Patient ID:			Date:	Te	st Condition: _			
	Mono		Word Test MSTB C < 10 (Left (	Key (CN				_
Score all words fo (Total phoneme co	r a beginning count per word = 3	onsonant so 3. Phoneme	und, a nuclei s must be in t	ıs (vowel) so he appropriat	und and an er e order.)	nding cor	nsonant	sound
Practice Items	1. DUCK		2. BOMB		3. JUNE			
Items Re	ole Word esponse Optional) 0	# Correct Phonemes 1 2	3	Test Items	Whole Word Response (Optional)		Correct onemes 2	3
1. GAIN			45. 46. 47. 48. 49.	MUCH WHICH GOAL TALK HASH CHOICE COB THIS RAIL WEEP SOUL BOUGHT DAM LEAK MET SOUTH SHIP PAN TIRE TALL SHOULD				
			Sum	of boxes c	hecked for:			
Grand Total: # Words with 3 P		2 Ph 3 Ph	oneme Corronemes Coronemes Cor	rect:	X1= X2= X3=		2	3

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Patient ID:	Date: Test Condition:
	Monosyllabic Word Test Key (CNC, List 1)  MSTB CD  Track 09 (Left Channel)
Score all words to (Total phoneme of	r a beginning consonant sound, a nucleus (vowel) sound and an ending consonant sound unt per word = 3. Phonemes must be in the appropriate order.)
Practice Items	1. DUCK 2. BOMB 3. JUNE
Items F	pole Word # Correct Test Whole Word # Correct sponse Phonemes Items Response Phonemes (Optional) 0 1 2 3
1. GOOSE 2. NAME 3. SHORE 4. BEAN 5. MERGE 6. DITCH 7. SUN 8. TOUGH 9. SEIZE 10. LEASE 11. HOME 12. JAR 13. PAD 14. FALL 15. VAN 16. JUG 17. YEARN 18. MAKE 19. GALE 20. TOOTH 21. PATCH 22. BOIL 23. HATE 24. PICK 25. KNIFE	26. WRECK
Grand Total:	Sum of boxes checked for:
	1 Phoneme Correct: X 1 = 2 Phonemes Correct: X 2 = 3 Phonemes Correct: X 3 =
	onemes Correct = / 50 Words Grand Total: / 150 Phonemes
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Pati	ient ID:					Date	ə:	Те	est Condition: _				
			Mon			M	STB C	Key (CN D Channel)	C, List 3)				
Scc (To	ore all word tal phonem	ds for a beg e count per	inning word =	conson	ant so	ound, es mu	a nucleu st be in th	s (vowel) so le appropria	ound and an ei te order.)	nding	consc	onant	sound
Pra	ctice Items	1.	DUCK			2.	вомв		3. JUNE				
	Test Items	Whole Wo Response (Optional	9	# Co Phone 1		3		Test Items	Whole Word Response (Optional)	0	# Co Phone		3
20. 21. 22. 23. 24.	HEAD NUMB BAR MORE FAITH SOON TOSS LIFE HUT JOKE FOUR VOTE KEEN YAM MATE GULL TONE BUSH HOUSE LAKE WORK BELL PERCH PIECE WELL						43. 44. 45. 46. 47. 48. 49.	POD DIP PURGE NOISE RAT RIG WHAT ROOM DIKE WITH ROUGE KEG SHEEP SHINE TOLL DAB SIZE MAN LEAVE FADE JAIL SUNG GAP KID CHIN					
Gra	nd Total						Sum	of boxes	checked for:	0	1	2	3
	nd Total:	3 Phonen	nes Co	urrect -	2 Ph 3 Ph	noner	me Corre mes Corr mes Corr	ect:	X1 = _ X2 = _ X3 =				
	40 111611	o i nonen	163 60	niect =	_	_/5	u words	Gı	rand Total:	/ ·	150 PI	none	mes

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Name	Processor	Date

Name and Address of the Owner, where		
	List 13	Words Correct
1.	Mother read the instructions.	/4
2.	(A/The) dog (is/was) eating some meat.	/6
3.	(An/The) apple pie (is/was) good.	/5
4.	(A/The) jelly jar (is/was) full.	/5
5.	(A/The) girl (is/was) washing her hair.	/6
6.	(A/The) girl played with (a/the) baby.	/6
7.	(A/The) cow (is/was) milked every day.	/6
8.	The paint dripped on the ground.	/6
9.	They (are/were) drinking coffee.	/4
10.	He's washing his face with soap.	/4
	WORDS correct:	
		/54
	PERCENT correct:	%

Conton			
Sentence level	Noise level	S/N ratio	

Name	Processor_	Det
	HEARING IN NOISE TEST - CHIL	Date
NOTE: Scori	ing is based on the number of words repeated eare to be scored as correct if either word is given	
	ict 19	Words Correct
1. (A/The)	girl came into (a/the) room.	
	field mouse found (a/the) cheese.	/6
	candy shop (is/was) empty.	/6
	nachine (is/was) noisy.	/5
	river started (a/the) car.	/4
	a wonderful day.	/5
	is/was) on the ground.	/5
	he lost his hat.	/6
	ng with his friend.	/5
	boy kicked the ball.	/5
, , , , ,		/6
	WORDS correct:	/53
	PERCENT correct:	%
entence level_	Noise levelS/N	ratio

