	48-92
74	56-88	
76	58-90	52-92
78	60-92	
80	66-94	56-96
82	68-94	
84	70-96	60-96
86	74-96	
88	76-96	68-96
90	76-98	
92	78-98	72-100
94	82-98	
96	86-100	80-100
98	90-100	
100	96-100	92-100

The following table was adapted from Dubno et al. (1995) should be referenced to identify if percent WRS correct is expected based on PTA:

TABLE 5. 95% Confidence Limit (CL) for PB_{max} as defined by the Hill-Von Krogh equation and discretized for 25-item NU-6 word lists.

PTA (dB HL)[a]	95% CL for PB_{max} (%)	
	Equation	Discrete
−3.3	97.6	100
0.0	96.7	100
1.7	96.2	100
3.3	95.5	96
5.0	94.9	96
6.7	94.1	96
8.3	93.2	96
10.0	92.3	96
11.7	91.3	92
13.3	90.2	92
15.0	89.0	92
16.7	87.7	88
18.3	86.2	88
20.0	84.7	88
21.7	83.1	84
23.3	81.4	84
25.0	79.6	80
26.7	77.7	80
28.3	75.8	76
30.0	73.7	76
31.7	71.6	72
33.3	69.5	72
35.0	67.3	68
36.7	65.0	68
38.3	62.7	64
40.0	60.4	64
41.7	58.1	60
43.3	55.8	56
45.0	53.5	56
46.7	51.3	52
48.3	49.0	52
50.0	46.8	48
51.7	44.7	48
53.3	42.6	44
55.0	40.5	44
56.7	38.5	40
58.3	36.7	40
60.0	34.8	36
61.7	33.0	36
63.3	31.3	32
65.0	29.6	32
66.7	28.1	32
68.3	26.6	28
70.0	25.2	28
71.7	23.8	24

[a]PTA (dB HL) is the average pure-tone threshold at 0.5, 1.0, and 2.0 kHz.

TABLE 6. 95% Confidence Limit (CL) for PB_{max} as defined by the Hill-Von Krogh equation and discretized for 50-item NU-6 word lists.

PTA (dB HL)[a]	95% CL for PB_{max} (%)	
	Equation	Discrete
−3.3	97.5	98
0.0	96.5	98
1.7	96.0	96
3.3	95.3	96
5.0	94.6	96
6.7	93.8	94
8.3	92.9	94
10.0	91.9	92
11.7	90.9	92
13.3	89.7	90
15.0	88.5	90
16.7	87.2	88
18.3	85.7	86
20.0	84.2	86
21.7	82.6	84
23.3	80.9	82
25.0	79.2	80
26.7	77.3	78
28.3	75.4	76
30.0	73.4	74
31.7	71.4	72
33.3	69.3	70
35.0	67.2	68
36.7	65.0	66
38.3	62.8	64
40.0	60.6	62
41.7	58.4	60
43.3	56.2	58
45.0	54.1	56
46.7	51.9	52
48.3	49.8	50
50.0	47.7	48
51.7	45.7	46
53.3	43.7	44
55.0	41.7	42
56.7	39.8	40
58.3	38.0	38
60.0	36.2	38
61.7	34.5	36
63.3	32.8	34
65.0	31.2	32
66.7	29.7	30
68.3	28.3	30
70.0	26.9	28
71.7	25.5	26

[a]PTA (dB HL) is the average pure-tone threshold at 0.5, 1.0, and 2.0 kHz.

Masking Rules

Interaural Attenuation

Interaural attenuation (IA) is the reduction in sound energy of a signal as it is transmitted by bone conduction from one side of the head to the opposite ear.

	Supra-Aural	Inserts	Bone
Pure-tone	40 dB	60 dB	0 dB
Speech	45 dB	65 dB	0 dB

Konkle & Berry (1983), Goldstein & Newman (1985)

Masking Rules Summary

The following table provides a summary of when masking is required and some other masking rules and formulas.

	Masking Rules
AC Pure-Tone	$AC_{TE} - BC_{NTE} \geq IA$
BC Pure-Tone	ABG > 10 dB in TE
SRT	$SRT_{TE} \geq BBC_{NTE} + IA$
WRT	$PL_{TE} \geq BBC_{NTE} + IA$
Overmasking	$EML_{NTE} \geq IA + BC_{TE} + 5$ dB
Central Masking	5 dB is a clinically acceptable shift in threshold when masking
Occlusion Effect	15 dB at 250 and 500 Hz; 10 dB at 1000 Hz; 0 dB at >1000 Hz

Audiometer Set-Up for Masking

Audiometer set-up for masking will vary between audiometer makes and models. The following schemata for masking can be extended to all two-channel clinical audiometers:

Audiometer Set-up for Masking for Air-Conduction

	Channel 1	Channel 2
Routing or Ear	TE	NTE
Stimulus	Tone	NBN
Transducer	Insert or Phone	Insert or Phone

Audiometer Set-up for Masking for Bone-Conduction

	Channel 1	Channel 2
Routing or Ear	TE	NTE
Stimulus	Tone	NBN
Transducer	Bone	Insert or Phone

Audiometer Set-Up for Masking for Speech

	Channel 1	Channel 2
Routing or Ear	TE	NTE
Stimulus	Ext A or Mic	Speech Noise
Transducer	Insert or Phone	Insert or Phone

Pure-Tone Masking Procedures
The following pure-tone masking procedures were adapted form Katz & Lezynski (2002).

Pure-Tone Masking Procedures for Air Conduction (AC)
Masking for air-conduction pure-tone thresholds should be implemented when AC_{TE} - $BC_{NTE} \geq IA$ at a given frequency. Effective masking can be achieved in a number of ways; the step methods and plateau method of masking are described below.

Step Method of Masking for AC Pure-Tone Thresholds
The following procedure describes the step method of masking for air-conduction pure-tone thresholds:

- Dial in initial masking level at 30 dB SL above the AC threshold for the NTE.
- Re-establish AC threshold in the TE.
    - If there is a ≤ 5 dB change in AC threshold in TE, record masked threshold; no evidence of cross hearing.
    - If there is a ≥ 5 dB to 19 dB change in AC threshold in TE, record masked threshold; evidence of cross hearing without masking but no further masking required.
    - If there is a ≥ 20 dB change in AC threshold in TE, subsequent masking is required.
        - Add an additional 20 dB of masking to the NTE. If another shift in threshold of ≥ 20 dB is recorded, increase masking to NTE by 20 dB again (and so forth).
        - Watch out for overmasking and masking dilemmas, which can be calculated with the formula $EML_{NTE} \geq IA + BC_{TE} + 5$ dB

Plateau Method of Masking for AC Pure-Tone Thresholds
The following procedure describes the plateau method of masking for air-conduction pure-tone thresholds:

- Dial in initial masking level at 10 dB SL above the AC threshold for the NTE.
- Re-establish AC threshold in the TE.
    - If there is no change in AC threshold in TE, continue with plateau by increasing masking noise to NTE in 10 dB steps, re-checking threshold AC_{TE}
        - If there is no change in AC_{TE} with 3 successive increments of 10 dB in masking noise to the NTE, record masked threshold.
        - Watch out for overmasking and masking dilemmas, which can be calculated with the formula $EML_{NTE} \geq IA + BC_{TE} + 5$ dB

Sample Instructions for Pure-Tone Air-Conduction Audiometry with Masking
There are many ways to instruct your clients re: testing procedures. You will need to modify your instructions depending on the client you are working with and their ability to understand your directions. Here are some sample instructions to get you started:
"I am going to place some earphones on/in your ears. You will hear some beeps and tones. Every time you hear a beep or a tone, press the button, even if the sound is very soft and quiet.

Throughout this test, you might hear some static in one or the other ear; ignore the static and keep listening for the beeps. Press the button when you hear them. Do you have any questions?"

Pure-Tone Masking Procedures for Bone Conduction (BC)

Masking for bone-conduction pure-tone thresholds should be implemented when ABG > 10 dB in TE. Effective masking can be achieved in a number of ways; the step methods and plateau method of masking are described below.

Step Method

The following procedure describes the step method of masking for bone-conduction pure-tone thresholds:

- Dial in the appropriate frequency-dependent initial masking level above the AC threshold for the NTE, which is as follows:
    - 35 dB SL re: AC_{NTE} at 250 and 500 Hz (20 dB SL + 15 dB SL for occlusion effect)
    - 30 dB SL re: AC_{NTE} at 1000 Hz (20 dB SL + 10 dB SL for occlusion effect)
    - 30 dB SL re: AC_{NTE} at > 1000 Hz
- Re-establish BC threshold for TE
    - If there is a ≤ 5 dB change in BC threshold in TE, record masked threshold; no evidence of cross hearing.
    - If there is a ≥ 5 dB to 14 dB change in BC threshold in TE, record masked threshold; evidence of cross hearing without masking but no further masking required.
    - If there is a ≥ 15 dB change in BC threshold in TE, subsequent masking is required.
        - Add an additional 20 dB of masking to the NTE. If another shift in threshold of ≥ 15 dB is recorded, increase masking to NTE by 20 dB again (and so forth).
        - Watch out for overmasking and masking dilemmas, which can be calculated with the formula $EML_{NTE} \geq IA + BC_{TE} + 5$ dB

Plateau Method

The following procedure describes the plateau method of masking for bone-conduction pure-tone thresholds:

- Dial in the appropriate frequency-dependent initial masking level above the AC threshold for the NTE, which is as follows:
    - 25 dB SL re: AC_{NTE} at 250 and 500 Hz (10dB SL + 15 dB SL for occlusion effect)
    - 20 dB SL re: AC_{NTE} at 1000 Hz (10 dB SL + 10 dB SL for occlusion effect)
    - 20 dB SL re: AC_{NTE} at > 1000 Hz
- Re-establish BC threshold in the TE.
    - If there is no change in BC threshold in TE, continue with plateau by increasing masking noise to NTE in 10 dB steps, re-checking threshold BC_{TE}
        - If there is no change in BC_{TE} with 3 successive increments of 10 dB in masking noise to the NTE, record masked threshold.
        - Watch out for overmasking and masking dilemmas, which can be calculated with the formula $EML_{NTE} \geq IA + BC_{TE} + 5$ dB

Sample Instructions for Pure-Tone Bone-Conduction Audiometry with Masking

There are many ways to instruct your clients re: testing procedures. You will need to modify your instructions depending on the client you are working with and their ability to understand your directions. Here are some sample instructions to get you started:

"I am going to place a headband on your head; one piece will sit behind your ear on this bony portion right here. You will hear some beeps and tones. Every time you hear a beep or a tone, press the button, even if the sound is very soft and quiet. It doesn't matter where you hear the beep. Throughout this test, you might hear some static in one or the other ear; ignore the static and keep listening for the beeps. Press the button when you hear them. Do you have any questions?"

Masking for Speech Audiometry

Masking for speech audiometry should be implemented for SRT if $SRT_{TE} \geq BBC_{NTE} + IA$ and for WRT if $PL_{TE} \geq BBC_{NTE} + IA$.

Masking Procedures for SRT

The following procedure should be used when masking is required for establishing reliable SRTs:

- Dial in an initial masking level of 30 dB SL re: PTA or SRT in the NTE using speech noise.
    - If there is ≤ 15 dB change in SRT threshold for the TE, no additional masking is required and masked SRT should be recorded.
    - If there is a >15 dB change in SRT for the TE, 20 dB of additional masking should be added and SRT re-established.

Masking Procedures for WRT

The following procedure should be used when masking is required for establishing reliable WRTs:

- Dial in a masking level to the NTE that is 20 dB lower than the presentation level of WRTs to the TE using speech noise and obtain WRTs

Sample Instructions for Speech Perception or WRT with Masking

There are many ways to instruct your clients re: testing procedures. You will need to modify your instructions depending on the client you are working with and their ability to understand your directions, as well as the testing materials that have been selected. Here are some sample instructions for an older child or adult to get you started:

"You are going to listen to some more words. Repeat the words that you hear. (If the word occurs in a carrier phrase, give the patient an example of what they might hear. Let them know that they only have to repeat the word and don't have to repeat the carrier phrase.) Throughout this test, you might hear some static in one or the other ear; ignore the static and keep listening for the words. If you're not sure what the word is, give it a guess."

