

Adult Cochlear Implant Home-Based Auditory Training

Guide for Clinicians



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Part 1: Purpose of the Home-Based Auditory Training Manuals

Auditory training is an important component of adult post-implant rehabilitation. It can be useful to train listening skills and communication strategies, empower the recipient in their listening progress, and encourage good speaking habits in the family and with close associates. Also, areas of ongoing difficulty can be used as an indicator for further improvements of cochlear implant programming.

As clinicians find themselves managing ever-growing cohorts of recipients, it may be difficult to spend sufficient time with recipients with recently activated devices, training on auditory skills and building their confidence in the new auditory stimulus. Clinician-guided home practice consolidates and supplements the work done in the clinic and is an important component of the post-implant habilitation process in its own right. It enables the recipient to listen within their own environment, which includes such effects as reverberation and environmental distractions, rather than the controlled environmental conditions of the clinic room. In addition, the recipient has the opportunity to become more proficient at listening to their most frequent communication partners in their daily lives.

The existing *Cochlear Adult Aural Rehabilitation Guide* (AARG, Pedley, Lind & Hunt, 2005) for clinicians was structured with easily photocopied exercises so that recipients could be provided with the take-home exercises at a level of training that reflected their current abilities. Selecting and copying the appropriate exercises for each recipient can take clinician time away from counselling and demonstration of rehabilitation techniques.

The Adult Cochlear Implant Home-Based Auditory Training Manuals have been designed to provide hands-on materials that are flexible and adaptable enough to cover a range of auditory abilities. There are two manuals – one aimed at recipients with a postlingual hearing loss and the other at recipients with a prelingual or long duration hearing loss. Each manual includes a wide

range of auditory training exercises in hard-copy format. Some of the exercises in the manuals can alternatively or additionally be done using the Angel Sound™ computer program. There are notes throughout the manuals indicating which Angel Sound exercises to complete, for those who have access to a computer and wish to do exercises in this manner. The hard-copy exercises included in the take-home manuals are a combination of materials from the Cochlear AARG, materials from the Angel Sound computer program, and new custom-designed materials. Many exercises have a component for recipients and families to create exercises on topics/vocabulary of relevance and interest to them.

The aim of the manuals is to supplement the work of the clinician in the clinic, rather than replace it. The intention is for the clinician to select one of the manuals (the manual for recipients with postlingual hearing loss or the manual for recipients with prelingual or long duration hearing loss) and provide a manual for each new recipient in the early days following the switch-on of their implant, and to guide them through the exercises. The manuals also provide an Auditory Training Exercise Plan, which is completed by the clinician and the recipient. The screening tests (see Appendices 1 and 2) will help establish an appropriate training level for each recipient. In addition, automated screening tests using Angel Sound (Appendix 3) may be a useful tool to set an appropriate training level and track the training progress for recipients.

Part 2: How to use the Home-Based Auditory Training Manuals

Which manual?

- The screening tests (see Part 3) can be used to determine the manual that is the most appropriate for each individual recipient (as well as the exercises within the manuals that are the most appropriate for an individual's particular auditory skill level).
- As a general guide:
 - The manual for recipients with postlingual hearing loss will best suit those who developed a hearing loss as an adult and have a short to medium duration of deafness, and those who have regularly used auditory input as part of their communication.
 - For adults with early onset hearing loss (and late implantation), and adults with very long periods of absence of stimulation in the implanted ear (> 40 years), we recommend starting with the manual for recipients with prelingual hearing loss.
- Recipients who progress quickly with the manual for recipients with prelingual hearing loss can switch to the manual for recipients with postlingual hearing loss. Note that the instructions in the prelingual manual use easier language constructs and more common vocabulary.

Where to start in the manuals

Both manuals are structured into two sections: Section A "Getting started" and Section B "Making it more challenging". They are both structured according to the auditory development hierarchy.

- Manual for recipients with postlingual hearing loss (Postlingual)
 - **Section A:** Getting started. Sound and speech identification (closed set) and easier speech recognition (open set) exercises.
 - **Section B:** Making it more challenging. Open set speech recognition and comprehension exercises in quiet and background noise, and telephone training.
- Manual for recipients with prelingual or long duration hearing loss (Prelingual)
 - **Section A:** Getting started. Sound and speech identification exercises (closed set).
 - **Section B:** Making it more challenging. Speech recognition (pseudo open set and open set) and speech comprehension.