Name		
. tano	Processor	Date

List 11   Words Correct	pa	onthieses a	e to be scored as correct if either word is give	en in the response.
2. (A/The) puppy played with (a/the) ball.			List 11	Words Correct
3. (An/The) engine (is/was) running	1.	Mother pi	cked some flowers.	/4
4. (An/The) old woman (is/was) at home	2.	(A/The) p	uppy played with (a/the) ball.	/6
4. (An/The) old woman (is/was) at home	3.	(An/The)	engine (is/was) running.	. /4
5. They're watching (a/the) train go by	4.	(An/The)	old woman (is/was) at home.	
6. (An/The) oven (is/was) too hot	5.	They're w	atching (a/the) train go by.	
7. They rode their bicycles	6.	(An/The)	oven (is/was) too hot.	
8. (A/The) truck carries fresh fruit	7.	They rode	their bicycles.	
9. They laughed at his story	8.	(A/The) tru	ick carries fresh fruit.	
WORDS correct:	9.	They laugh	ed at his story.	
WORDS correct:	10.	They walk	ed across the grass.	
PERCENT correct:%			WORDS correct	
Sentence level				
Sentence levelNoise levelS/N ratio			· · · · · · · · · · · · · · · · · · ·	%
Sentence levelNoise levelS/N ratio				
Sentence levelNoise levelS/N ratio				
Sentence levelNoise levelS/N ratio				
Sentence levelNoise levelS/N ratio				
S/N ratio	Sent	ence level	Noise level	0/11
			. TOISO ICVEI	O/N ratio

Name	Processor	Date	
	HEADING IN MOISE T	Date	_

District	as softeet it either word is give	n in the response.
	List 10	Words Correct
1.	(A/The) house (has/had) nine bedrooms.	/5
2.	They're shopping for school clothes.	/5
3.	They're playing in (a/the) park.	/5
4.	She took off her fur coat.	
5.	They (are/were) coming for dinner.	/6
6.	(A/The) child drank some fresh milk.	/5
7.	(A/The) baby slept all night.	/6
8.	(A/The) table (has/had) three legs.	/5
9.	(A/The) policeman knows the way.	/5
10.	There (is/was) a bad train wreck.	/5
		/6
	WORDS correct:	/53
	PERCENT correct:	%

Sentence level	Material	- e	_
10101	Noise level	S/N ratio	

Name	Processor	Date

Pu	Orthicses are	to be scored as correct if either word is given in the re	esponse.
		List 9 Words	Correct
1.	They (have	e/had) two empty bottles.	/5
2.	(A/The) w	oman cleaned her house.	/5
3.	(A/The) sh	arp knife (is/was) dangerous.	/5
4.	(A/The) ch	ild ripped open (a/the) bag.	/6
5.	(A/The) ki	tchen window (is/was) clean.	/5
6.	She's helpi	ng her friend move.	/5
7.	They ate (a	/the) lemon pie.	/5
8.	Father forg	ot the bread.	/4
9.	The sun me	elted the snow.	/5
10.	(A/The) litt	le girl (is/was) happy.	/5
		WORDS correct:	/50
		PERCENT correct:	%
			3.
Sent	ence level	Noise levelS/N ratio	

Name		
Traffic	Processor	Date
		Date

	and and	to be scored as correct if either word is g	iven in the response.	
		List 8	Words Correct	
1.	(A/The) no	eighbor's boy (has/had) black hair.		The state of the s
2.	The rain ca	ame pouring down.	/5	
3.	(A/The) do	og came home at last.	/6	
4.	They're cle	earing the table.	/4	
5.	Children li	ke strawberries.	/3	
6.	Her sister s	stayed for lunch.	/5	
7.	(A/The) tra	in (is/was) moving fast.	/5	
8.	Mother shu	t (a/the) window.	/4	
9.	(A/The) bo	ttle (is/was) on (a/the) shelf.	/6	
10.	(A/The) roa	ad goes up (a/the) hill.	/6	
		WORDS correct	4	20
		PERCENT correct		
Sent	tence level	Noise level	S/N ratio	
				-

Name		
ranie	Processor	Date

NOTE: Scoring is based on the number of words repeated exactly correct. Words in

1.	List 7	10/
1.		Words Correct
	School got out early today.	/5
2.	They're running past the house.	/5
3.	(A/The) boy ran away from school.	/6
4.	Sugar (is/was) very sweet.	/4
5.	The two children (are/were) laughing.	/5
6. (	A/The) fire truck (is/was) coming.	/5
7. I	He (is/was) washing his car.	/5
8. 5	the found her purse in (a/the) trash.	
9. (	A/The) ball broke (a/the) window.	/5
10. T	he old gloves (are/were) dirty.	/5
	WORDS correct	/52
	PERCENT correct	:%
Sente	nce levelNoise level	_S/N ratio