Otoacoustic Emissions Testing

Otoacoustic emissions were first described by Kemp (1978) and are a low-intensity auditory stimulus originating from the outer hair cells in the cochlea. These stimuli can be measured by a sensitive probe microphone placed in the ear canal. Otoacoustic emissions can either be spontaneous, meaning they occur de novo or evoked, meaning they are in response to a probe tone or stimulus. Evoked otoacoustic emissions, such as distortion-product otoacoustic emissions (DPOAEs) or transient-evoked otoacoustic emissions (TEOAEs) are present in nearly all individuals with normal or near normal hearing and normal middle ear status and are used clinically to evaluate cochlear outer hair cell function.

Sample Instructions for Otoacoustic Emissions

There are many ways to instruct your clients re: testing procedures. You will need to modify your instructions depending on the client you are working with and their ability to understand your directions. Here are some sample instructions to get you started:

"I am going to put a soft probe in your ear. You may hear a series of tones or sounds. It's very important that you remain as still and quite as possible while we run the test; it will take a few seconds per ear. You don't have to respond in any way."

Otoacoustic Emissions Normative Data

The following values indicate the minimal signal-to-noise ratios (SNR) constituting a response at the given test frequency. For example, a DPOAE SNR of 10 dB obtained at 4000 Hz would constitute a present response while a DPOAE SNR of 4 dB at the same frequency would constitute an absent response.

	1000 Hz	**1400 Hz**	**2000 Hz**	**2800 Hz**	**4000 Hz**	**6000 Hz**
DPOAEs	6 dB	6 dB	6 dB	6 dB	6 dB	6 dB
TEOAEs	3 dB	6 dB	6 dB	6 dB	6 dB	n/a

Sample Wording for Report Writing for Otoacoustic Emissions

Distortion-product otoacoustic emissions (DPOAEs) were tested bilaterally from 1000 to 6000 Hz to evaluate cochlear outer hair cell function. DPOAEs were present and within normal limits at all test frequencies for the right ear, suggesting (near) normal functioning of the cochlear outer hair cells. For the left ear, DPOAEs were within normal limits from 1000 to 2800 Hz and outside of normal limits from 4000 to 6000 Hz, consistent with hearing loss documented for that ear. Frequency-specific DPOAE signal-to-noise (SNR) values are summarized below, with an SNR of 6 dB or greater considered to be within normal limits:

Ear	**1000 Hz**	**1400 Hz**	**2000 Hz**	**2800 Hz**	**4000 Hz**	**6000 Hz**
Right	12.5 dB	11.0 dB	15.5 dB	16.0 dB	15.5 dB	8.4 dB
Left	10.2 dB	8.8 dB	8.6 dB	6.2 dB	5.0 dB	4.4 dB

Neurodiagnostic Auditory Brainstem Response (ABR)
Sample Instructions for ABR Testing

There are many ways to instruct your clients re: testing procedures. You will need to modify your instructions depending on the client you are working with and their ability to understand your directions. Here are some sample instructions to get you started:

"I am going to scrub your forehead and behind your ears with an exfoliating cleaner and alcohol prep pad. Then, I'll attach four electrodes, two on the forehead and one behind each ear; the electrodes are just stickers with a little bit of cool gel on them. I will then put earphones into your ears and you will hear some clicking noises. You don't have to respond in any way; in fact, you can close your eyes and take a nap. Try to minimize moving around; the calmer and stiller you are, the better of a response I will get. The whole test will take about 15 minutes to complete. Do you have any questions?"

Neurodiagnostic ABR Normative Data

The following table displays normative absolute latency and interwave latency values at 70 dBnHL and 80 dBnHL recording intensities for a click stimulus for adults.

	70 dBnHL		**80 dBnHL**	
Absolute Latency	**Mean (ms)**	**± 2.5 SD (ms)**	**Mean (ms)**	**± 2.5 SD (ms)**
Wave I	1.77	1.48-2.06	1.61	1.31-1.92
Wave III	3.93	3.51-4.35	3.86	3.49-4.23
Wave V	5.87	5.48-6.26	5.65	5.25-6.06
Interwave Latency	**Mean (ms)**	**± 2.5 SD (ms)**	**Mean (ms)**	**± 2.5 SD (ms)**
I-III	2.16	1.86-2.45	2.25	1.82-2.68
III-V	1.96	1.65-2.27	1.79	1.41-2.17
I-V	4.11	3.78-4.44	4.04	3.64-4.43

(Central) Auditory Processing (CAP) Assessment Normative Data

Pitch Pattern Sequence (PPS)

Stimuli	low (880 Hz) and high (1430 Hz) frequency tones
Child	500 ms tones separated by 300 ms intervals
Adult	200 ms tones separated by 150 ms intervals
Presentation Level	50 to 60 dB SL re: SRT or PTA; MCL
Scoring	% correct per ear

Age Range (years:months)	Correct Responses (Mean)	Total Final Scores (Mean)	Ranges
6:0 to 6:11	60%	82%	45-100%
7:0 to 7:11	76%	90%	60-100%
8:0 to 8:11	91%	97%	70-100%
9:0 to 9:11	91%	96%	85-100%
9:0 to adult	90%	96%	88-100%

Katz, Burkhard, & Medwetsky (2001); PPS Test Manual, Auditec

Frequency Pattern Test (FPT)

Stimuli	60 triads of tone patterns differing in frequency
Presentation Level	50 dB HL
Scoring	% correct per ear

Age Range (years:months)	Normative Values (2 SD below Mean)
7:0 to 7:11	35%
8:0 to 8:11	42%
9:0 to 9:11	63%
10:0 to 10:11	78%
11:0 to 11:11	78%
12:0 to adult	80%

Bellis (2011)

Time Compressed and Reverberated Speech Test

Stimuli	NU-6 word lists female speaker with time compression and reverb
Time	45% and 65% time compression
Time + Reverb	same as above but with 0.3 sec reverberation added
Presentation Level	50 to 60 dB HL
Scoring	% correct per ear

Age Range (years:months)	45% TC	45% TC + Reverb	65% TC	65% TC+ Reverb
9:0 to 9:11	65% at 50 dB HL	52% at 50 dB HL	n/a	n/a
10:0 to 10:11	68% at 50 dB HL	59% at 50 dB HL	n/a	n/a
11:0 to 11:11	78% at 50 dB HL	62% at 50 dB HL	n/a	n/a
12:0 to adult	85%at 50 dB HL	73% at 50 dB HL	n/a	n/a
young adult	86.5% at 55 dB HL	72.8% at 55 dB HL	55.5% at 60 dB	34.9% at 60 dB

Bellis (2011)

Random Gap Detection Test

Stimuli	tone and click pairs with randomly varying ISIs from 0 to 40 ms
Presentation Level	55 dB HL
Scoring	average of gap detection thresholds for all stimuli

Average Gap Detection Threshold	Interpretation
<20 ms	WNL
≥ 20 ms	Temporal Processing Disorder

Bellis (2011)

Masking Level Difference (in dB)

Stimuli	tonal or speech
Presentation Level	levels and SNR vary depending on stimulus
Scoring	threshold = dB HL + 1 – (# of words reported correctly/2)

Age	Mean MLD Level
Young, hearing WNL	7.8 dB at 45 dB HL
	8.8 dB at 65 dB HL

Bellis (2011)

Dichotic Digits Test (DDT) Double Digits

Stimuli	20 presentations of 4 digits each (2 to each ear)
Presentation Level	50 dB HL
Scoring	% correct

Age Range (years:months)	Left Ear Normative Values (2 SD below Mean)	Right Ear Normative Values (2 SD below Mean)
7:0 to 7:11	55%	70%
8:0 to 8:11	65%	75%
9:0 to 9:11	75%	80%
10:0 to 10:11	78%	85%
11:0 to 11:11	88%	90%
12:0 to adult	90%	90%

Bellis (2011)

Duration Pattern Test

Stimuli	tone and click pairs with randomly varying ISIs from 0 to 40 ms
Presentation Level	55 dB HL
Scoring	average of gap detection thresholds for all stimuli

Age Range (years:months)	Normative Values (2 SD below Mean)
7:0 to 7:11	25%
8:0 to 8:11	35%
9:0 to 9:11	54%
10:0 to 10:11	70%
11:0 to 11:11	71%
12:0 to adult	73%

Bellis (2011)

QuickSIN

Stimuli	Female speaker recorded sentences with four talker babble noise presented with SNRs of 25, 20, 15, 10, 5, 0 dB
Presentation Level	70 dB HL with PTA of ≤ 45 dB HL
	MCL if PTA > 45 dB HL
Scoring	SNR Loss = 25.5 – total words repeated correctly

SNR Loss	Degree of SNR Loss
0-2 dB	Normal/Near Normal
2-7 dB	Mild
7-15 dB	Moderate
>15 dB	Severe

QuickSIN version 1.3 CD Manual

(Central) Auditory Processing Testing and Hearing Loss

(Central) Auditory Processing (CAP) testing is ideally completed with individuals who present with normal or near normal peripheral hearing sensitivity. In the event that CAP testing is requested for an individual with mild to moderate peripheral hearing loss, use of Dichotic Digit Test, Frequency Patterns Test, and Duration Patterns Test should be considered. It should be noted, however, that a diagnosis of (C)APD is confounded by hearing loss and hearing loss should be strongly considered when making a diagnosis.

Audiometric Test Results	APD Test Results	Interpretation
Unilateral or bilateral hearing loss	WNL bilaterally	(C)APD or CANS compromise ruled out
Bilateral symmetrical hearing loss	Poor(er) results in one ear relative to the other ear	Presence of (C)APD and CANS dysfunction suggested
Unilateral or asymmetrical hearing loss	Ear with better hearing demonstrated poorer results	(C)APD and CANS dysfunction suggested

Chermak & Musiek (2007)

Works Cited

American National Standards Institute. (2004). *Specifications for audiometers (S3.6-2004).* New York: Acoustical Society of America.

American National Standards Institute. (2004). *Methods for manual pure-tone audiometry (S3.21-2004).* New York: Acoustical Society of America.

American Speech Language Hearing Association. (1990). *Guidelines for audiometric symbols.* Rockville, MD: Author.

Bellis, T. (2003). *Assessment and management of central auditory processing disorders in the educational setting: From science to practice* (3rd ed., Singular audiology text). Clifton Park, NY: Delmar Learning.

Burk, M. H., & Wiley, T. L. (2004). Continuous versus pulsed tones in audiometry. *American Journal of Audiology,* 13, 54-61.

Carhart, R. & Jerger, J. (1959). Preferred method for clinical determination of pure-tone thresholds. *JHSD,* 16, 340-345.

Clark, W. & Ohlemiller, K. (2007). *Anatomy and physiology of hearing for audiologists*. Clifton Park, NY: Thomson Delmar Learning.

Dubno, J., Lee, F., Klein, A., Matthews, L., & Lam, C. (1995). Confidence limits for maximum word-recognition scores. *Journal of Speech and Hearing Research, 38*(2), 490-502.

Gelfand, S.A. (2009). *Essentials of Audiology* (3rd ed.). New York: Thieme.

Guthrie, L. A., & Mackersie, C. L. (2009). A comparison of presentation levels to maximize word recognition scores. *Journal of the American Academy of Audiology, 20*(6), 381- 390.

Harrell, R.W. (2002). Puretone evaluation. In J. Katz (Ed.), *Handbook of clinical audiology* (5th ed.) (pp. 71-87). Philadelphia: Lippincott Williams & Wilkins.

Prieve, B.A., & Fitzgerald, T.S. (2000). Otoacoustic emissions. In J. Katz, L. Medwetsky, R. Burkard, & L. Hood (Eds.) *Handbook of Clinical Audiology*, (6th ed.) (pp. 497-528). Baltimore: Lippincott Williams & Wilkins.

Stach, B. (1998). *Clinical audiology: An introduction.* San Diego, CA: Singular Press.

Thornton, A., & Raffin, M. (1978). Speech-discrimination scores modeled as a binomial variable. *Journal of Speech and Hearing Research, 21*(3), 507-518.