It is important that training be conducted at an appropriate level for the individual recipients' auditory skills, where the exercises are challenging but not too difficult. Training is more effective if the recipient works at a level where some success is achieved (70–90%), but not 100% proficiency. This maintains the recipient's motivation but leaves room for improvement. The screening tests (see below) provide an indication of the level at which to start. This is a guide only; the recipients' success with the listening tasks attempted in the clinic is your best indication. We recommend that all recipients complete the sound awareness environmental sounds checklist to start the process of learning to filter out unwanted sounds.

Tips to maximise success

During each clinic session, make a written plan for the exercises to be completed at home by completing the "Auditory Training Exercise Plan".

- Suggest the appropriate training environment, for example, the quietest place in the house to start, and then as they need more challenging environments, the verandah, lounge room with television on in the background, or in a room the recipient has reported as especially challenging.
- Ask the recipient to complete the recipient notes section when doing the planned exercises at home.
- Encourage the recipient and speaker to work at a distance of about one metre initially, and find a quiet part of the home, to maximise early success.
- Suggest that the training is done at the same time every day, about five days each week for 20–30 minutes at a time. A regular time slot increases the ease with which they can incorporate auditory training into everyday life.

How to demonstrate the manual to your recipient and their speaking partner

- Using the prompts at the start of the exercise, explain the purpose and method of each task.
- Demonstrate the exercise using the first one or two items in the exercise. You may need to discuss the volume of speech you are using, and the speed of speech you feel is appropriate for the recipient.
- Demonstrate how to rehearse the target items while pointing to them.
- Show the recipient and speaking partner how to remove visual cues without holding a hand close to the mouth (recipient looks down, speaker sits beside the recipient on the implanted side).
- Demonstrate appropriate feedback; discourage the use of "no", and demonstrate alternatives such as "listen again", "nearly right, listen to the end of the sentence again", or "it sounds a bit like that word but it's a different word".
- Discuss how to provide training and further cues (for example, some visual cues, word emphasis) when the recipient experiences difficulty.
- Ask the speaking partner to do the next item in the exercise. Check that the speaker is using an appropriate voice level/speed of delivery/feedback.
- Show the recipients how they can create more material – look for blank tables at the end of the exercise where the recipient and their family can create a similar task with a topic/vocabulary that is relevant to the recipient.
- Suggest other environments or particular family members for speaking partners.
- For some of the later exercises the recipient will work from their own sheets, which are available in the appendices of the manuals.

Progressing the exercises

Explain to the speaking partner how to extend an exercise that is becoming too easy, using the following methods:

- Use longer words.
- Include less familiar vocabulary.
- Increase the distance (for example, by sitting across a table) or sit on the non-implanted side.
- Offer less repeats, encourage more guessing.
- Use less predictable vocabulary.
- Change the environment to incorporate progressively more noise.
- Slowly increase the rate of speech.

Part 3: Screening tests

It is important to use appropriate screening tests to assess the recipient's ability to identify and recognise speech. Firstly, the results from the screening tests may be used as a guide in setting an appropriate training level for the recipient. Secondly, repeated assessment using such screening tests before and after the training also provides some indications of whether recipients have benefited from the training or whether the training difficulty should be adjusted.

This manual provides four screening tests (Levels A–D). The screening forms are shown in Appendix 1 and can be photocopied. Screening tests Levels A and B are adapted from Mecklenburg, Dowell & Jenison (1982), *Cochlear Adult Rehabilitation Manual*.

1: Screening tests Levels A–D

Screening test Level A

- The recipient can look at the test sheet while you give the instructions.
- Instructions to recipient: **"I will say one word from each line, please say or point to the word I said."**
- Calculate the correct score as a percentage.
- Make a plan:
 - If score $\geq 80\%$: give Screening test Level B.
 - If score $< 80\%$: start at the beginning of the manual for recipients with prelingual or long duration hearing loss.

Screening test Level B

- The recipient should look at the test sheet while you give the instructions.
- Instructions to recipient: **"I will say one of the four sentences in each set. Please point to or tell me which sentence I said."**
- Calculate the correct score as a percentage.
- Make a plan:
 - If score $\geq 80\%$: give Screening test Level C.
 - If score $< 80\%$: use the manual for recipients with prelingual or long duration hearing loss: Module 3, Exercise 5.