## SPEECH, LANGUAGE, AND HEARING DEVELOPMENT IN CHILDREN

HEARING AND UNDERSTANDING	TALKING
Birth-3 Months	Birth-3 Months
<ul> <li>Startles to loud sounds</li> <li>Quiets or smiles when spoken to</li> <li>Seems to recognize your voice and quiets if crying</li> <li>Increases or decreases sucking behavior in response to sound</li> </ul>	<ul> <li>Makes pleasure sounds (cooing, gooing)</li> <li>Cries differently for different needs</li> <li>Smiles when sees you</li> </ul>
4-6 Months	4-6 Months
<ul> <li>Moves eyes in direction of sounds</li> <li>Responds to changes in tone of your voice</li> <li>Notices toys that make sounds</li> <li>Pays attention to music</li> </ul>	<ul> <li>Babbling sounds more speech-like with many different sounds, including p, b and m</li> <li>Chuckles and laughs</li> <li>Vocalizes excitement and displeasure</li> <li>Makes gurgling sounds when left alone and when playing with you</li> </ul>
7 Months-1 Year	7 Months-1 Year
<ul> <li>Enjoys games like peek-a-boo and pata-a-cake</li> <li>Turns and looks in direction of sounds</li> <li>Listens when spoken to</li> <li>Recognizes words for common items like "cup", "shoe", "book", or "juice"</li> <li>Begins to respond to requests (e.g. "Come here" or "Want more?")</li> </ul>	<ul> <li>Babbling has both long and short groups of sounds such as "tata upup bibibibibi"</li> <li>Uses speech or noncrying sounds to get and keep attention</li> <li>Uses gestures to communication (waving, holding arms to be picked up)</li> <li>Imitates different speech sounds</li> <li>Has one or two words (hi, dog,dada, mama) around first birthday, although sounds may not be clear</li> </ul>
1-2 years	1-2 years
<ul> <li>Points to a few body parts when asked.</li> <li>Follows simple commands and understands simple questions ("Roll the ball," "Kiss the baby," "Where's your shoe?").</li> <li>Listens to simple stories, songs, and rhymes.</li> <li>Points to pictures in a book when named.</li> </ul>	<ul> <li>Says more words every month.</li> <li>Uses some one- or two- word questions ("Where kitty?" "Go bye-bye?" "What's that?").</li> <li>Puts two words together ("more cookie," "no juice," "mommy book").</li> <li>Uses many different consonant sounds at the beginning of words.</li> </ul>

#### 2-3 years

- Understands differences in meaning ("go-stop," "in-on," "big-little," "updown").
- Follows two requests ("Get the book and put it on the table").
- Listens to and enjoys hearing stories for longer periods of time

#### 2-3 years

- Has a word for almost everything.
- Uses two- or three- words to talk about and ask for things.
- Uses k, g, f, t, d, and n sounds.
- Speech is understood by familiar listeners most of the time.
- Often asks for or directs attention to objects by naming them.

#### 3-4 years

- Hears you when you call from another room.
- Hears television or radio at the same loudness level as other family members.
- Answers simple "who?", "what?", "where?", and "why?" questions.

#### 3-4 years

- Talks about activities at school or at friends' homes.
- People outside of the family usually understand child's speech.
- Uses a lot of sentences that have 4 or more words.
- Usually talks easily without repeating syllables or words.

#### 4-5 years

- Pays attention to a short story and answers simple questions about it.
- Hears and understands most of what is said at home and in school.

#### 4-5 years

- Makes voice sounds clear like other children's.
- Uses sentences that give lots of details (e.g., "I like to read my books").
- Tells stories that stick to topic.
- Communicates easily with other children and adults.
- Says most sounds correctly (except perhaps certain ones such as I, s, r, v, z, ch, sh, th).
- Uses the same grammar as the rest of the family.

Reference: American Speech-Language-Hearing Association, 2009

## SPEECH, LANGUAGE, AND HEARING DEVELOPMENT IN CHILDREN

	Hearing & Understanding	Talking
Birth-3 months	Startles to loud sounds Quiets or smiles when spoken to Seems to recognize your voice and quiets if crying Increases/decreases sucking behavior in response to sound	Makes pleasure sounds (cooing/gooing)     Cries differently for different needs     Smiles when sees you
4-6 months	Moves eyes in direction of sounds     Responds to changes in tone of your voice     Notices toys that make sounds     Pays attention to music	<ul> <li>Babbling sounds more speech-like with many different sounds, including p, b, and m</li> <li>Chuckles and laughs</li> <li>Vocalizes excitement and displeasure</li> <li>Makes gurgling sounds when left alone and when playing with you</li> </ul>
7 months-1 year	•Enjoys games like peek-a-boo and pat-a-cake •Turns and looks in direction of sounds •Listens when spoken to •Recognizes words of common items like "cup," "shoe," "book," or "juice" •Begins to respond to requests like "Come here." or "Want more?"	<ul> <li>Babbling has both long and short groups of sounds like "tata," "upup," and "bibibibi"</li> <li>Uses speech or non-crying to get and keep attention</li> <li>Uses gestures to communicate like waving, holding arms to be picked up</li> <li>Imitates different speech sounds</li> <li>Has one or two words like "hi," "dada," or "mama" around 1 year (although sounds may not be clear)</li> </ul>
1-2 years	<ul> <li>Points to a few body parts when asked</li> <li>Follows simple commands and understands simple questions like "Roll the ball." "Kiss the baby." or "Where's your shoe?"</li> <li>Listens to simple stories, songs, and rhymes</li> <li>Points to pictures in a book when named</li> </ul>	Says more words every month  Uses some one- or two-word questions like "Where kitty?" "Go bye-bye?" or "What's that?"  Puts two words together like "more cookie," "no juice," or "mommy book"  Uses many different consonant sounds at the beginning of words
2-3 years	<ul> <li>Understands differences in meaning like "go/stop," "in/on," "big/little," or "up/down"</li> <li>Follows two requests like "Get the book and put it on the table."</li> <li>Listens to and enjoys hearing stories for longer periods of time</li> </ul>	<ul> <li>Has a word for almost everything</li> <li>Uses two or three words to talk about and ask for things</li> <li>Uses k, g, f, t, d, and n sounds</li> <li>Speech is understood by familiar listeners most of</li> </ul>
3-4 years	<ul> <li>Hears you when you call from another room</li> <li>Hears the TV or radio at the same volume as other family members</li> <li>Answers simple who, what, when, where, and why questions</li> </ul>	<ul> <li>Talks about activities at school or at friends' homes</li> <li>People outside the family usually understand child's speech</li> <li>Uses a lot of sentences that have 4 or more words</li> <li>Usually talks easily without repeating syllables or words</li> </ul>
4-5 years	Pays attention to a short story and answers simples questions about it  Hears and understands most of what is said at home and in school	<ul> <li>•Makes voice sounds clear like other children's</li> <li>•Uses sentences that give lots of details like "I like to read my books."</li> <li>•Tells stories that stick to a topic</li> <li>•Communicates easily with other children and adults</li> <li>•Says most sounds correctly, except perhaps l, s, r, v, z, ch, sh, or th</li> <li>•Uses the same grammar as the rest of the family</li> </ul>