SACRAMENTO STATE

Maryjane Rees Language, Speech and Hearing Center
Audiology Clinic Resource Manual Appendix

Maryjane Rees Language, Speech and Hearing Center
Department of Communication Sciences and Disorders
7667 Folsom Blvd
Sacramento, CA 95826
Phone: (916) 278-6601
Fax: (916) 278-7730

We appreciate your interest in receiving audiology services at the Maryjane Rees Language, Speech and Hearing Center. We are a teaching institution and student-run clinic; this means that appointments at our clinic may take longer than they would if the same services were sought elsewhere as the lead clinician is the student. All student clinicians are supervised by licensed audiologists throughout the session. Our services include hearing evaluations, hearing aid assessments and fitting, hearing aid repairs and troubleshooting, assistive listening device selection and dispensing, vestibular and balance assessments, as well as group and individual aural rehabilitation.

Location: Our clinic is housed on the second floor of Folsom Hall, 7667 Folsom Blvd; Sacramento, CA 95826.

Parking: Parking is available in non-designated visitor parking spaces located around Folsom Hall. A one-time use code for a parking voucher will be issued and can be redeemed at the parking meter on the west side of the building. The parking voucher will be valid for the day of the visit only and should be displayed on the dashboard of the car.

Forms: Enclosed please find a patient information and case history form. Please complete these forms and bring them to your appointment.

Ear Wax: We strongly encourage first time visitors for audiology services at the Maryjane Rees Language, Speech and Hearing Center to consult with their physician to ensure that their ears are free of ear wax prior to their appointment. In most cases, ears blocked with wax will require appointments to be rescheduled as we have limited resources for ear cleaning procedures at the center.

Fees: The Maryjane Rees Language, Speech and Hearing Center is not a participating provider with Medicare, Medical, military or veterans' insurance plans, or private insurance plans. We operate as a donations clinic for audiologic services administered and accept private pay for hearing aids. An itemized receipt will be provided for hearing aid or assistive listening device-related purchases and patients are responsible for filing insurance reimbursement claims. The Maryjane Rees Language, Speech and Hearing Center does not file claims to insurance companies.

Hearing Aids: Payment for hearing aids is expected in full on date of issuance. All hearing aids fit at the Maryjane Rees Language, Speech and Hearing Center may be tried on a 30-day trial basis; if returned within 30 days of purchase, hearing aids are subject to a full refund.

Cancellation: Our clinic is a teaching clinic; it is extremely important that clients keep their appointments. If you are unable to keep your appointment for any reason, please call at least 24 hours prior to your appointment time to cancel.

Fragrance Free Clinic: To protect the health of our clients, we respectfully request your cooperation in avoiding the use of scented items or fragrance during your visit at the clinic.

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CENTER PERMISSION FORM

Client's Name: _____DOB: _____ Age: _____

Student Clinician: _____ Clinical Instructor: _____ Semester/Year: _____

OBSERVATION:

I hereby give my permission for the clinical instructor assigned to my student clinician and other CSUS students enrolled in CSAD courses to observe my clinic sessions for the purpose of learning how to be a speech and language pathologist or audiologist.

PLEASE INITIAL: _____ YES _____ NO

CONSENT TO EXCHANGE INFORMATION:

I hereby give my permission for my student clinician to consult verbally with my previous semester's student clinician, should that apply, within the clinic premises only for the purpose of professional collaboration and continuity of my clinical care.

PLEASE INITIAL: _____YES _____NO

AUDIO AND VIDEO RECORDING:

I hereby give my permission for the clinical instructor or other faculty member to audio and video record my clinic session at their discretion to be viewed only by my student clinician, the clinical instructor or faculty member, other students assigned to that clinic, and students enrolled in our department's courses.

PLEASE INITIAL: _____ YES _____ NO

EMERGENCY:

I understand that in case of emergency, such as a fire or earthquake, the student clinician, clinical instructor, department chair or clinic staff member will be responsible for the client. The aforementioned individuals may not be held responsible for injuries to the client if it is determined that those individuals acted in a responsible manner.

PLEASE INITIAL: _____ YES _____ NO

ILLNESS OR INJURY:

I understand that in case of illness or injury of the client or parent/guardian, 911 will be called. This center does not have any medical services available.

PLEASE INITIAL: _____ YES _____ NO

Client/Parent/Legal Guardian Signature: _____

Date: _____

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Client Agreement Form

Client Name: _____ DOB:_____ Semester/Year: _____

Please read this contract, initial beside each item and sign at the end of the document.

I, the undersigned, have read, understand and will comply with the following:

1. No food is allowed in the Maryjane Rees Language, Speech and Hearing Center. Drinks with tight lids only are allowed. No paper cups with straws such as those from fast food restaurants are allowed. ____

2. If I, or the client receiving service, misses more than two appointments, the center has the option of dismissing me or the client from services. _____

3. If I, or the client receiving service, are late for more than two appointments (more than 15 minutes late), the center has the option of dismissing me or the client from services. _____

4. I understand that any authorized person accompanying the client to the appointment must remain in the center's waiting room area at all times in case of an emergency situation. I understand that this is a University liability regulated policy. _____

5. If I, or the client receiving service, cancels an appointment, that appointment will have to be rescheduled for a later date and may or may not be accommodated the same semester. However, if the student clinician cancels an appointment, every effort will be made to make up that canceled session prior to the end of the semester. _____

6. The center keeps client records (written and oral) confidential. Information will not be exchanged with persons outside the Maryjane Rees Language, Speech, and Hearing Center without the written permission of the client or his or her authorized and legal guardian/parent. _____

7. Out of consideration for the privacy of all clients who are receiving clinical services, parents, friends and relatives are not allowed to be in center areas other than the waiting room while appointments are in progress. _____

8. I have read and understood the parking information document and acknowledge all items contained in that document. I understand that the center has no obligation to reimburse or fund parking permits or citations. I affirm that I am solely responsible for any and all parking costs and citations. _____

_____ _____

Client/Parent/Legal Guardian Signature Date

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Fax: (916) 278-7730

Client Emergency Form

Client Information			
Client Name		**DOB**	
Address		**Phone 1**	
		Phone 2	
		Email	

Emergency Contacts			
Contact 1 Name		**Relationship**	
Phone 1		**Phone 2**	
Address			
Contact 2 Name		**Relationship**	
Phone 1		**Phone 2**	
Address			

Please provide details to any medical or pertinent information you would like shared with an emergency care provider	
Allergies	
Allergies to Medications	
Medications Currently Taken	
Other	

Medical Contact Info			
Doctor Name		**Phone**	
Dentist Name		**Phone**	
Preferred Hospital		**Phone**	

_____ _____

Client/Guardian Signature **Date**

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Consent to Exchange Information Form

Client Name: _____ **DOB:** _____

I hereby authorize _____ (Student Clinician Name) or _____ (Clinical Instructor Name) to exchange information via telephone contact with the following individual(s) for the purpose of professional collaboration regarding my clinical case:

Name: _____

Title: _____

Address: _____

_____

Phone: _____

This authorization shall remain in effect for the duration of the University semester and year of:

_____
(Semester/Year)

Client/Parent/Legal Guardian Name (Print): _____

Client/Parent/Legal Guardian Signature: _____

Date: _____

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HIPAA AUTHORIZATION TO DISCLOSE PROTECTED HEALTH INFORMATION

Client's Name: _____ **DOB:** _____

I HEREBY AUTHORIZE the disclosure of my protected health information as described below:

1. The following individual or organization is authorized to make the disclosure:

   _____
   (Physician, Medical Group, Audiologist, Speech-Language Pathologist or School District/Site)

   _____
   (Street Address)

   _____
   (City/State/Zip)

   _____ _____
   (Phone) (Fax)

2. The type and amount of information to be disclosed is as follows:
   ___ Speech Therapy Records Only ___ Speech Therapy and Audiology Records
   ___ Audiology Records Only ___ Complete Medical Records

3. I understand that the information in my chart may include information of a sensitive nature including information related to behavioral or mental health.

4. This information may be mailed/disclosed to and used by the following organization:
   Maryjane Rees Language, Speech and Hearing Center
   California State University, Sacramento
   6000 J Street MS 6071
   Sacramento, CA 95819

5. I understand that I can revoke this authorization at any time. I understand that if I revoke this authorization, I must do so in writing and send my written revocation to the Maryjane Rees Language, Speech and Hearing Center. I understand that the revocation will not apply to information that has already been released in response to this authorization. Unless otherwise revoked, this authorization will expire in twelve months or on the following, event or condition: _____

6. I understand that authorizing the disclosure of protected health information is voluntary. I can refuse to sign this authorization. I need not sign this form in order to receive services. I understand that I may inspect or copy information to be used or disclosed. I understand that any disclosure of information carries with it the potential for an unauthorized re-disclosure and the information may not be protected by privacy rules. If I have any questions about disclosure of my health information, I can contact:
   Maryjane Rees Language, Speech and Hearing Center
   California State University, Sacramento
   6000 J Street
   Sacramento, CA 95819-6071
   Phone: (916) 278-6601

_____ _____ _____
Signature of Client, Parent or Legal Guardian Date Relationship to Client

Maryjane Rees Language, Speech and Hearing Center
Department of Communication Sciences and Disorders
7667 Folsom Blvd
Sacramento, CA 95826
Phone: (916) 278-6601
Fax: (916) 278-7730

NOTICE OF PRIVACY PRACTICE

This notice describes how medical and speech/language/hearing information about you may be used and disclosed and how you can obtain access to this information. Please thoroughly review all that follows.

We at the Maryjane Rees Speech, Language and Hearing Center (MJRSLHC) understand the importance of privacy and are committed to maintaining the confidentiality of your medical and/or speech, language and hearing information. We maintain records of the care we provide and may receive records from others. These records are used to enable ourselves and other health care providers to provide quality medical care. They also enable us to meet our professional as well as legal obligations to operate the MJRSLHC properly and ethically. We are required by law to maintain the privacy of protected health information, as well as provide individuals with notice of our legal duties and privacy practices with respect to protected health information. This notice describes how we may use and disclose your speech/language/hearing information. If you have any questions about this notice, please contact our Privacy Officer, Jeannette W. Reiff for Speech Language Pathology service-related concerns and Jane Grabowski for Audiology service-related concerns, at the address listed above.

How this Speech, Language, and Hearing Center may use or disclose your health information?

The MJRSLHC collects health, speech, language, and hearing information about you via hard (paper) and electronic copies that are faxed, emailed or handed directly to the MJRSLHC. This is your medical record. The medical record is the property of the MJRSLHC, but the information in the medical record belongs to you. The law permits us to use or disclose your health information for the following purposes:

- **Assessment and Treatment**: We use your medical, speech/language, hearing, and/or educational information to provide your speech, language, and hearing care. We disclose this information to our employees and graduate student clinicians who are involved in providing the care you need. You may directly provide personal health information and/or reports to the MJRSLHC without a written authorization. However, we may provide (to another agency or person) and/or obtain information regarding you via conversations, email and/or written reports ONLY when you have signed a release form to allow us to do this, and under the following circumstances
    - When you have requested, in writing, that we send/receive applicable medical, speech, language, and/or hearing reports.
    - When we require additional information to better treat you
    - When we wish to visit your child's public school classroom
- **Payment**: We never send medical, speech, language, and/or hearing information to a payment source without your specific written permission to do so. When insurance companies require specific information, we provide you with a copy to share (or not) with your insurance carrier