Screening test Level C

- The recipient must not see your copy of the test material. The recipient will have a copy with the first half of the sentence only.
- Instructions to recipient: **"I will say the first half of a sentence with you lip reading. I will then say the whole sentence without you lip reading. Please try to repeat the whole sentence. If you are not sure, please make the best guess that you can."**
- Score one point for each underlined word correctly repeated.
- Calculate the correct score as a percentage.
- Make a plan:
 - If score $\geq 80\%$: give Screening test Level D.
 - If score $< 80\%$:
 - Use the phoneme confusion matrices (Appendix 2) to check vowel and consonant identification and specify training as required.
 - Use the manual for recipients with prelingual or long duration hearing loss: start at Modules 10 and 11.

Screening test Level D

- The recipient does not see the test material as this is completely open set.
- Instructions to recipient: **"I will say some sentences. Please try to repeat as much of the sentence as you can, even if it's only one word. If you are not sure, make a guess. Guessing always counts."** Do not give repeats.
- Use the precise scoring method: each word must be repeated exactly (for example, plurals are scored as incorrect – in sentence one, the response "dogs" instead of "dog" is scored as incorrect).
- Calculate the correct score as a percentage.
- Make a plan:
 - If score $\geq 80\%$:
 - Use the phoneme confusion matrices (Appendix 2) to check any residual vowel or consonant confusions, and give training as required.
 - Use the manual for recipients with postlingual hearing loss: start at Section B, Part 1, Module 9, and work through the manual from there (also include some of the earlier exercises in challenging conditions to enhance hearing in noise or over the phone).
 - If score $< 80\%$:
 - Use the phoneme confusion matrices (Appendix 2) to check any residual vowel or consonant confusions, and give training as required.
 - Use the manual for recipients with postlingual hearing loss: start at Section A, Modules 4 and 5; or use the manual for recipients with prelingual or long duration hearing loss: start at Section B, Module 17.

2: Phoneme recognition tests

It is important to reinforce the ability of recipients to identify phonemes. Vowel and consonant recognition is assessed to determine areas of difficulty then exercises are given based on the results. This guide includes phoneme recognition tests, and both manuals include phoneme identification exercises.

- The vowel recognition test (Appendix 2) requires the recipient to identify vowels from a set of 11 vowels (non-diphthongs), presented in an /h/-vowel-/d/ context (for example, "**heed**", "**hid**", "**head**" etc.). The consonant recognition test (Appendix 2) requires the recipient to identify consonants from a set of 12 consonants in an /a/-consonant-/a/ context (for example, "**aba**", "**apa**", "**ama**" etc.).
- The tables at the end of this section provide a list of the vowel and consonant exercises included in the manuals.

Test procedures:

- Present the vowel or consonant recognition test by audition alone, randomly selecting stimulus items from the vowel matrix (for example, "**heed**", "**hid**", "**head**" etc.) or consonant matrix (for example, "**aba**", "**apa**", "**ama**" etc.) in Appendix 2. Do not give repeats.
- Ask the recipient to repeat the stimuli.
- Record the results in the matrix.
- Analyse the matrix for the errors/pattern of errors and determine which phonemes/phoneme features require specific auditory training.
- Make a plan: Based on the errors in phoneme recognition, select appropriate exercises from the take-home manuals, with reference to the Phoneme identification exercises on p11.
 - **Example 1:** You perform vowel recognition testing with a recipient with a prelingual hearing loss. The vowel recognition matrix results show accurate vowel duration identification but poor vowel frequency identification. In the manual for recipients with prelingual or long duration hearing loss, start at Module 4, Exercises 4 and 5.
 - **Example 2:** You perform consonant recognition testing with a recipient with a postlingual hearing loss. Analysis of the matrix shows accurate identification of voicing and manner of articulation cues but some confusion, for example, among aba/ada/aga and among asa/asha/afa (that is, errors in identifying the place of articulation). In the manual for recipients with postlingual hearing loss, concentrate on Module 3, Exercises 10–13.