#### Tinnitus Reaction Questionnaire (TRQ)

Name

Date Completed:

This questionnaire is designed to find out what sort of effects tinnitus has had on your lifestyle, general well-being, etc. Some of the effects below may apply to you, some may not. Please answer <u>all</u> questions by circling the number that <u>best</u> reflects how your tinnitus has affected you <u>over the past week</u>.

		Not at all	A little of the time	Some of the time	A good deal of the time	Almost all of the time
1.	My tinnitus has made me unhappy.	0	1	2	3	4
2.	My tinnitus has made me feel tense.	0	1	2	3	4
3.	My tinnitus has made me feel irritable.	0	1	2	3	4
4.	My tinnitus has made me feel angry.	0	1	2	3	4
5.	My tinnitus has led me to cry.	0	1	2	3	4
6.	My tinnitus has led me to avoid quiet situations.	0	1	2	3	4
7.	My tinnitus has made me feel less interested in going out.	0	1	2	3	4
8.	My tinnitus has made me feel depressed.	- 0	1	2	3	4
9.	My tinnitus has made me feel annoyed.	0	1	2	3	4
10.	My tinnitus has made me feel confused.	0	1	2	3	4
11.	My tinnitus has "driven me crazy".	0	1	2	3	4
12.	My tinnitus has interfered with my enjoyment of life.	0	1	2	3	4
13.	My tinnitus has made it hard for me to concentrate.	0	1	2	3	4
14.	My tinnitus has made it hard for me to relax.	0	1	2	3	4
15.	My tinnitus has made me feel distressed.	0	1	2	3	4
16.	My tinnitus has made me feel helpless.	0	1	2	3	4
17.	My tinnitus has made me feel frustrated with things.	0	1	2	3	4
18.	My tinnitus has interfered with my ability to work.	0	1	2	3	4
19.	My tinnitus has led me to despair.	0	1	2	3	4
20.	My tinnitus has led me to avoid noisy situations.	0	1	2	3	4
21.	My tinnitus has led me to avoid social situations.	0	1	2	3	4
	My tinnitus has made me feel hopeless about the future.	0	1	2	3	4
23.	My tinnitus has interfered with my sleep.	0	1	2	3	4
24.	My tinnitus has led me to think about suicide.	0	1	2	3	4
25.	My tinnitus has made me feel panicky.	0	1	2	3	4
26.	My tinnitus has made me feel tormented.	0	1	2	3	4
Tota						

Wilson et al. 1991

### TINNITUS HANDICAP INVENTORY

atient Name:			Da	nte:	
NSTRUCTIONS: The purpose of this decause of your tinnitus. Please answe					ncing
1. Because of your tinnitus, is it difficu	ult for you to concentrate?		Yes	Sometimes	No
2. Does the loudness of your tinnitus	make it difficult for you to h	ear people?	Yes	Sometimes	No
3. Does your tinnitus make you angry	/?		Yes	Sometimes	No
4. Does your tinnitus make you feel o	confused?		Yes	Sometimes	No
5. Because of your tinnitus, do you fe	el desperate?		Yes	Sometimes	No
6. Do you complain a great deal abo	ut your tinnitus?		Yes	Sometimes	No
7. Because of your tinnitus, do you ha	ave trouble falling to sleep a	t night?	Yes	Sometimes	No
8. Do you feel as though you cannot	escape your tinnitus?		Yes	Sometimes	No
<ol><li>Does your tinnitus interfere with yo (such as going out to dinner, to the</li></ol>		al activities	Yes	Sometimes	No
10. Because of your tinnitus, do you fe	el frustrated?		Yes	Sometimes	No
11. Because of your tinnitus, do you fe	el that you have a terrible di	sease?	Yes	Sometimes	No
12. Does your tinnitus make it difficult	for you to enjoy life?		Yes	Sometimes	No
13. Does your tinnitus interfere with yo	our job or household respons	sibilities?	Yes	Sometimes	No
14. Because of your tinnitus, do you fir	nd that you are often irritable	?	Yes	Sometimes	No
15. Because of your tinnitus, is it difficu	ult for you to read?		Yes	Sometimes	No
16. Does your tinnitus make you upset	?		Yes	Sometimes	No
<ol> <li>Do you feel that your tinnitus prob with members of your family and fr</li> </ol>		ur relationships	Yes	Sometimes	No
18. Do you find it difficult to focus you on other things?	r attention away from your ti	nnitus and	Yes	Sometimes	No
19. Do you feel that you have no contr	ol over your tinnitus?		Yes	Sometimes	No
20. Because of your tinnitus, do you of	ten feel tired?		Yes	Sometimes	No
21. Because of your tinnitus, do you fe	el depressed?		Yes	Sometimes	No
22. Does your tinnitus make you feel a	nxious?		Yes	Sometimes	No
23. Do you feel that you can no longer	cope with your tinnitus?		Yes	Sometimes	No
24. Does your tinn tus get worse when	you are under stress?		Yes	Sometimes	No
25. Does your tinn tus make you feel in	secure?		Yes	Sometimes	No
			FOR	CLINICIAN USE	ONLY
	То	tal Per Column			
			x4	x2	×0
		Total Cassa		1.	