- **Health Care Operations**: We may use and disclose information in your medical record to operate the MJRSLHC and to achieve our mission of teaching and training students to become speech pathologists and audiologists. For example, we may use and disclose information to review and improve the quality of care we provide, or the competence and qualifications of our professional staff. We may also use and disclose this information as necessary for department/center reviews, legal services and audits, including fraud and abuse detection, as well as for business planning and management.
    - **Appointment Reminders**: We may use and disclose your personal health information to contact and remind you about appointments. If you are not at home, we may leave this information on your answering machine or in a message left with the person answering the phone number you provided to the MJRSLHC.
    - **Signing In**: At your appointments, we will ask you to sign in verbally, by name, with the receptionist. Your graduate student clinician will call you by name when we are ready to serve you.
    - **Notification and Communication with Family**: We may disclose your personal health information to notify or assist in notifying a family member, your personal representative or another person responsible for your care about your location, your general condition or in the event of your death. In the event of disaster, we may disclose information to a relief organization so that they may coordinate these notification efforts. We may disclose information to someone who is involved with your care or helps pay for your care only with your written permission in advance. We may, however, disclose this same information in a disaster even over your objections if we believe it is necessary to respond to the emergency circumstances and in your best interests.
    - **Marketing**: We will not use or disclose your personal health information for marketing purposes without your written authorization.
    - **Public Health**: In the event it is necessary, we are required by law to disclose your personal health information to public health authorities for purposes related to: preventing or controlling disease, injury or disability; reporting child, elder or dependent adult abuse or neglect; reporting domestic violence; and reporting disease or infection exposure.
    - **Judicial and Administrative Proceedings**: In the event it is necessary, we are required by law to disclose your personal health information in the course of administrative or judicial proceeding to the extent expressly authorized by a court or administrative order. We may also disclose information about you in response to a subpoena, discovery request or other lawful process. We will make reasonable efforts to notify you of the request.
    - **Law Enforcement**: In the event it is necessary, we are required by law to comply with a court order, warrant, grand jury subpoena to disclose your personal health information to a law enforcement official for purposes such as identifying or locating a suspect, fugitive, material witness or missing person.
    - **Research**: We may want to use your personal health information to conduct research studies as a normal part of our academic pursuits. Full disclosure of the research project will be provided to you in written format. Your personal health information will be used only with your written authorization to do so.
- **Disbursement Methods**: The following guidelines are used when sending written personal health information to someone:

- You must sign a written authorization to send the information, as well as provide the address and/or fax number of the recipient of the information. The written authorization is only good for the one academic semester that is written on the authorization form.
- We only share information created at the MJRSLHC (case reports, progress notes, etc.), not information that you provided to us from another source, unless it is information that will aid in your treatment and you have authorized its use.
- Every effort (via the telephone) is made to insure that the person who is identified to be the recipient of the personal health information is ready to receive the written information at the other end of the fax telephone line.
- Your medical records are kept in a secured electronic medical record management system. Only personnel (staff and faculty) and students directly involved with your case are allowed access to this record, unless otherwise authorized by you. Your medical records are not allowed to leave the building at any time and cannot be accessed outside of the clinic.
- Written personal health information to be sent is sent/received by U.S. mail and/or by fax. Personal health information, where you are identified by name, may be sent via e-mail only with your written permission to do so.
- Your graduate student clinician and supervisor may e-mail rough drafts of lesson plans and case reports to each other, but the e-mailed information will not contain any personally identifying information (name, address, phone number, date of birth, parents name, etc.).
- Only specified personnel at the MJRSLHC are allowed to send/receive the personal health information.

- **Observation and Recording**:
  - It is required by our accrediting agency, the American Speech, Language, and Hearing Association, that each and every treatment session completed by a graduate student clinician be observed by a licensed and certified speech/language pathologist or audiologist. Your participation in our center is contingent upon your written authorization to allow this observation.
  - Recording of treatment sessions occurs as a training vehicle for our students, individually and collectively. Your written authorization is required for recording. Recordings are not allowed to leave the clinic building at any time.
  - Observation, via on-line cameras from the observation room, is allowed only for supervisors, faculty, and students enrolled in or employed by the Department of Communication Sciences and Disorders. Parents and spouses may observe in the treatment room with the permission of the graduate student clinician and his or her supervisor. Recordings are not allowed out of the clinic building at any time.
  - Parents and authorized caregivers may request to record sessions for their own personal use and using their own equipment and videotapes. Permission will be granted providing that the graduate student clinician and his/her supervisor give their approval. Approval might be withheld if the recording process interferes with the treatment issue.

When the MJRSLHC May Not Use or Disclose your Personal Health Information

The MJRSLHC will not use or disclose health information which identifies you without your written authorization except as described in this Notice of Privacy Practices. If you do authorize this center to use or disclose your personal health information for another purpose, you may revoke your authorization in writing at any time.

Your Personal Health Information Rights

- **Right to Request Special Privacy Protections**: You have the right to request restrictions on certain uses and disclosures of your health information, by a written request specifying what information you want to limit and what limitations on our use of disclosure of that information you wish to have imposed. We reserve the right to accept or reject your request, and will notify you of our decision.
- **Right to Request Confidential Communications**: You have the right to request that you receive your health information in a specific way or at a specific location. For example, you may ask that we send information to your work address. We will comply with all reasonable requests submitted in writing which specify how or where you wish to receive these communications.
- **Right to Inspect and Copy**: You have the right to inspect and copy your personal health information, with limited exceptions. To access your medical information, you must submit a written request detailing what information you wish access to and whether you want to inspect it or get a copy of it. We will provide you with one written copy of case reports and up to 3 reports to be sent to other persons/agencies, given your written authorization, during the semester in which you receive services at the MJRSLHC. If you require copies at a later date, you will need to complete a new authorization form, and will be charged a reasonable fee for handling, as allowed by California and federal law. Your request may be denied if we believe allowing access would be likely to cause substantial harm to the client. You will have the right to appeal that decision.
- **Right to Amend or Supplement**: You have a right to request that we amend your personal health information that you believe is incorrect or incomplete. We are not required to change your personal health information and may deny this request if we consider the information to be accurate and complete as it is, if the person creating the information is no longer available to make the amendment, and/or if we did not create the information. Corrections will be made as an addendum to the original, finalized and signed report.
- **Right to Accounting of Disclosures**: You have the right to receive an accounting of disclosures of your personal health information made by the MJRSLHC.
- **Notice of Privacy Practices**: You have a right to a paper copy of this notice.

Changes to this Notice of Privacy Practices

We reserve the right to amend this Notice of Privacy Practices at any time in the future. Until such an amendment is made, we are required by law to comply with this notice. After an amendment is made, the revised Notice of Privacy Practices will apply to all protected health information that we maintain, regardless of when it was created or received. A copy of the current notice will be posted in our waiting room. An additional copy will be furnished to you upon request.

Complaints

Complaints about this Notice of Privacy Practices or how the MJRSLHC handles your health information should be directed to our Privacy Officer(s) listed at the top of this Notice of Privacy Practices. You may also submit a formal complaint to:

Department of Health and Human Services
Office of Civil Rights
Hubert H. Humphrey Bldg.
200 Independence Avenue, S.W.
Room 509F, HHH Building
Washington, DC 20201

Maryjane Rees Language, Speech and Hearing Center
Department of Communication Sciences and Disorders
7667 Folsom Blvd
Sacramento, CA 95826
Phone: (916) 278-6601
Fax: (916) 278-7730

REQUEST FOR INFORMATION TO BE SENT

Client's Name: _____ **DOB:** _____

I hereby authorize the Maryjane Rees Language, Speech and Hearing Center to mail the report generated during the following semester _____ and year _____ to the following recipients:

Recipient 1	
Name	
Street Address	
City, State Zip	

Recipient 2	
Name	
Street Address	
City, State Zip	

Recipient 3	
Name	
Street Address	
City, State Zip	

Recipient 4	
Name	
Street Address	
City, State Zip	

Parent/Legal Guardian Name (if applicable): _____

Client/Parent/Legal Guardian Signature: _____ Date: _____

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INFANT CASE HISTORY FORM

Primary Concern: _____
Child's Name: _____ Birthdate: _____ Age: _____
Address: _____
Primary Physician: _____ Telephone: _____ Referred by: _____
Parent/Guardian Name 1: _____ Telephone: _____ Occupation: _____
Parent/Guardian Name 2: _____ Telephone: _____ Occupation: _____
Emergency Contact: _____ Telephone: _____ Relationship: _____

Hearing History		
Newborn hearing screening results	Pass	Refer
Does your baby startle at loud noise?	Yes	No
Does your baby quiet to your voice or in response to music?	Yes	No
Does your baby turn towards sound?	Yes	No
Is there a family history of childhood hearing loss?	Yes	No
If yes, please explain:		

Medical History		
Pregnancy Complications	Yes	No
Medications during pregnancy/nursing	Yes	No
Problems with delivery	Yes	No
Neonatal Intensive Care Unit (NICU)	Yes	No
Premature	Yes	No
Low birth weight	Yes	No
Oxygen given at birth	Yes	No
Jaundice at birth	Yes	No
Heart problems	Yes	No
Breathing problems	Yes	No
Meningitis	Yes	No
Head trauma	Yes	No
Skull fractures	Yes	No
Seizures	Yes	No
Loss of consciousness	Yes	No
Hospitalizations	Yes	No
Ear infections	Yes	No
Allergies	Yes	No
Physician consult for ears	Yes	No
Other history	Yes	No
Comments/Notes		

Birth Mother Diagnosed With		
Herpes virus	Yes	No
Influenza	Yes	No
Cytomegalovirus	Yes	No
Toxoplasmosis	Yes	No
Syphilis	Yes	No
Rubella	Yes	No
Comments/Notes		

Infant Other Diagnoses		
Cleft lip/palate	Yes	No
Down syndrome	Yes	No
Vision problems	Yes	No
Muscular dystrophy	Yes	No
Cerebral palsy	Yes	No
HIV/AIDS	Yes	No
Other	Yes	No
Comments/Notes		

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PEDIATRIC CASE HISTORY FORM

Primary Concern: _____
Child's Name: _____ Birthdate: _____ Age: _____
Address: _____
Primary Physician: _____ Telephone: _____ Referred by: _____
Parent/Guardian Name 1: _____ Telephone: _____ Occupation: _____
Parent/Guardian Name 2: _____ Telephone: _____ Occupation: _____
Emergency Contact: _____ Telephone: _____ Relationship: _____

Auditory Information		
Do you feel that your child has a hearing problem?	Yes	No
When was the hearing problem first noticed?		
Does your child have a history of ear infections?	Yes	No
Has your child ever been exposed to a loud noise or explosion?	Yes	No
Does your child every complain about fullness or noise in the ears?	Yes	No
Does your child have difficulty identifying the direction a sound is coming from?	Yes	No
Does your child watch a speaker's face closely for cues as to what is being said?	Yes	No
Does your child respond to the following? (Check all that apply) ☐ His/her name ☐ Loud noises ☐ Soft noises ☐ Verbal commands ☐ Vibrations		
Which of the following additional services has your child received? (Check all that apply) ☐ Speech/language evaluation or therapy ☐ Academic tutoring ☐ Occupational therapy ☐ Psychological testing ☐ Special education ☐ Genetic evaluation ☐ Neurological evaluation ☐ Physical therapy ☐ Auditory processing evaluation		
Is there a family history of hearing loss?	Yes	No

Pregnancy and Birth Information			
Any unusual illness during pregnancy? (Check all that apply) ☐ Measles ☐ Rh factor ☐ Diabetes ☐ Toxemia ☐ High blood pressure ☐ Cytomegalovirus ☐Other_____			
Length of pregnancy (in weeks)			
Length of labor (in hours)			
Child's birth weight			
Check any of the following which apply ☐ Breech ☐ Planned C-section ☐ Trouble breathing/Required Oxygen ☐ Incubator used ☐ Emergency C-section ☐ Jaundice ☐ Instruments used ☐ Discoloration ☐ Other			
What your child in the Neonatal Intensive Care Unit?		Yes	No
If yes, for what reason?			
For how long?			

Developmental Information		
At what age did your child achieve the following milestones?		
☐ Sat unassisted	☐ Crawled	☐ Walked unassisted
☐ Fed self	☐ Toilet trained	☐ Dressed self
Child's physical development has been _____ (typical, delayed, fast)		

Medical Information

Check any illnesses or medical conditions your child has or has had in the past:

☐ Coordination problems	☐ Recurrent headaches	☐ High fevers	☐ Attention deficit disorder
☐ Swallowing difficulties	☐ Chicken pox	☐ Tonsillitis	☐ Cerebral palsy
☐ Serious accident(s)	☐ Meningitis	☐ Eye problems	☐ Down syndrome
☐ Mumps	☐ Feeding difficulties	☐ Dizziness	☐ Cognitive delays
☐ Surgery	☐ Convulsion/seizures	☐ Measles	☐ Flu
☐ Frequent Colds	☐ Allergies	☐ Other	

List any current medications:

Medication	Dosage	Frequency	Reason for Medication

Speech and Language Information

Have you had any concern regarding your child's speech and language development?	Yes	No
Did your child smile and cry appropriately as an infant?	Yes	No
At what age did your child do the following? Babble _____ Use words _____ Use phrases _____		
Is there a family history of speech difficulties?	Yes	No
Is your child aware of his/her communication problem, if one exists?	Yes	No
Can your child follow simple verbal instructions?	Yes	No
How do you communicate with your child?		
How does your child make his/her needs known?		