Phoneme identification exercises	
Manual for patients with postlingual hearing loss (Module 3)	
Vowel identification – Level 1	
• Exercise 1: Vowel duration	
Vowel identification – Level 2	
• Exercise 2: Vowel frequency cues (same duration)	
• Exercise 3: Vowel frequency cues (same duration, differ F2 only)	
Consonant identification – Level 1	
• Exercise 4: Voicing	
Consonant identification – Level 2	
• Exercise 5: Manner of articulation – stops vs nasals (voiceless)	
• Exercise 6: Manner of articulation – stops vs nasals (voiced)	
• Exercise 7: Manner of articulation – fricatives vs nasals	
Consonant identification – Level 3	
• Exercise 8: Manner of articulation – lateral vs nasal	
• Exercise 9: Manner of articulation – affricate vs fricative	
Consonant identification – Level 4	
• Exercise 10: Place of articulation – b, d, g	
• Exercise 11: Place of articulation – p, t, k	
• Exercise 12: Place of articulation – f, s, sh	
• Exercise 13: Place of articulation – m, n	
Manual for patients with prelingual or long duration hearing loss (Module 4)	
Vowel identification	
• Exercise 1: Vowel duration and frequency cues	
• Exercise 2: Vowel duration and frequency cues (more similar)	
• Exercise 3: Vowel duration and frequency cues (in sentences)	
• Exercises 4 and 5: Vowel frequency cues (same duration)	
Consonant identification	
• Exercise 6: Position of the high pitched consonant	
Consonant identification – Level 1	
• Exercises 7 and 8: Voicing	
Consonant identification – Level 2	
• Exercise 9: Manner of articulation – stops vs nasals (voiceless)	
• Exercise 10: Manner of articulation – stops vs nasals (voiced)	
• Exercise 11: Manner of articulation – fricatives vs nasals	
Consonant identification – Level 3	
• Exercise 12: Place of articulation/high pitched consonants	

3: Automated screening tests using Angel Sound™

The Angel Sound computer program includes a self-administered assessment tool and integrates the auditory training with the testing function, where the assessment results will be automatically used to set the appropriate training level for recipients who use Angel Sound. Refer to Appendix 3 for screenshots of the computerised screening tests. Each training group includes a TEST function. Recipients are encouraged in each Angel Sound box within the take-home manual to regularly administer tests. There is an additional assessment tool (Assess Module), which includes the following tests:

Vowel and consonant recognition tests

- These tests can be accessed in the Vowel Recognition and Consonant Recognition training tasks in the Basic Module, or in the Phoneme Recognition section in the Assess Module.
- The tests are similar to those described in the Vowel and Consonant Recognition section above. There are 12 vowels and 20 consonants. On each trial a stimulus token is chosen randomly, without replacement, from the 48 tokens in the vowel test or 80 tokens in the consonant test. Following presentation of each token, the recipient responds by pressing one of the response buttons (12 buttons for the vowel test, 20 buttons for the consonant test) shown on the computer screen. No feedback is provided, and the recipient is instructed to guess if not sure. The correct scores as a percentage and the confusion matrix will be shown at the end of the testing. The confusion matrix's rows represent the stimulus and the columns represent the response. Testing scores are automatically used to set the recommended training level in vowel recognition training.

Speech recognition in noise test

- Recognition threshold, which is defined as the signal-to-noise ratio that produces 50% of speech recognition, is measured in this test. The lower the recognition threshold, the better the ability to recognise speech in noise.
- This test can be accessed in the Everyday Sentences section in the Noise Module (four keyword options) or in the Speech Test in Noise/Keyword in Noise Recognition section of the Assess Module (six keyword options).
- The Keyword in Noise test assesses the recipient's ability to understand sentences in the presence of speech babble. The listener identifies the keyword in the sentence. The expected recognition threshold should be about -15 dB for normal hearing listeners.

Open set speech recognition test

This test assesses open set word recognition using the CNC word test.

Appendix I:

Screening test forms A–D

Screening Level A*			
1	park	baseball	impossible
2	hot	ice cream	entertainment
3	boy	shipwreck	understanding
4	cow	rainbow	helicopter
5	duck	mushroom	watermelon
6	meat	cowboy	escalator
7	cold	footstep	demonstration
8	calm	workshop	television
9	cash	sandwich	qualification
10	tea	hotdog	difficulty
SCORE (keywords correct)			___ /10
			___ %

*Adapted from Mecklenburg, Dowell & Jenison (1982). *Cochlear Adult Rehabilitation Manual*.