### TINNITUS HANDICAP INVENTORY SEVERITY SCALE

GRADE	SCORE	DESCRIPTION
1	0-16	Slight: Only heard in quiet environment, very easily masked. No interference with sleep or daily activities.
2	18-36	Mild: Easily masked by environmental sounds and easily forgotten with activities. May occasionally interfere with sleep but not daily activities.
3	38-56	Moderate: May be noticed, even in the presence of background or environmental noise, although daily activities may still be performed.
4	58-76	Severe: Almost always heard, rarely, if ever, masked. Leads to disturbed sleep pattern and can interfere with ability to carry out normal daily activities. Quiet activities affected adversely.
5	78-100	Catastrophic: Always heard, disturbed sleep patterns, difficulty with any activity.

McComba, A., Baguely, D., Coles, R., McKerns, C., McKinnay, C. & Wingle-Taylor, P. (2001). Guidelines for the grating of finites severity: the creats a working group commissioned by the Shish Association of Otologyngologists. Head and Neck Surgeons, 999. Clin. Otologyngologists.

### **Tips For Managing Tinnitus**

#### Diagnose and Understand Your Tinnitus

1. DO NOT panic. Tinnitus is usually not a sign of a serious, ongoing medical condition.

2. CHECK things out. The sounds you hear may actually be normal sounds created by the human body at work.

3. SEE an audiologist or ear, nose and throat specialist (ENT) interested and experienced in tinnitus treatment.

REVIEW your current medications (prescription, over-the-counter, vitamins and other supplements) with your medical
professional to find possible causes of your tinnitus.

5. BE WARY of a hopeless diagnosis or physician advice like, "There's nothing you can do about your tinnitus. Go home and

live with it."

6. BE a detective. Keep track of what triggers your tinnitus.

 KEEP UP TO DATE about tinnitus. More and more research by the best and the brightest is bringing us closer to successful treatments and cures for tinnitus.

#### Find Effective Treatment and Take Care of Yourself

 BE KIND to yourself. Developing tinnitus means you have undergone a significant physical, emotional and maybe even lifestyle change.

9. EXAMINE how you live to find ways to eliminate or reduce some stress in different parts of your life; stress often makes

tinnitus worse.

- 10. PAY ATTENTION to what you eat. One-by-one, eliminate possible sources of tinnitus aggravation, e.g., salt, artificial sweeteners, sugar, alcohol, prescription or over-the-counter medications, tobacco and caffeine.

  (Do not stop taking medications without consulting with your health care professional.)
- 11. DON'T GIVE UP on a treatment if it doesn't work right away. Some can take quite a while to have a positive effect.
- 12. PROTECT YOURSELF from further auditory damage by avoiding loud places and by using earplugs when you can't avoid loud noise.

#### Your Attitude Matters

- 13. DO NOT create any negative forecasts for your tinnitus, such as "This is never going to get any better." Counting on a better future can help you create one.
- 14. TAKE HEART. In many cases people with tinnitus "habituate" to it, meaning they get used to it and notice it less than at first.
- 15. BE INVOLVED in your recovery. Consider yourself part of your treatment team where your thoughts and feelings should count.
- DO NOT WASTE time blaming yourself for your tinnitus. The causes of tinnitus are varied and difficult to determine.

#### Line Up Support

- 17. LOCATE people who understand your struggles and learn that you are not alone. Have people in your life who, though they cannot "see" or "hear" your tinnitus, understand that you have it.
- 18. FIND a support group that will truly understand your struggles with tinnitus and help you sort out useful from useless information. You will find compassion, companionship and coping strategies. (ATA has information on tinnitus support groups and individual, helpful volunteers.)
- 19. EDUCATE your family, friends and co-workers about tinnitus; tell them about the conditions and settings that are difficult for you; and ask them for their support.
- 20. CONTINUE SEEKING reliable information from ATA and other credible sources.

http://www.ata.org/for-patients/tips

### FAMILIAR SOUNDS AUDIOGRAMO

NAME DATE PITCH [Or FREQUENCY] MEASURED IN CYCLES PER SECOND LOW HIGH 125 4000 250 500 1000 2000 8000 0 NORMAL LIMITS [child] NORMAL SOLIMITS O DECIBELS (dB) re: ANSI 1969 10 20 phg zV 30 ch sh 40 oar MODERATE 50 LOUDNESS OF MODERATELY SEVERE 60 70 DEGREES SEVERE 80 MEASURED 90 100 PROFOUND

#### LOUDNESS LEVELS OF COMMON SOUNDS [IN DECIBELS]

10 dB Breathing
30 dB Whisper
40-60 dB Conversation

110

80 dB Rush Hour Traffic

120 dB Jet Airport 140 dB Shotgun Blast

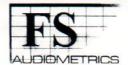
(Williams & Wilkins, 1984)

70 dB Typewriter

100 dB Train 110 dB Chain Saw

Adapted with permission of J.L.Northern and M.P.Downs from <u>HEARING</u> IN <u>CHILDREN</u>,

SHADED AREA REPRESENTS RANGE OF CONVERSATIONAL SPEECH



# Pediatric Otolaryngology - Head and Neck Surgery, PLLC John P. Little, M.D. / Michael J. Belmont, M.D. / R. Mark Ray, M.D.