Check any of the following that apply to your child:

☐ Poor listening comprehension	☐ Pronounces sounds incorrectly	☐ Talks very little
☐ Leaves out words	☐ Repeats or hesitates when talking	☐ Difficulty maintaining eye contact
☐ Reverses word order	☐Uses incorrect or immature grammar	☐ Uses gestures rather than speech
☐ Talks too rapidly or too slowly	☐ Speaks another language:	

Behavioral Information

Check any of the following that relate to your child's behavior:

☐ Demands attention	☐ Under unusual stress at home	☐ Impulsive
☐ Easily frustrated	☐ Lacks confidence	☐ Withdrawn
☐ Short attention span	☐ Talks excessively	☐ Nervous or sensitive
☐ Easily distracted	☐ Tires easily	☐ Makes inappropriate comments
☐ Hyperactive	☐ Overly sensitive to loud noises	☐ Lacks motivation
☐ Cries easily	☐ Confused in noisy places	☐ Underachiever
☐ Slow learner	☐ Prefers to play alone	☐ Daydreams

Educational Information

Does your child like school?	Yes	No
What are your child's best subjects?		
Which subjects present a significant challenge to your child?		
Does your child have problems paying attention or following directions in the classroom?	Yes	No
Has your child ever received any special help at school?	Yes	No
Has your child ever repeated a grade?	Yes	No
Does your child exhibit behavioral problems at school?	Yes	No
Have your child's teachers ever requested that his hearing or vision be tested?	Yes	No
Is there a family history of learning problems?	Yes	No

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ADULT CASE HISTORY FORM

Name: _____ Birthdate: _____ Age: _____
Address: _____
Primary Physician: _____ Telephone: _____ Referred by: _____
Emergency Contact: _____ Telephone: _____ Relationship: _____
Preferred Language:_____ Do you require an interpreter: ☐ Yes ☐ No Type: _____

Primary concern or reason for referral: _____
Prior hearing test: ☐ Yes ☐ No If yes, when: _____ where: _____
Results/Previous recommendations: _____

Please select the appropriate answers below; select "Yes" if the condition/situation has every applied in the past:

Hearing and Ear-Related Concerns					
Hearing Concerns			**Ear Concerns**		
Hearing loss self (both ears)	Yes	No	Draining ear(s)	Yes	No
Hearing loss self (left ear only)	Yes	No	Ear pain	Yes	No
Hearing loss self (right ear only)	Yes	No	Ear infection	Yes	No
Hearing loss parents	Yes	No	Ear surgery	Yes	No
Hearing loss child(ren)	Yes	No	Ear tubes	Yes	No
Hearing loss siblings	Yes	No	Perforated eardrum	Yes	No
Family member uses hearing aids	Yes	No	Excessive ear wax	Yes	No
Hearing worse since last test	Yes	No	Ringing/buzzing noises	Yes	No
Fluctuating hearing loss	Yes	No	Plugged feeling in ear(s)	Yes	No
Sudden hearing loss	Yes	No	Prior ENT consult for ears	Yes	No
Other:			Other:		
Comments/Notes			Comments:/Notes		

Medical Information

Check any illnesses or medical conditions you have or have had in the past:

☐ Arthritis	☐ Depression/Anxiety	☐ Measles	☐ Seizures
☐ Allergies	☐ Diabetes	☐ Meningitis	☐ Stroke/TIA
☐ Bell's palsy	☐ Hepatitis	☐ Multiple sclerosis	☐ Tuberculosis
☐ Cancer	☐ High blood pressure	☐ Mumps	☐ Vision problems
☐ Concussion/Head injury	☐ High fevers	☐ Pacemaker	☐ Other
☐ Dementia/Alzheimer's	☐ HIV	☐ Parkinson's	

List any current medications:

Medication	Dosage	Frequency	Reason for Medication

Noise Exposure History		
Shooting/gunfire	Yes	No
Power tools/equipment	Yes	No
Loud music	Yes	No
Sporting events	Yes	No
Farm equipment/tractor	Yes	No
Auto races/motorcycles	Yes	No
Military history of noise exposure	Yes	No
Airplane/helicopter	Yes	No
ATV/snowmobile	Yes	No
Hearing protection use	Yes	No
Other:		
Comments:/Notes		

Amplification		
Previous hearing aid use	Yes	No
Current hearing aid use	Yes	No
Satisfied with hearing aid(s)	Yes	No
Assistive listening device use	Yes	No
Personal sound amplified use	Yes	No
Cochlear implant use	Yes	No
Bone-anchored hearing aid use	Yes	No
Middle ear implant	Yes	No
Interested in hearing aid(s)	Yes	No
Interested in cochlear implant	Yes	No
Interested in bone-anchored hearing aid	Yes	No
Other:		
Comments/Notes		

Communication/Hearing Difficulty		
Work/School	Yes	No
Television/Radio	Yes	No
Telephone/Cell phone	Yes	No
Social situations	Yes	No
Restaurant	Yes	No
Meetings	Yes	No
House of worship	Yes	No
Theater/Movies	Yes	No
Family/Friends	Yes	No
Locating source of sound	Yes	No
Hearing speech in noise	Yes	No
Other:		
Comments:/Notes		

Anything else you would like us to know? _____

_____

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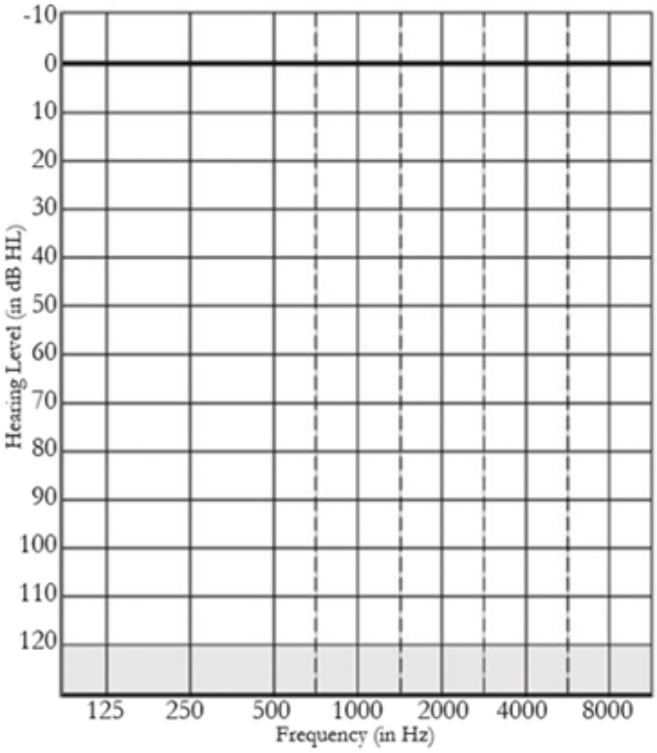
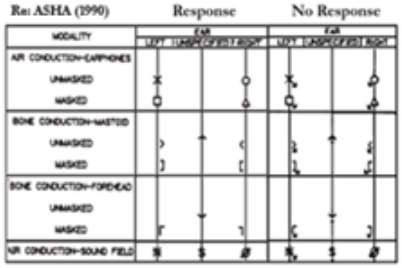
Name: _____ **DOB:** _____ **DOE:** _____ **Age:** _____

Otoscopy	
Right	
Left	





Audiometer	
Calibration	
Transducer	
Reliability	
Technique	

Tympanogram					
Ear	Frequency (Hz)	PP (daPa)	SA (mL)	ECV (ml)	Type
R					
L					

Acoustic Reflex Thresholds						
Ear	Probe	Stimulus	500 Hz	1000 Hz	2000 Hz	4000 Hz
R Ipsi	R	R				
L Ipsi	L	L				
R Contra	L	R				
L Contra	R	L				
R Decay	L	R				
L Decay	R	L				

Masking Level (dB HL)										
	250	500	750	1000	1500	2000	3000	4000	6000	8000
AC R / AC L										
BC R / BC L										

Otoacoustic Emissions						
Frequency (Hz)	1000	1400	2000	2800	4000	6000
Distortion Product Otoacoustic Emissions (DPOAEs)						
Right						
Left						
Transient Evoked Otoacoustic Emissions (TPOAEs)						
Right						
Left						

Speech Audiometry								
☐ MLV	☐ Rec.	☐ NU-6	☐ CNC	☐ W-22	☐ PBK	☐ WIPI	☐ NU-CHIPS	Words No. ___
	PTA	SRT/SDT	WRS		WRS		MCL	UCL
Right	dB	dB	%	dB	%	dB	dB	dB
EML		dB		dB		dB		
Left	dB	dB	%	dB	%	dB	dB	dB
EML		dB		dB		dB		
Soundfield		dB	%	dB	%	dB		
Right Aided		dB	%	dB	%	dB		
Left Aided		dB	%	dB	%	dB		
Binaural Aided		dB	%	dB	%	dB		

Notes: _____

_____

Student Clinician: _____ Clinical Instructor: _____

Student Clinician: _____ Clinical Instructor License No.: _____

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Request for Medical Clearance

_____ (client name) has requested an appointment for a hearing aid evaluation and/or fitting in our clinic. We require this written report of a medical examination before that appointment can be held. The most recent audiologic evaluation completed at our clinic is attached for your review.

We are requesting medical clearance for amplification on account of _____
_____
_____.

We kindly request that you fill out the lower portion of this form (please check all that apply):

☐ Medical findings do not preclude the use of a hearing aid if audiologic evaluations suggest that amplification is likely to be of benefit

☐ Medical findings contraindicate the use of an earmold for the
- ☐ right ear
- ☐ left ear
- ☐ both ears

☐ Medical findings contraindicate the use of a hearing aid for the
- ☐ right ear
- ☐ left ear
- ☐ both ears

☐ A hearing aid evaluation and/or fitting should not be completed until medical treatment has been administered.

Comments: _____
_____
_____

Name: _____, MD/DO
Address: _____
_____
Phone _____
Date _____

Please return this form to: Maryjane Rees Speech, Language and Hearing Center c/o: Audiology
6000 J Street MS 6071
Sacramento, CA 95819
Fax: (916) XXX-XXX

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Medical Clearance Waiver

I have been advised by the Maryjane Rees Speech, Language and Hearing Center that the Food and Drug Administration has determined that my best health interest would be served if I had a medical evaluation by a licensed physician (preferably a physician who specializes in diseases of the ear) before purchasing a hearing aid. As a consenting adult over the age of 18, I do not wish to have a medical examination before purchasing a hearing aid. To the best of my knowledge, there are no conditions that would prevent me from using a hearing aid.

_____	_____	_____
Client Name (Print)	Client Signature	Date

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Hearing Aid/Device Selection Agreement

The following are the hearing aid(s) and/or device(s) to be ordered on behalf of _____.

Hearing Aid Information									
Ear	**Make**	**Model**	**Style**	**Color**	**Receiver Length**	**Receiver Matrix**	**Battery**	**Other/Domes**	**Cost**
R									
L									

Earmold Information							
Ear	**Style**	**Material**	**Color**	**Tubing**	**Venting**	**Other**	**Cost**
R							
L							

Assistive Listening Device/Hearing Aid Accessory Information				
Make	**Model**	**Color**	**Other**	**Cost**

_____ I hereby acknowledge that the total cost of the hearing aid(s), earmold(s), and/or additional devices to be ordered is $_____.
_____ I understand that this full amount is due at the time of the fitting.
_____ I understand that the cost of the hearing aid(s) and/or additional assistive listening device(s) is fully refundable if returned within 45 days of fitting and purchase.
_____ I understand that the cost of $_____ (each) for earmold(s) is non-refundable.