Screening Level B*			
1	The goldfish is in the bowl.	6	Come in the front door.
	There is no time.		There could be a mistake.
	Sunrise will be early.		Dogs bark too much.
	The girl has long hair.		We eat lunch at one o'clock.
2	She has gone now.	7	I can see you.
	Coffee has caffeine.		There's a full moon tonight.
	There is no sunshine today.		Watch the football game.
	The last flood was in March.		The farm is in the country.
3	The teacher spoke too quietly.	8	You can travel by train.
	Please wait at home.		The red pen is on the desk.
	He bought a new car.		She is ten years old.
	Drink orange juice for a cold.		Please serve the tea.
4	The children went to bed.	9	It's a long distance call.
	We swim in the lake.		We need wood for the fireplace.
	Drive the car home.		The suitcase is brown.
	Bring it here.		She has a fever.
5	I'll be there in a minute.	10	The winter months are cold.
	Practise makes perfect.		Take your vitamins.
	A whale is a mammal.		Knock on the door.
	The dog is brown.		Eat fresh fruit.
SCORE (keywords correct)			___ /10
			___ %

*Adapted from Mecklenburg, Dowell & Jenison (1982). *Cochlear Adult Rehabilitation Manual*.

Screening Level C: Clinician copy		score
1	The children played with... a <u>bat</u> and <u>ball</u> .	/2
2	Go to the bank to... <u>open</u> an <u>account</u> .	/2
3	He went shopping to buy... <u>milk</u> and <u>bread</u> .	/2
4	I'm looking for a house... with <u>three bedrooms</u> .	/2
5	She spent her holiday... <u>swimming</u> at the <u>beach</u> .	/2
6	He travelled to work... by <u>bus</u> and <u>train</u> .	/2
7	At the farm they saw... some <u>cows</u> and <u>horses</u> .	/2
8	Please wake me up... at <u>five o'clock</u> .	/2
9	She cleaned the house with... a <u>mop</u> and a <u>broom</u> .	/2
10	The weather will be... <u>warm</u> and <u>sunny</u> .	/2
TOTAL (keywords correct)		___ /20
		___ %

Screening Level C: Recipient copy

1	The children played with...
2	Go to the bank to...
3	He went shopping to buy...
4	I'm looking for a house...
5	She spent her holiday...
6	He travelled to work...
7	At the farm they saw...
8	Please wake me up...
9	She cleaned the house with...
10	The weather will be...

Screening Level D*		score
1	The <u>dog</u> <u>barked</u> at the <u>cat</u> .	/3
2	<u>Kick</u> the <u>ball</u> .	/2
3	<u>Wash</u> the <u>shirt</u> .	/2
4	She <u>added</u> the <u>sugar</u> .	/2
5	He <u>ordered</u> <u>apple pie</u> .	/3
6	She <u>sewed</u> the <u>coat</u> .	/2
7	The <u>play</u> is <u>starting soon</u> .	/3
8	There is a <u>horse</u> in the <u>paddock</u> .	/2
9	The <u>sun rose</u> in the <u>sky</u> .	/3
10	The <u>clothes</u> <u>dried outside</u> .	/3
TOTAL (keywords correct)		<u> </u> /25
		<u> </u> %

*Adapted from IEEE sentences. Institute of Electrical and Electronic Engineers (1969) "IEEE recommended practice for speech quality measurements". IEEE Transactions on Audio and Electroacoustics, 17: 225-246. New York: IEEE.

Appendix 2:

Vowel and consonant confusion matrix forms

Vowel matrix

		Response										
		heed	hid	head	had	hard	hud	hod	hawed	hood	who'd	heard
Stimulus	heed											
	hid											
	head											
	had											
	hard											
	hud											
	hod											
	hawed											
	hood											
	who'd											
	heard											