Children's Hospital Medical Office Building 2100 Clinch Avenue, Suite 410 / Knoxville, TN 37916 (865) 521-6005 • (865) 521-6088 FAX

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BC MASKED- [ ]						
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	Au.D.,CCC-A	Kristie Johnston			loss left: _	earing l

Form No. 30316 (06/14) ss

#### WHAT IS AN AUDITORY PROCESSING DISORDER?

Peripheral Hearing involves the outer middle and inner ear. A problem in one or more of these areas causes a peripheral hearing loss, which can be treated medically or with hearing aids.

Central Hearing involves the auditory nerves, pathways of the brainstem, temporal lobes and corpus callosum. A problem in one or more of these areas can cause an *Auditory Processing Disorder*.

Auditory Processing can be thought of as "what we do with what we hear". When an auditory signal is sent to the brain successfully, abilities are normal; but, if there is a breakdown in the normal peripheral transmission of the signal to the brain, this is considered an APD. A child with an APD will have normal peripheral hearing but difficulty in the reception and interpretation of auditory information. While the signal/sound is loud enough, the child has difficulty understanding the message and making sense of what they are hearing. The following are associated symptoms or observations that may be noted in a child with APD:

#### **GENERAL**:

- Seems to pay attention only when he/she wants; often tunes out environment and becomes lost in his/her "own little world"
- · Seems visually alert
- Easily distracted
- Has trouble locating sound sources and/or the ability to associate certain sounds with a correct source
- Uses the same words or phrases over and over instead of responding appropriately to changing verbal information
- Shows behaviors that are inappropriate (frustration, aggression, withdrawal, impulsiveness)
- Demonstrates unusual expressions or body postures while listening

#### IN REGARDS TO INSTRUCTION:

- Responds well in quiet situations but has great difficulty in noisy environments
- Slow to respond to auditory instructions, and then can only respond to very simple instructions
- Has difficulty with short and long term memory
- Confuses directions or words
- May have difficulty remembering information in the order it was said

#### ACADEMIC:

- Difficulty reading and/or spelling
- Difficulty staying on task and completing an assignment or project
- Have difficulty associating letters of the alphabet with their sounds
- Perform poorly on items requiring verbal language understanding rather than "hands on" situations
- · Difficulty working independently. Looks for visual cues from other children before beginning an assignment
- Perform very inconsistently (sometimes very well other times very poor on the same task)

#### SPEECH AND LANGUAGE:

- Difficulty telling the difference between words that sound similar
- Trouble saying certain sounds correctly or have delayed language abilities
- Does not know meaning of the words as well as other children of his/her age group



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#### Softband Baha Process

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Eligibility of payment for processor is determined by your individual insurance company.

- 1. Your audiologist will write a letter of medical necessity (LMN).
- Once the letter is written it will go to Dr. Little or Dr. Belmont and requires his signature. Obtaining his signature may take up to a week.
- 3. In the meantime, an appointment will be scheduled for you to see our audiologist to select softband Baha equipment.
- Following physician's signature on LMN, the audiologist will fax the LMN, medical records, and softband Baha order form to Cochlear Americas.
- Cochlear Americas will begin the insurance process and send the insurance the LMN.
- Insurance will approve or deny the softband Baha request.
- The insurance company will mail a copy of this decision to you, Cochlear Americas, and most likely our office.
- 8. Upon approval, Cochlear Americas will mail the Baha processor to our office. At that time we will contact patient's guardian to set up appointment for fitting.
- Our office will automatically submit an appeal for the upgrade if our initial request is denied.

We look forward to continuing to work together to care for your child's hearing needs. If you have any questions do not hesitate to contact us at (865) 521-6005.

Kristie Johnston, Au.D., CCC-A Director of Audiology Services

Updated November 2016\*



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#### **Factors that Influence Outcomes**

Learning to listen and talk is a realistic expectation for most children with cochlear implants who are immersed in auditory/oral educational programs and who have access to ongoing training. However, it is impossible to predict how well an individual child will do with an implant over time. Progress is dependent upon a number of factors including the quality of support received at home and at school. Some additional factors that may influence a child's success are:

Age at implantation. The earlier a congenitally deaf child receives an implant, the closer we can expect them to be to normal speech and language development.
 Duration of deafness. Generally, as the duration of deafness increases, the degree of

benefit from the implant becomes less predictable.

Wear Time. A child should be wearing the speech processor whenever he/she is awake.

Factors related to the device itself.

o Number of electrodes inserted at surgery.

Number of electrodes activated

o Regular audiological management and speech processor programming

Previous auditory experience

Age at onset of deafness

 The child's level of speech and oral language development at the time of the implant.