_____	_____	_____
Client Name (Print)	Client Signature	Date
_____	_____	_____
Student Clinician Name (Print)	Student Clinician Signature	Date
_____	_____	_____
Clinical Instructor Name (Print)	Clinical Instructor Signature	Date

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Hearing Aid Purchase Agreement

Name: _____ DOB: _____ Date: _____
Address: _____
Telephone: _____ Email: _____

The following are the hearing aid(s), earmold(s) and/or device(s) to be purchased:

Make	Model	Serial No.	Ear	Battery	Repair Warranty	L&D Warranty	L&D Deductible	Cost

Trial Period Information
This hearing aid is warranted to be specifically fir for the particular needs of you the buyer. If the hearing aid is not initially fit for your particular needs, it may be returned to the seller within 45 days of the initial date of delivery to you. If you return the hearing aid, the seller will either adjust or replace the hearing aid or promptly refund the total amount paid. This warranty does not affect the protections and remedies you have under other laws.

Warranty Information
Unless otherwise indicated, this equipment is new and warranted by the manufacturer against defects in material and workmanship for a period of 3 years from the date of delivery. Each hearing aid and assistive listening device or hearing aid accessory is insured for a one-time loss and damage replacement with a $350 deductible per unit. In the event that the device(s) are lost during the trial period, the trial return period is void and the loss and damage insurance can be applied to replace the instruments.

Medicare/Insurance Coverage
The purchase listed above is non-covered benefit of Medicare and is therefore my responsibility. The Maryjane Rees Speech, Language & Hearing Center does not bill to insurance; it is the patient's responsibility to determine if a hearing aid benefit exists and to submit a claim to insurance.

_____	_____	_____
Client Name (Print)	Client Signature	Date
_____	_____	_____
Student Clinician Name (Print)	Student Clinician Signature	Date
_____	_____	_____
Clinical Instructor Name (Print)	Clinical Instructor Signature/License No.	Date

Maryjane Rees Language, Speech and Hearing Center
Department of Communication Sciences and Disorders
7667 Folsom Blvd
Sacramento, CA 95826
Phone: (916) 278-6601
Fax: (916) 278-7730

Hearing Aid Repair Request

Name: _____ DOB: _____ Date: _____
Address: _____
Telephone: _____ Email: _____

Which hearing aid or device are you having problems with? ☐ **Right** ☐ **Left** ☐ **Both** ☐ **Neither**

Check all that apply to what you perceive is wrong with your device(s):

Left Hearing Aid	Right Hearing Aid	Hearing Aid Accessory
☐ Dead	☐ Dead	☐ Dead
☐ Weak	☐ Weak	☐ Weak
☐ Noisy	☐ Noisy	☐ Distorted
☐ Distorted	☐ Distorted	☐ Won't hold charge
☐ Feedback	☐ Feedback	☐ Broken cable/antenna
☐ Broken tubing	☐ Broken tubing	☐ Broken casing
☐ Broken battery door	☐ Broken battery door	☐ Other _____
☐ Broken volume control	☐ Broken volume control	I don't know (please describe)
☐ Broken or cracked casing	☐ Broken or cracked casing	
☐ Won't hold charge	☐ Won't hold charge	
☐ Other _____	☐ Other _____	
☐ I don't know	☐ I don't know	

Please list the device(s) which are being submitted for repair:

Make	Model	Serial Number	Side	Warranty Expiration

Please initial all that apply:

_____ I acknowledge that I will incur a repair cost of $250.00 if my hearing aid is out of warranty and needs to be sent to the manufacturer for repair; this will include a one-year repair warranty.
_____ I acknowledge that I will incur an additional cost of $250.00 if my hearing aid is damaged and needs to be recased.

_____ _____ _____
Client Name (Print) Client Signature Date

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Loaner Device Agreement

I, _____ (full name), acknowledge receipt of the following hearing aid(s) and/or devices on _____ (date of loan):

Make	Model	Serial Number	Value

_____ I understand that this/these device(s) are issued to me at no charge for 30 days from the date listed above and that I am responsible for this/these device(s) while they are in my possession.

_____ I agree to return this/these device(s) in good condition within 30 days; in the event that the device(s) are not returned to the clinic in good condition by _____ (date), I understand that I will be charged $_____ as the purchase price of the device(s).

_____ I understand that in the event the device(s) are returned in disrepair, I am responsible for the costs associated with the repairs.

_____	_____	_____
Client Name (Print)	Client Signature	Date
_____	_____	_____
Student Clinician Name (Print)	Student Clinician Signature	Date
_____	_____	_____
Clinical Instructor Name (Print)	Clinical Instructor Signature	Date

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Sacramento, CA 95826
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Fax: (916) 278-7730

Name: _____ **DOB:** _____ **Date:** _____

SUMMARY OF INITIAL AUDIOLOGIC EVALUATION

BACKGROUND INFORMATION

John Doe, age 50 years, was seen at the Audiology Clinic at the Maryjane Rees Speech, Language & Hearing Center (MJRSLHC) at California State University, Sacramento for an initial audiologic evaluation. He reported a preference for his right ear on the telephone and noted that he was treated at UC Davis Medical Center for aural fullness and decreased hearing sensitivity in his left ear 2 years ago, which resolved on its own after a few months. Mr. Doe denies any current perceived decreased hearing sensitivity, recent aural fullness, otalgia or tinnitus in either ear. He also denies a history of ear infections, noise exposure, drainage from the ears, familial hearing loss, major illnesses or surgeries, and is not taking any medications.

AUDIOMETRIC TEST RESULTS

An otoscopic inspection was conducted prior to testing and revealed clear canals with easily visualized tympanic membranes free of known pathology, bilaterally. Pure-tone audiometry indicated hearing within normal limits for the right ear and slight (500-2000 Hz) gradually sloping to mild (3000-8000 Hz) sensorineural hearing loss in the left ear. The 3-frequency pure tone average (PTA) was 7 dB HL for the right ear and 22 dB HL in the left ear.

Speech audiometry was performed. Speech recognition thresholds (SRTs) were obtained via female monitored live voice and were in good agreement with the PTA at 5 dB HL in the right ear and 15 dB HL in the left ear, indicating acceptable test validity. Word recognition testing was administered via male recorded NU-6 ordered by difficulty word list (10 words). The patient scored 100% in the right ear at 45 dB HL (40 dB SL re: SRT) and 100% in the left ear at 55 dB HL (40 dB SL re: SRT). These results are expected for the right ear and better than expected based on the patient's PTAs (re: Dubno et al., 1995).

Tympanometry

Tympanometry was performed using a 226 Hz probe tone to evaluate middle ear status. Peak pressure, static admittance and ear canal volume were within normal limits bilaterally, constituting Jerger Type A tympanograms. Tympanometric values obtained are documented below:

Ear	Peak Pressure	Static Admittance	Ear Canal Volume	Tympanogram Type
Right	0 daPa	1.0 ml	1.0 cc	A
Left	-5 daPa	0.9 ml	1.1 cc	A

Acoustic Reflex Thresholds

Ipsilateral and contralateral acoustic reflex thresholds (ARTs) were obtained bilaterally at 500 Hz, 1000 Hz, and 2000 Hz. ARTs were present and within normal limits across all test frequencies bilaterally (re: Gelfand, 1990), summarized below:

Stim Ear	Ipsilateral ARTs (dB HL)			Contralateral ARTs (dB HL)			Acoustic Reflex Decay	
	500 Hz	1000 Hz	2000 Hz	500 Hz	1000 Hz	2000 Hz	500 Hz	1000 Hz
R	80	80	80	95	85	90		
L	80	85	85	90	95	90		

Otoacoustic Emissions

Distortion-product otoacoustic emissions (DPOAEs) were tested bilaterally from 1000 to 6000 Hz to evaluate cochlear outer hair cell function. DPOAEs were present and within normal limits at all test frequencies for the right ear, suggesting (near) normal functioning of the cochlear outer hair cells. For the left ear, DPOAEs were within normal limits from 1000 to 2800 Hz and outside of normal limits from 4000 to 6000 Hz, consistent with hearing loss documented for that ear. Frequency-specific DPOAE signal-to-noise (SNR) values are summarized below, with an SNR of 6 dB or greater considered to be within normal limits:

Ear	1000 Hz	1400 Hz	2000 Hz	2800 Hz	4000 Hz	6000 Hz
Right	12.5 dB	11.0 dB	15.5 dB	16.0 dB	15.5 dB	8.4 dB
Left	10.2 dB	8.8 dB	8.6 dB	6.2 dB	5.0 dB	4.4 dB

SUMMARY

Results from today's audiologic evaluation revealed hearing within normal limits in the right ear and a slight to mild sensorineural hearing loss in the left ear. Mr. Doe's ability to repeat words in quiet at a conversational level was excellent bilaterally. While objective testing (tympanometry, ARTs) revealed normal functioning, subjective pure tone testing revealed an asymmetry between all test frequencies except 250 Hz. In light of asymmetric sensorineural hearing loss (left worse than right), patient should return to clinic for auditory brainstem response (ABR) testing to rule out retrocochlear pathology.

RECOMMENDATIONS

It is recommended that Mr. Doe:

1. Return to the Audiology Clinic at the MRSLHC for ABR testing to rule out retro-cochlear pathology.
2. Contact the Audiology Clinic at the MRSLHC (XXX.XXX.XXXX) in the event that the patient has any questions or concerns.

_____ _____ _____

Student Clinician Name (Print) Student Clinician Signature Date

_____ _____ _____

Clinical Instructor Name (Print) Clinical Instructor Signature/License No. Date

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Name: _____ **DOB:** _____ **Date:** _____

SUMMARY OF INITIAL PEDIATRIC AUDIOLOGIC EVALUATION

BACKGROUND INFORMATION

XY, age 8 years, was seen at the Audiology Clinic at the Hearing & Balance Center (MJRSLH) at the California State University, Sacramento (CSUS) for an initial audiologic and auditory processing evaluation. XY was accompanied to the appointment by his mother, XX. XX and XY reported the information noted below. XY's mother initiated the appointment to further evaluate reasons behind XY's difficulties with reading, attention, attentiveness, and difficulties with sounding out nonsense words.

XY is currently in the third grade at the California Montessori Project school and is actively involved in sports-related activities. While XY currently reads slightly above level, his mother notes that despite meeting with a reading tutor twice a week, reading requires substantial effort. XY's mother also noted that XY has had difficulties with speech sound to symbol relationships and would remain unaware when he mispronounced common words. In addition, she noted that XY has had difficulty following complex directions, has been distractible, fidgety, and occasionally bothered and distracted by extraneous environmental noise.

An educational assessment was administered on January 2, 2020 by Dr. Z, details of which may be found in a copy of the comprehensive report. A Listening Inventory for Education assessment completed by XY's teacher notes that "XY often misses instructions or clarification of materials due to his lack of focus." XX's mother denied concerns about hearing status, adding that XY had passed the infant hearing screening and several subsequent hearing screenings completed at school.

AUDIOMETRIC TEST RESULTS

An otoscopic examination revealed clear canals bilaterally with intact and healthy-looking tympanic membranes. Air-conduction pure-tone testing with inserts indicated normal hearing in the left ear and normal hearing sharply sloping to a mild hearing loss from 4000 to 8000 Hz in the right ear. The pure-tone average (PTA) was calculated to be 3 dB HL in the right ear and 1 dB HL in the left ear. Pure-tone thresholds obtained through bone conduction testing were largely consistent with air-conduction pure-tone thresholds. An air-bone gap (ABG) was noted at 500 Hz. Speech recognition thresholds (SRTs) were obtained at 5 dB HL bilaterally using male recorded speech. These thresholds are in good agreement with the PTA for the right and left ear indicating acceptable test validity.

Word recognition testing (WRT) was conducted utilizing the CID W-22 list delivered via recorded male speaker at 50 dB HL (25 words per ear). XY scored 96% in the right ear and 92% in the left ear. In order to further evaluate XY's abilities, speech-in-noise testing was conducted using a male-speaker recorded version

of the CID W-22 word list in the presence of multi-talker babble at a signal-to-noise ratio (SNR) of +8 dB (50 words per condition). Notably, XY's scores decreased significantly to 62% in the right ear and 64% in the left ear. He obtained an 80% in the binaural condition. Further word recognition testing was conducted using Gardner's high-frequency consonant discrimination word list to evaluate the impact of the elevated high-frequency thresholds in the right ear on speech discrimination. Testing was conducted at 50 dB HL (25 words per ear) via female monitored live voice. XY scored 100% in the left ear and 84% in the right ear.