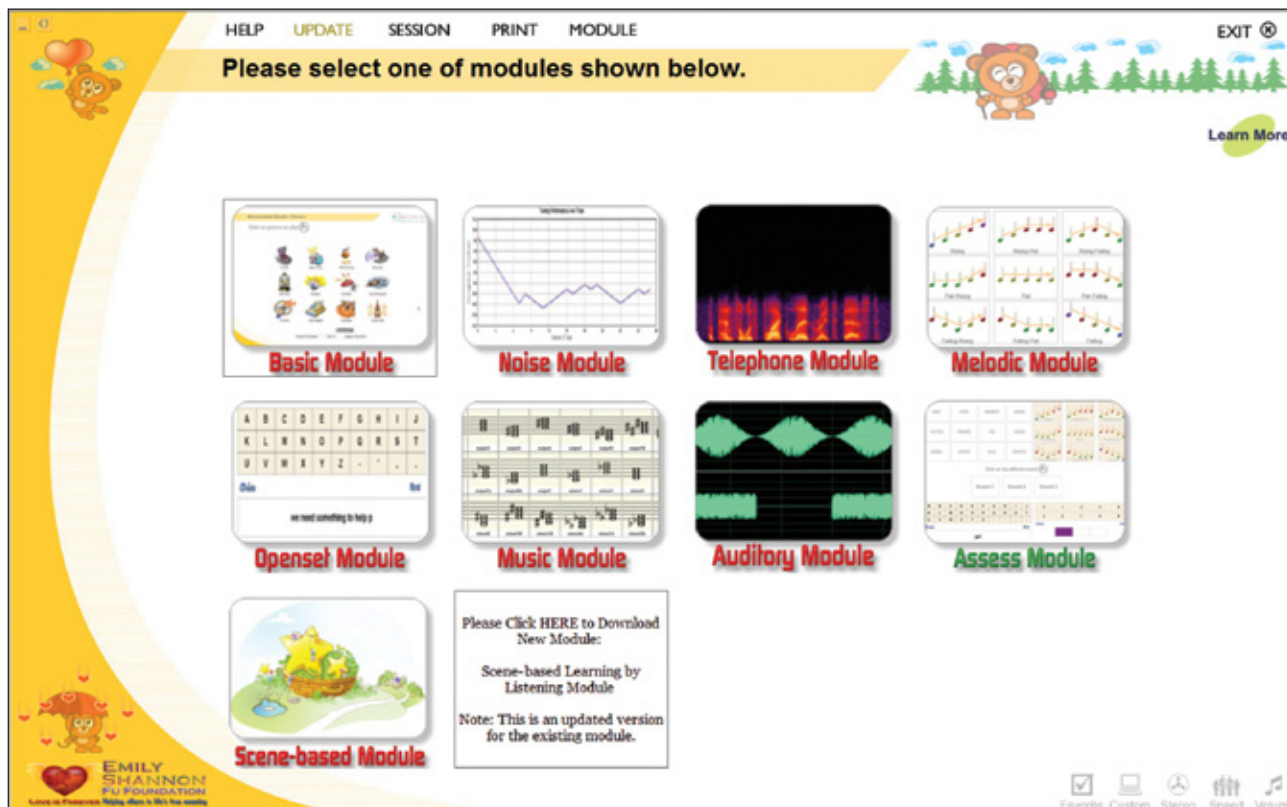
Consonant matrix

		Response										
		apa	ama	ava	afa	ada	ata	ana	aza	asa	aga	aka
Stimulus	aba											
	ama											
	ava											
	afa											
	ada											
	ata											
	ana											
	aza											
	asa											
	aga											
	aka											