Presence of other learning challenges

o Cognitive or learning ability of the child

Neurological involvement

- How well the child processes spoken language
- General health of the child

Emphasis on auditory learning

- Exposure to meaningful auditory input throughout the day (at home and in school)
- Type, frequency, and appropriately challenging expectations of auditory therapy
- Mode of communication. ASL should not be maintained for a child with a cochlear implant. A plan for transition to hearing and speaking should be implemented in order to reduce dependence on sign language.
- Amount of interaction with normally hearing peers

Other factors

- Family support
- Parent and teacher expectations
- Availability of support services
- Behavioral factors

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#### **Developing Listening Following Implantation**

- Insist that the child wear the cochlear implant all of the day. Hearing is an all day event.
- Until the child is old enough to assume responsibility, an adult must be assigned to
  assume the responsibility to check the speech processor, headset, cords, and batteries
  daily.
- Encourage auditory awareness by calling attention to sounds in the environment.
- Investigating sounds and their sources can be fun, but follow your child's lead rather than
  trying to make him or her report what is heard all of the time. Doing so can be
  exhausting, stressful, and unpleasant.
- Always use sound as the first attempt to gain the child's attention, rather than tapping, stomping or signing. This will assist in improving sound detection skills.
- Use a normal conversational level voice that is rich in inflection and rhythm. Children should learn to understand the meaning conveyed by changes in stress and intonation of utterances such as, "uh oh", "oooo", "ahhh", and "oh, no" within the first few months of implant use.
- Talk to the child during routine activities including playtime and as you work around the
  house or around the classroom. Talk about what is happening as it happens. Use
  everyday activities and experiences to incorporate and solidify knowledge of new
  vocabulary and language. Use lots of repetition. Young children learn most easily when
  they are engaged in meaningful interaction with parents and caregivers including
  dressing, feeding, playing, etc.
- Typically the first several months of therapy with a young child are spect in helping he
  child learn to attend to sound and to learn the meaning of sound. Imitation of speech
  sounds may begin naturally or spontaneously. The early focus on therapy is on the
  development of appropriate voice patterns rather than on articulation.
- Parents should participate actively in therapy. Professionals work with the child
  primarily for the purpose of demonstrating how the parent is to develop a target behavior
  in the child. After demonstration, the parent should be given the opportunity to practice
  techniques and strategies. Parents are the primary models for listening and language
  development in the early years.
- Expect the child to vocalize to get what s/he wants.
- Treat the child with a cochlear implant as a child. Expect behavior and responsibility
  appropriate for his or her age. Allow her to learn from consequences of her poor choices
  and good choices. Encourage independence and responsibility in the child. Consider the
  whole child and avoid too great a focus on the hearing loss.

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#### What to Expect During a Young Child's First Months

- Expectations are related to the age of the child at the onset of deafness, the child's age at
  the time of the implant, the duration of deafness, previous auditory experience, and the
  child's participation in intensive, appropriate rehabilitation. Expectations need to be
  adjusted based on these factors. In general, the implant is expected to provide access to
  sound, which will become meaningful through intensive training.
- It is essential to remain patient.
- Initially, some children seem to ignore sound, some are frightened, some become timid and quiet. Some children appear to hear and notice sound initially but then seem to ignore sound when the novelty wears off, while others remain curious about new sounds. All of these responses are normal. There is no "correct" way for the child to respond to sound provided by the implant initially.
- Assume that the child can hear a wide variety of environmental and speech sounds.
   Children with cochlear implants have access to all the sounds of spoken language, and they can hear at conversational loudness levels. The cochlear implant makes sound audible for the child. To use the sound that is heard, the child must be taught to associate sound with its meaning.
- Do not expect dramatic changes in the child's behavior or performance right away. Learning to listen may take an extended period of time for some children. Babies listen to speech for a year before they say their first words. A child's hearing ability will be related to the child's "hearing age". That is, on the day of the initial stimulation of the cochlear implant, the child's hearing age is one day. At one month after initial stimulation, the child's hearing age is one month. This needs to be borne in mind when evaluating progress by a child.
- Audible is not the same as intelligible. Being able to hear sound is not the same as being
  able to understand what the sound means or being able to tell the sounds apart. Even if
  he was doing so with conventional amplification prior to receiving the implant, the child
  needs to relearn that each sound has meaning.
- It is not realistic to expect a child to respond to his name or to recognize a sound or word
  initially. A word must be heard many times before it will be recognized.
- Expect increased vocal play and capitalize on this by stimulating and reinforcing.
- Expect a rapid acquisition of sound detection skills and capitalize on this by stimulating and reinforcing.
- Expect increased general attending skills and capitalize on this by stimulating and reinforcing.
- Learning to hear follows a hierarchy of performance starting with the most basic skill of
  detection, closed set discrimination, open set identification, and then comprehension.
   Speech also develops by progressing through the normal developmental sequence.
- The process of hearing with a cochlear implant is similar to that experienced by a child who wears a hearing aid, but the rate of skill development should be faster with an implant.
- For young children, a normal or better than normal rate of progress in speech and language development is the standard expectation by which success is measured, unless the child has learning issues in addition to the hearing loss.

\*Information provided by Cochlear Americas Resources



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### **Patient Expectations Guide**

#### What to Expect from Hearing Devices

Being fit with new hearing devices will bring about many new experiences. It is important for you to know what to expect. There are things that should be right about the new devices from Day One and every day after that. If you have difficulty in any of these areas, we will make it right as soon as possible.

#### What you should expect:

- The hearing devices should be functional on a daily basis and, if they are not working, repairs will be completed in a timely manner.
- The hearing devices should be free from feedback under normal use conditions. If feedback occurs on a frequent basis, adjustments can be made to minimize these
- The hearing devices should be physically comfortable to wear. If discomfort is experienced, especially after the first few days of use, adjustments can be made to the physical shape of the body or earpiece of the hearing device to eliminate such discomfort.
- Loud sounds in the environment should not be made to be uncomfortable by the hearing devices. If discomfort is experienced, adjustments can be made to control the output of the hearing aid.
- The hearing devices should improve the ability to hear soft and conversational levels of speech in quiet environments.
- The hearing devices should be comfortable to wear in louder, noisier environments.