Tympanometry

Tympanometry was performed using a 226 Hz probe tone to evaluate middle ear status. Peak pressure, static admittance and ear canal volume were within normal limits bilaterally, constituting Jerger Type A tympanograms. Tympanometric values obtained are documented below:

Ear	Peak Pressure	Static Admittance	Ear Canal Volume	Tympanogram Type
Right	5 daPa	1.4 ml	0.9 cc	A
Left	0 daPa	0.9 ml	0.9 cc	A

Acoustic Reflex Thresholds

Ipsilateral and contralateral acoustic reflex thresholds (ARTs) were obtained bilaterally at 500 Hz, 1000 Hz, and 2000 Hz and are summarized below:

Stim Ear	Ipsilateral ARTs (dB HL)			Contralateral ARTs (dB HL)			Acoustic Reflex Decay	
	500 Hz	1000 Hz	2000 Hz	500 Hz	1000 Hz	2000 Hz	500 Hz	1000 Hz
R	90	90	90	95	95	95	DNT	DNT
L	90	90	90	95	90	85	DNT	DNT

Ipsilateral and contralateral ARTs were obtained at the expected levels (re: Silman & Gelfand, 1981) given XY's hearing thresholds.

Otoacoustic Emissions

Distortion-product otoacoustic emissions (DPOAEs) were probed from 1000 Hz to 6000 Hz to evaluate functioning of the cochlear outer hair cells (OHCs). Results from DPOAE tests suggest normal function of OHCs for the left ear. Comparatively, DPOAEs recorded from the right ear were significantly less robust at all test frequencies than their left ear counterparts. Furthermore, DPOAEs were absent at 4000 Hz and 6000 Hz in the right ear, suggesting abnormal OHC functioning at higher frequencies for that ear. This is in good agreement with the audiometrically obtained pure-tone thresholds. Frequency-specific DPOAE signal-to-noise (SNR) values are summarized below, with an SNR of 6 dB or greater considered to be within normal limits:

Ear	1000 Hz	1400 Hz	2000 Hz	2800 Hz	4000 Hz	6000 Hz
Right	7.8 dB	17.8 dB	13.0 dB	19.0 dB	-1.5 dB	-4.1 dB
Left	20.8 dB	27.4 dB	21.7 dB	21.8 dB	26.4 dB	29.7 dB

SUMMARY

XY's results were significant for a unilateral high-frequency sensorineural hearing loss in the right ear from 4000-8000 Hz, presenting an asymmetry between ears at those frequencies. Given the nature of XY's

hearing loss, an auditory processing battery could not be administered. Instead, more extensive word recognition testing was conducted to further explore XY's speech understanding in quiet and noisy conditions. While XY's word recognition abilities in quiet are good, he breaks down significantly in the presence of back-ground noise and had great difficulty identifying words. Additionally, testing showed that XY has trouble hearing certain consonants in the right ear, furthermore making it difficult for him to process speech. In order to address XY's inconsistent access to speech, classroom accommodations, such as preferential seating away from background noise, noisy peers, and especially the use of an ear-level FM system or hearing aid with FM receiver, are strongly recommended.

RECOMMENDATIONS

It is recommended that XY:

1. It is highly recommended that XY use an ear-level FM system or hearing aid with FM receiver for the classroom and for use during reading tutoring sessions. The use of an FM system would cut out distracting or bothersome background noise, helping XY identify and respond to what is being said more efficiently.
2. XY should be given preferential treatment in the classroom and be seated in maximal line-of-sight with his teacher on account of his hearing loss. This will allow XY to have better access to speech and make use of visual cues more effectively.
3. XY should be seated away from open doors and windows, humming computers, or habitually noisy classmates so that extraneous noises can be minimized, enabling XY to better maintain his attention.
4. XY's teachers should make an effort to use clear speech, use XY's name to confirm auditory attention prior to teaching new concepts or asking questions, and refrain from speaking towards the board. This will ensure that XY is given every opportunity for access to vital speech and visual cues.
5. Prioritize the use of hearing protection devices in noisy environments, such as at concerts, in order to preserve XY's hearing.
6. XY should consult with an orthorhinolaryngologist to rule out retrocochlear pathology given the asymmetry found between ears and to obtain medical clearance in the event that a hearing aid is pursued.
7. Contact the Audiology Clinic at the MJRSLHC (XXX.XXX.XXXX) if any questions, concerns, or suspected changes in hearing sensitivity arise.
8. Return to Audiology Clinic at the MJRSLHC in one year to continue monitoring the status of his hearing.

Student Clinician Name (Print)	Student Clinician Signature	Date
Clinical Instructor Name (Print)	Clinical Instructor Signature/License No.	Date

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SUMMARY OF AUDITORY PROCESSING EVALUATION

BACKGROUND INFORMATION

XY, age 8, was seen at the Audiology Clinic at the Maryjane Rees Speech, Language and Hearing Center (MJRSLHC) for a central auditory processing (CAP) evaluation. His mother, XX, accompanied him to the appointment. XY was referred to the MJRSLHC for CAP testing by Dr. Z, Au.D., CCC-A, from Sacramento Best ENT Associates (SBENTA), following marginally poor performance on the screening SCAN-C: Test for Auditory Processing Disorders in Children-Revised. His hearing sensitivity had previously been assessed at SBENTA by Dr. Z, Au.D, CCC-A on January 2, 2020. Results from the audiologic evaluation indicated normal peripheral hearing sensitivity bilaterally.

A neuro-psychological assessment conducted by Dr. ZZ, Ph.D., NCSP at Best NeuroBehavioral Associates in December 2019 led to diagnoses of generalized anxiety disorder as well as reading weakness associated with phonological processing and spelling. Results from the evaluation indicated that while XY had difficulties sustaining working memory and attention, an attention deficit hyperactivity disorder (ADHD) diagnosis could not be made at the time. XY currently meets with a cognitive-behavioral therapist to address behaviors associated with his anxiety disorder. He is also enrolled in a reading intervention program to mitigate reading difficulties.

XY currently lives in Sacramento with his parents, XX and XA, and his older sister. English is the primary language spoken at home, although Ms. XX has made an effort to teach XY some key phrases in Spanish. XY has just completed the 2nd grade at Bushy Park Elementary School and is actively involved in sports. XY is an avid reader and enjoys drawing comic strips. Ms. XX indicated that XY's neonatal and developmental history was unremarkable. She reported that XY is currently in good health, but is allergic to peanuts, tree nuts, legumes, and mold. XY seemed to be highly aware of his allergies and volunteered information frequently.

Ms. XX voiced concerns about XY's speech and language development, auditory memory, distractibility and difficulty attending to speech in noisy conditions, poor performance with multi-step directions and other verbal tasks. In relation to speech and language, Ms. XX indicated that XY often mispronounces words, hesitates or repeats certain sounds and words, mishears words, frequently asks for words to be repeated and clarified, mixes up time related words, and has trouble understanding jokes, sarcasm, and idiomatic expressions. In addition, XY's teachers have previously remarked that he has trouble following directions in the classroom and doesn't seem to listen. Furthermore, XY is very anxious about school. He mentioned that he sat with a group of kids during the previous academic year in the back of the classroom and found them to be annoying, noisy, and distracting. XY is also bothered by and highly aware of loud sounds, such as movie previews, other kids, and the toilet flushing. Ms. XX indicated that he startles easily to certain sounds.

AUDITORY PROCESSING TEST RESULTS

An otoscopic examination indicated clear canals bilaterally and both tympanic membranes appeared to be intact. Tympanometry was performed using a 226 Hz probe tone to evaluate middle ear status, indicating Jerger Type A tympanograms. Ear canal volume, static compliance, and peak pressure were within normal limits. The tympanometric results are summarized below:

Ear	Peak Pressure	Static Admittance	Ear Canal Volume	Type
Right	25 daPa	1.1 ml	1.5 ml	A
Left	15 daPa	0.9 ml	1.2 ml	A

Air-conduction pure tone testing was conducted with inserts as a screening measure only. Results from pure tone testing indicated normal hearing bilaterally across all test frequencies with the exception of 250 Hz, where the threshold was recorded at 25 dB HL. The pure tone average (PTA) was calculated to be 8 dB HL in the right ear and 12 dB HL in the left ear. Speech recognition thresholds (SRTs) were obtained at 5 dB HL in the right ear and 10 dB HL in the left ear using male recorded speech. These thresholds are in good agreement with the PTA indicating acceptable test validity.

An auditory processing test battery was administered to evaluate XY's ability to process auditory information. The test battery consisted of tests selected from three auditory processing domains: dichotic listening, monaural low redundancy, and temporal processing. Descriptions of the auditory processes, tests utilized, and XY's score are discussed below.

Dichotic Listening Tasks

Dichotic listening tests involve the presentation of different signals to each ear simultaneously. Dichotic listening tasks are used to evaluate an individual's ability to attend to different stimuli simultaneously, known as integration, or to identify only the stimuli presented to a given ear, known as separation. Dichotic listening tasks are particularly sensitive to cortical and interhemispheric lesions.

Dichotic Double Digits Test: In order to evaluate XY's auditory integration abilities, the dichotic double digits test was administered at a presentation level of 50 dB SL (re: SRT) bilaterally. The dichotic double digits test consists of two different pairs of numbers (one through 10, excluding seven) presented to each ear simultaneously. The patient is then instructed to repeat all four numbers. Results of the scaled scores in relation to age-appropriate norms are summarized below:

Ear	Score	Age Norms (08:0 to 8:11)
Right	95%	≥ 75%
Left	95%	≥ 65%

Monaural Low-Redundancy Tasks

Monaural low-redundancy tasks consist of speech signals which have been degraded in some way, making the speech difficult to understand. These tasks assess the listener's ability to reconstruct the remainder of the word, also known as auditory closure. Monaural low-redundancy tasks provide useful information about how a listener performs under adverse conditions.

Speech-in-Noise Test: CID W-22 Word List +8 dB SNR with Multi-talker Babble: In order to evaluate XY's auditory closure abilities, speech-in-noise testing was conducted using a male-speaker recorded version

of the CID W-22 word list in the present of multi-talker babble at a signal-to-noise ratio (SNR) of +8 dB. The test was administered with speech at a presentation level of 50 dB SL (re: SRT). Results of the scaled scores in relation to age-appropriate norms are summarized below:

Ear	Score	Age Norms (12:0 to adult)
Right	62%	≥ 70%
Left	62%	≥ 70%

Low-Pass Filtered CNC Word Test: In order to further evaluate XY's auditory closure abilities, low-pass filtered word testing was conducted using a male-speaker recorded version of the CNC word list at a presentation level of 50 dB SL (re: SRT). This particular test used monosyllabic speech stimuli which had been filtered in such a way that only low frequency information of the stimuli was accessible to XY, resulting in words that sound mumbled and unclear. Results of the scaled scores in relation to age-appropriate norms are summarized below:

Ear	Score	Age Norms (8:0 to 8:11)
Right	40.0%	≥ 70.0%
Left	70.0%	≥ 70.0%

Temporal Processing Tasks

Temporal processing tasks evaluate a listener's ability to organize and process time-related aspects of acoustic signals. Some temporal processing tasks assess a listener's temporal ordering and sequencing abilities in terms of signal duration or frequency. Others measure temporal resolution abilities or the shortest interval of time an individual can identify between two acoustic signals. Temporal processing tests typically carry a low linguistic load and provide useful information about the integrity of the auditory cortex.