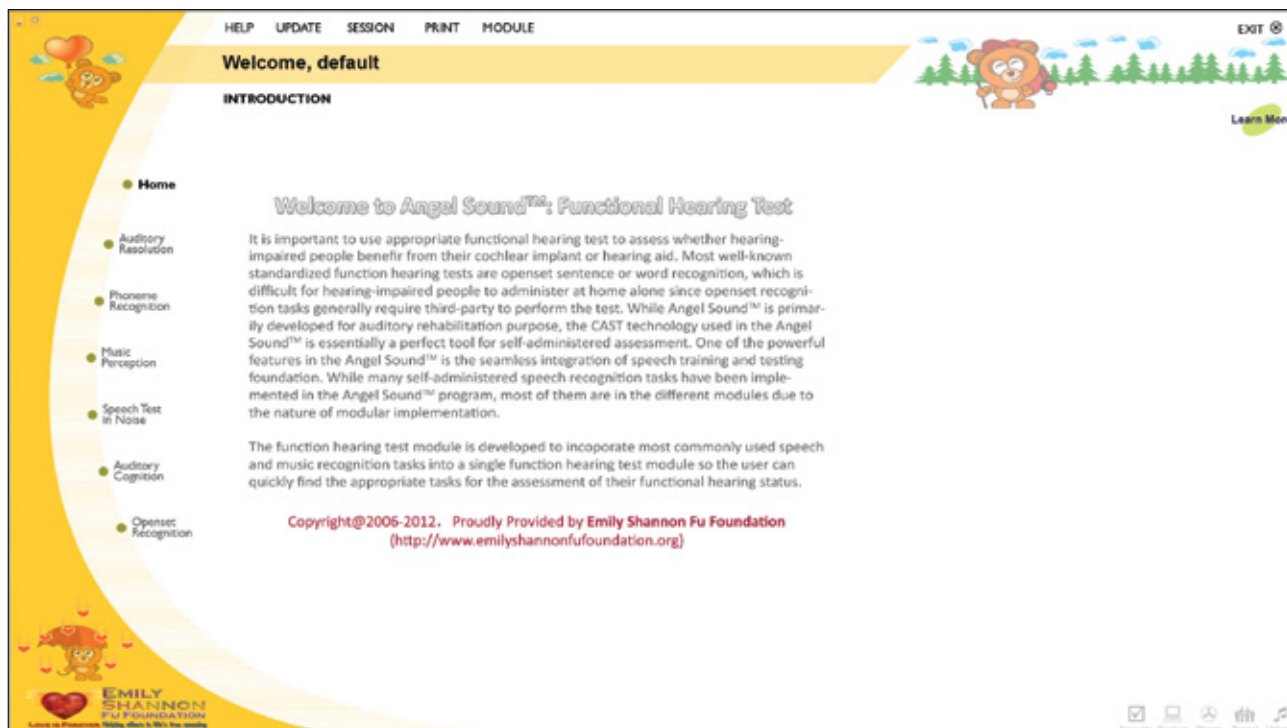
Appendix 3:

Angel Sound™ screenshots of computerised screening tests

Assess Module at Angel Sound for automated screening tests



Introduction page for computerised screening tests at Angel Sound



Phoneme recognition tests

Introduction page

Response screens (left) and results (right) for vowel recognition test. Each row in the matrix shows the number of stimuli presented while each column shows the number of times the listener responded.

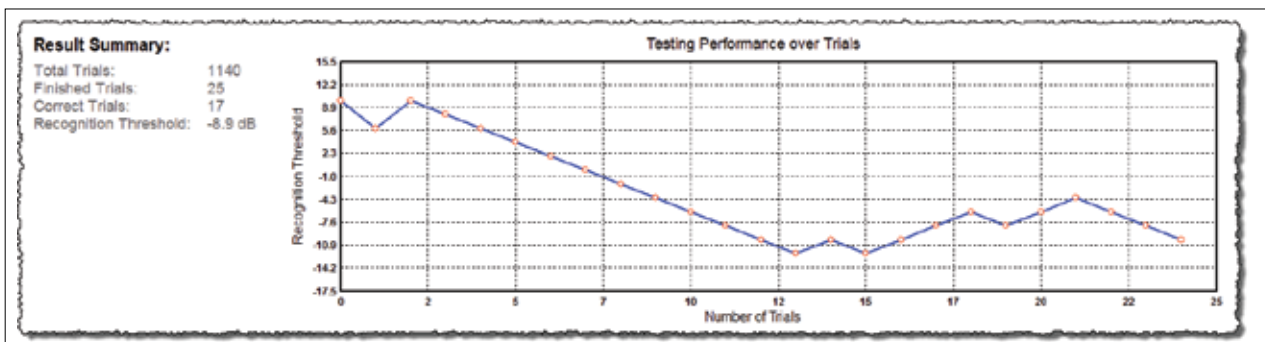
HAD:	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
HOD:	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
HAWED:	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
HEAD:	1	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
HAYED:	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0
HEARD:	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0
HID:	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0
HEED:	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0
HOED:	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0
HOOD:	0	0	0	0	0	0	0	0	0	0	0	0	3	0	1	0	0	0	0
HUD:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0
WHO'D:	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	0	0	0

Speech recognition in noise tests

Introduction page

Response screens (six choices) – example

Results – example



Openset word recognition tests

Introduction page

Angel Sound™: Openset Word Recognition Test

Purpose:
Openset recognition test is the ultimate speech recognition test to assess the listeners' speech understanding in real-life conversation. The traditional openset recognition test generally requires third party to perform the test, which make it difficult to self administer at home. Openset Word Recognition Test Group uses the well-known CNC word list for the test but allow the user to type their response with keyboard or mouse click.