We know that hearing loss creates many communication difficulties. We will try to solve all of your major challenges, but the nature of hearing loss is such that your hearing will never be normal again. Everyone's hearing loss is different, and, for some, the damage is so great that certain situations will always pose a challenge even with the best devices. Improving your ability to communicate in challenging situations will form the basis of what we will try to do for you. We call these focus points Potential Benefits. The ability to meet these goals will vary depending on the specific nature of your hearing loss, the communication environments that you visit and the level of technology in your devices.

## Potential Benefits would include:

- The hearing devices will allow you to better understand speech in complex, noisy
- The hearing devices will improve your ability to separate the various sources of sound in your environment and focus on the sounds in which you are most interested.
- The hearing devices will improve your ability to understand speech from electronic sources such as telephones, televisions, etc.
- The higher the level of technology in your devices, the greater the chances of improved performance in challenging situations.

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Information provided by Oticon: People first (Schum, 2009)



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### **Bridgewater Balance and Hearing**

Bridgewatersh.com

#### KNOXVILLE

103 Suburban Road, Suite 101-D Knoxville, TN 37923 865-769-0283

#### SEVIERVILLE

1240 Fox Meadows Boulevard, Suite 5 Sevierville, TN 37862 865-453-3892

#### HARROGATE

169 Westmoreland Street Harrogate, TN 37752 865-769-0283



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### CHEROKEE HEALTH SYSTEMS WILLIAM ALLEN, PH.D., NCSP

Vice President, Children's Services Tel. 423 587 7337 Fax. 423 586 0614 6350 W. Andrew Johnson Hwy. Talbott, TN 37877 bill.allen@cherokeehealth.com



## Children's Hearing Center of East Tennessee

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AREA (RE)HABILITATION SERVICES

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Support Services

TEIS-Tennessee Early Intervention Services (birth-3 years) (865) 579-3099

R. Mark Ray, M.D.

**Board Certified** Fellowship Trained CSS-Children's Special Services (birth-21 years)

Contact your County Health Department

Child Find-Knox County Schools (3-5 years)

(865) 594-1530

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Bridgewater Hearing and Balance\*\*\* (865) 769-0283

Hearing and Speech/Language Centers

Deborah Curlee Communication Consultants

East TN Children's ReHab (SLP): Marcia Bucels (Speech Manager)

(865) 693-5622

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Methodist Medical Center of Oak Ridge

(865) 690-8961 ext 2250

(865) 835-3370

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\* Implant Surgeon,

Pediatric Cochlear

Implant Program At Children's Hospital The Therapy Center: SLP, OT, PT (all ages)

South: (865) 579-4895

Maryville: (865) 983-8129

North: (865) 687-1512 Farragut: (865) 966-8933

Cedar Bluff: (865) 690-26-71 Oak Ridge: (865) 482-7730

UT Hearing and Speech Center\*\*\*

Hearing Center: (865) 974-5453\*\*\* Speech Center: (865) 974-5451

UT Pediatric Language Clinic (birth-3 years)

(865) 974-6702

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\*\*\*=Auditory Processing Evaluations Provided

### Phone Memo

Dr. Little Dr. Bel Janet	mont Dr. Ray  Surgery Deposits	'Andy	Audiology			Nurse-R
	Burgery Deposits		Medical Rec	ords ·	Billing	
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Parent/Other:			_Phone: (			
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## Children's Ear, Nose & Throat Specialists John P. Little, M.D. / Michael J. Belmont, M.D. / R. Mark Ray, M.D.

#### East Office

West Office

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9546 S. Northshore Drive Knoxville, TN 37922 (865) 415-3430 FAX

PHONE: (865) 521-6005

#### **COCHLEAR IMPLANT** AUDIOLOGICAL EVALUATION

Date	01 B	irth_				Age	The state of	Sex		_ Chart Nu	mber			
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	Righ nents							P Left CI_						



# CHILDREN'S HEARING CENTER OF EAST TENNESSEE

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#### Audiology Review-Risk Factors for Hearing Loss

DOB: Gestational Age		
Risk Indicators for Hearing Loss	YES	NO
NICU>5days		
Birthweight < 1500 grams		
Apgar score of <or 1="" 10<="" 3="" 5="" =="" at="" minutes="" td=""><td></td><td></td></or>		
Prescribed ototoxic meds or loop diuretics > 5 days		
Mechanical Ventilation (>10 days)		
Craniofacial Anomalies including pinnae, EAC, ear tags, ear pits or temporal bone abnormalities		
Physical Findings, i.e. white forelock, assoc. w/ syndrome that includes SNHL and permanent CHL		
Hyperbilirubinemia (w/ peak level exceeding 15/dl)		
Congenital infections (TORCH)		
High Risk Factors Indicators Requiring Follow-up	YES	NO
Family hx of permanent childhood HL		
In utero infection such as CMV, herpes, rubella, syphilis or Toxoplasmosis		
Syndrome assoc. w/ HL	*	
Bacterial or viral meningitis		
Neurodegenerative disorders (Hunters, sensory motor neuropathies, Friedreich ataxia, Charcot-Marie Tooth syndrome)		
Basal Skull/temporal bone head trauma		
Other (Chemotherapy, Extra Corporeal Membrane Oxygenation, etc.		
Recurrent or persistent otitis media with effusion for at least 3 months		Bill and
NBHS Results Hospital		
Automated ABR RE pass/refer LE pass/refer OAE RE pass/refer LE pass/refer		

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