Frequency Pattern Test (FPT) Test: In order to evaluate XY's temporal ordering and sequencing abilities, the FPT was administered. In this test, 30 triads of tones were presented to each ear. Each tone in the triad sequence was either high in frequency (1122 Hz) or low in frequency (880 Hz). XY was asked to identify the pattern that he heard by verbally classifying each tone in the sequence using "high" or "low". This test was administered at a presentation level of 50 dB SL (re: SRT) bilaterally. XY had some difficulty with this task and was prone to reversals, which is expected for his age group. This means that when XY was presented with the sequence high-low-high, he would identify it as low-high-low. Results of the scaled scores in relation to age-appropriate norms are summarized below:

Ear	Score	Score with Reversals Counted as Correct	Age Norms (8:0 to 8:11)
Right	63.3%	73.3%	≥ 42%
Left	50.0%	73.3%	≥ 42%

SUMMARY OF TEST RESULTS

Test	Scores		Normative Scores		Interpretation	
	Right	Left	Right	Left	Right	Left
Dichotic Listening						

Dichotic Double Digits	95.0%	90.0%	≥ 70.0%	≥ 70.0%	WNL	WNL
Monaural Low Redundancy						
CID W-22 Word List +8 dB SNR With Multi-talker Babble	62.0%	62.0%	≥ 70.0%		Abnormal	Abnormal
Low-Pass Filtered CNC Words	40.0%	70.0%	≥ 70.0%		Abnormal	WNL
Temporal Processing						
Frequency Pattern	63.3%	50.0%	≥ 42.0%		WNL	WNL

IMPRESSION

XY was pleasant and attentive throughout the majority of the appointment. During the testing session, he focused intently and worked very hard to complete the tasks, losing some focus towards the end of the session.

XY's auditory processing test results revealed scores within normal limits given age-appropriate norms on the dichotic listening task and the temporal resolution task. XY's performance on the speech-in-noise monaural low-redundancy task, however, was slightly outside the range of normal. In order to further explore XY's auditory closure abilities, a subsequent monaural low-redundancy test was administered, the low-pass filtered word test. XY performed within normal limits in the left ear, but his ability to identify the words in the right ear declined significantly in comparison. The discrepancy in performance between ears should be interpreted with caution, however. The low-pass filtered word test was administered at the end of the 2.5-hour-long testing session with testing of the left ear preceding testing of the right. During the administration of this test, XY was becoming increasingly restless. Given XY's balanced performance between ears on all other tasks, it is highly unlikely that his poor performance on this task in the right ear only is attributable to an auditory processing disorder (APD).

Given the predominantly normal test results, an APD diagnosis could not be made at this time. While XY's performance on the monaural low-redundancy tasks was outside the normal range, it remains unclear whether this is due to a central auditory deficit or XY's reported generalized anxiety disorder or attention-related effects. In the event that a future neuropsychological evaluation either confirms or rejects an attention-related deficit, an APD diagnosis may be re-considered at that point in time. In the meantime, please consider the recommendations below to mitigate XY's perceived difficulties in the presence of background noise and with auditory attention.

RECOMMENDATIONS

It is recommended that:

1. XY should be seated in the front of the classroom, with his teacher clearly visible in his direct line of sight. This will increase accessibility to speech, as well as reduce distractibility from peers.
2. XY's teachers should make sure to face XY when speaking, providing him with important visual speech cues and body language.
3. XY should self-advocate and not hesitate to ask his teacher to repeat or rephrase what was said.
4. To ensure that XY receives a clear auditory signal during classroom instruction, extraneous classroom noise should be minimized in the following ways, if possible:

    a. Cover the bottom of chairs, desks, and tables with soft material to reduce noise when sliding furniture.
    b. Use carpeting, cushions, or fabric drapes when possible to absorb sound and reduce reverberation.
    c. Keep windows and doors closed.
    d. Place rubber strips around doors to keep hallway noise out of the classroom.
    e. Encourage students to be mindful of noise by having a list of noise rules for the classroom.
5. Provide XY with written instructions to supplement any instructions and assignments given orally.
6. Consider the use of an FM system in the event that priority seating arrangements and self-advocacy do not improve XY's difficulties in the classroom.
7. At home, XY should find a quiet spot in his house with minimal background noise in which he can complete his homework.
8. When communicating, XY and his family should minimize background noise as much as possible by turning off fans, running water, the television, etc. In addition, it is important that he is addressed directly, and that he has a clear view of any speaker in noisy environments so that he has access to facial speech cues visually.
9. A number of auditory training apps are available on iTunes. Among these, the following may help strengthen XY's auditory attention and auditory closure abilities:
    a. Bop It! is available in physical form or through iTunes as an app. This game provides the player with a series of commands that vary depending on the version of the game. The player must then execute the command. The commands are given at an increasing rate as the game progresses. The game plays background music while the commands are given, which may prove particularly useful.
    b. Hear Coach is available as an app through iTunes and features two game options. The Word Target game consists of sets of monosyllabic words presented one at a time. The listener is asked to correctly identify the word heard. As the listener proceeds through the game, the level of background noise increases, confounding the difficulty of the task. The Repeater game requires the listener to listen to strings of numbers and indicate the numbers heard. As the listener works through the levels, the string of numbers the listener is asked to recall increases.
    c. MemoryBlock Pro is an app that requires the listener to execute a series of commands, similar to Bop It! This app can be used with the sound on to practice listening to instructions and patterns in the presence of background noise.
10. The PC-based EarRobics Connections software program can be used at home to improve XY's listening and reading proficiency. It contains a variety of different tasks designed to improve auditory processing abilities.
11. Research suggests that musicians perform significantly better with speech recognition in the presence of background noise throughout the lifespan. Consider enrolling XY in music classes or private lessons.
12. Please return to the Audiology Clinic at the MJRSLHC if any changes in hearing sensitivity are perceived.

13. Contact the Audiology Clinic at the MJRSLHC (XXX.XXX.XXXX) in the event that questions or additional concerns arise.

Student Clinician Name (Print)	Student Clinician Signature	Date
Clinical Instructor Name (Print)	Clinical Instructor Signature/License No.	Date

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SUMMARY OF HEARING AID ISSUANCE

BACKGROUND INFORMATION

XX, 50 years old, with history of bilateral sensorineural hearing loss was seen today for the fitting of new hearing aids. XX is an experienced hearing aid user. XX's spouse accompanied XX to today's appointment. Results of audiometric testing on December, 1 2019 revealed a mild (250-4000 Hz) sloping to moderate hearing loss in the right ear and a moderately severe to severe (250-1000 Hz) rising to moderate hearing loss in the left ear. XX's left tympanic membrane is currently perforated and she has a pressure equalization tube placed in her right ear. Please see previous reports for additional details. XX provided documentation of medical clearance for hearing aids by a physician.

HEARING AID INFORMATION

Devices Issued Today

Ear	Make	Model	Style	Serial No.	Battery	Mold	Trial	Warranty
R	Phonak	Marvel	RIC	XXXXXX	13	Micro	01/01/2020	01/01/2023
L	Phonak	Marvel	RIC	XXXXXX	13	Micro	01/01/2020	01/01/2023

Previous Hearing Aids on Record

Ear	Make	Model	Style	Serial No.	Battery	Mold	Warranty	L&D
R	Phonak	Naida	BTE	XXXXXX	13	Full	01/01/2019	01/01/2019
L	Phonak	Naida	BTE	XXXXXX	13	Full	01/01/2019	01/01/2019

HEARING AID FITTING

Otoscopy revealed clear ear canals with visualization of the tympanic membrane bilaterally.

Hearing aid were connected to manufacturer's fitting software and set to best fit (re: patient's thresholds). Speech mapping using the Verifit system revealed excellent approximation to NAL-NL2 targets to 55, 65, and 75 dB SPL inputs and verified appropriate gain and frequency response measures after adjustments made. MPO targets were not exceeded.

Due to patient's complaints, the following changes were made to the hearing aids:

1. Reduced overall gain by 3 dB AU for comfort
2. Reduced overall gain by 1 dB AS for balance

Hearing aids were set with the following programs:

1. All Around
2. Restaurant
3. Car

Alternative: Hearing aids were programmed fully automatic; use of additional programs was discussed with XX and will be deferred for hearing aid aftercare appointment pending XX's concerns.

The push button on the hearing aid was set for volume/program adjustments as follows:

1. Right Short Push: Volume Increase
2. Left Short Push: Volume Decrease
3. Right Long Push: Streamer Activation Left
4. Long Push: Program Change

Indicator tones were reviewed with the XX. XX reported satisfaction with the sound quality and comfort of the hearing aids. XX's hearing aids were successfully synced to the patient's cell phone. XX was able to successfully place a phone call directly into his hearing aids.

XX was counseled on overall hearing aid use, care, maintenance, storage, hearing aid identification, and hearing aid warranty/trial periods. Older hearing aids cleaned, small parts replaced; listening check revealed the devices to be in good working order. Hearing aids returned to XX.

HEARING AID ORIENTATION

XX is an experienced and comfortable hearing aid wearer. A few basic care and maintenance points are summarized below for reference:

How to insert and remove the hearing aid:

- Hook the hearing aid to the top of the ear, let the earmold hang down.
    - The hearing aid with the red label is for the right ear.
    - The hearing aid with the blue label is for the left ear.
- Pull up and back on the ear to ease the ear mold into the ear canal.
- To remove the hearing aid, ease finger between the back of the ear mold and the skin. Pinch the ear mold and rotate forward and down. Then, pull out. Remove hearing aid from top of ear.

Turning the hearing aids on and off:

- Close the battery door to turn it on.
- Open the battery door to turn it off.
- Keep the battery door open when the hearing aid is not in use to avoid unnecessary battery drain.

Changing the battery:

- Remove the old battery and replace with a new size 13 battery (orange packaging) after peeling the sticker from it.
- Removing the sticker activates the battery. Do not remove it until the battery is ready to be changed.
- Place the battery in the door with the ridged side facing down.
- Batteries are toxic. Be sure to keep them away from pets and children.

Hearing aid care:

- Turn off the hearing aid by opening the battery door before going to sleep. Place in the provided hard or soft case.
- Keep the hearing aids clean and dry. Remove them before bathing or styling hair.
- Avoid exposing the hearing aids to bath or hair products.

XX acknowledged understanding of all the information provided and was given the opportunity to ask questions.

RECOMMENDATIONS

It is recommended that XX:

1. Return to the Audiology Clinic at the MJRSLHC for scheduled hearing aid follow-up appointment scheduled for February 1, 2020.
2. Contact the Audiology Clinic at the MJRSLHC (XXX.XXX.XXXX) in the event that the patient has any questions or concerns.

Student Clinician Name (Print)	Student Clinician Signature	Date
Clinical Instructor Name (Print)	Clinical Instructor Signature/License No.	Date

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Name: _____ **DOB:** _____ **Date:** _____

SUMMARY OF AUDITORY BRAINSTEM RESPONSE TESTING

BACKGROUND INFORMATION

XY, age 50 years, with history of asymmetric sensorineural hearing loss (left ear worse than right) was seen at the Audiology Clinic at the Maryjane Rees Speech, Language & Hearing Center (MJRSLHC) at California State University, Sacramento for auditory brainstem response (ABR) testing in order to rule out retrocochlear pathology.

AUDITORY BRAINSTEM RESPONSE RESULTS

An otoscopic inspection was conducted prior to testing and revealed clear canals with easily visualized tympanic membranes free of known pathology, bilaterally. Patient was tested using the Eclipse system. ABR tracings were recorded from surface electrodes placed on the forehead and earlobes. Click stimuli were presented at rate of 21.4 and 11.1 clicks/second, with stimulation level of 90 dB nHL and rarefaction polarity.

Responses were replicated for each ear and obtained with good reliability. The absolute and inter-peak waveform values are as follows:

Ear	Absolute Latencies			Interpeak Latency Difference		
	I	III	V	I-III	III-V	I-V
Right	ms	ms	ms	ms	ms	ms
Left	ms	ms	ms	ms	ms	ms

SUMMARY

ABR waveforms were replicated with good identification of waves I, III and V for both ears. The absolute, interpeak, and interaural latencies of these waves were within normal limits bilaterally. The patient acknowledged understanding of all the information provided and was given the opportunity to ask questions.

RECOMMENDATIONS

It is recommended that XY:

1. Return to the Audiology Clinic at the MRSLHC in one year for audiologic re-evaluation to monitor hearing loss.
2. Contact the Audiology Clinic at the MRSLHC (XXX.XXX.XXXX) in the event that the patient has any questions or new concerns arise.

Student Clinician Name (Print)	Student Clinician Signature	Date
Clinical Instructor Name (Print)	Clinical Instructor Signature/License No.	Date