Contents:
This test group has three CNC word lists. Select either list to start the test. After hearing the word, type the word or click the letter in the screen to complete the word.

A	B	C	D	E	F	G	H	I	J	K	L	M
N	O	P	Q	R	S	T	U	V	W	X	Y	Z

Delete Next

choose

Input screens for open set word recognition test

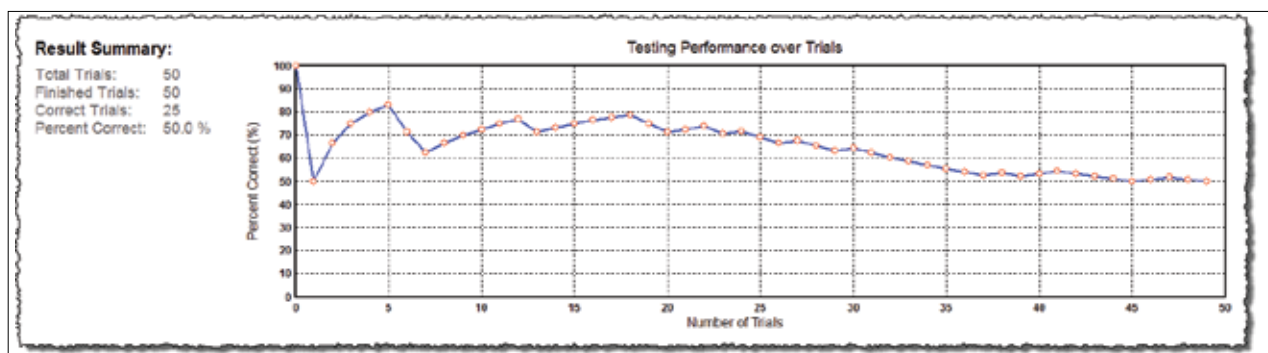
Click on the matching sound

A	B	C	D	E	F	G	H	I	J	K	L	M
N	O	P	Q	R	S	T	U	V	W	X	Y	Z

Delete Next

name

Results (percentage correct) for open set word recognition test



Appendix 4:

Additional professional Cochlear™ Rehabilitation Resources

Adult Communication Strategies

1. Improving Understanding with Communications Strategies

To demonstrate the importance of communication strategy training for adults, this document covers a number of key factors that can influence understanding during conversation, and gives practical strategies to improve listening in different environments. FUN2041 ISS1 NOV10

2. Cochlear Implant Rehabilitation: It's not just for kids

This guide provides a brief introduction to the topic of aural rehabilitation for adults who have had a cochlear implantation. It discusses the benefits of rehabilitation, the programs available and how to select one to suit different learning styles. FUN890 ISS1 JUN08

3. Adult Aural Rehabilitation – A guide for cochlear implant professionals

This guide and the accompanying DVD and CD are valuable resources for clinicians working on rehabilitation programs for adults with severe to profound hearing loss, and contain training exercises to meet the different skill levels of cochlear implant recipients. The package can be used for clinical training or as a materials resource when working with recipients. N31440F ISS1

4. Stages of Listening with a Cochlear Nucleus System

This poster clearly outlines the stages in the auditory hierarchy for adults that would typically be followed after cochlear implantation. N391610 ISS1 JUN12

5. HOPE Notes

HOPE Notes is a music program designed to support cochlear implant and hearing aid users improve music perception and appreciation using original songs, traditional folk, blues and country styles and some familiar tunes in unexpected ways. FUN1193 ISS1 MAY10

6. Music and Implants: Piecing the puzzle together

Discover how to make music more accessible and the musical experience more enjoyable with information and tips from a musician who is also a cochlear implant recipient. FUN669 ISS1 APR06

7. A Clinician's Guide – Adult Expectations

This guide is designed to give clinicians insights into their recipients' progress post activation and to support their recipients' progress with their cochlear implant. N461651-461653 ISS1 AUG13

Please visit the Cochlear website for more resources:

www.cochlear.com/intl/rehabilitation

Notes:

A large rectangular area with a dashed border, intended for taking notes. It contains 20 horizontal dashed lines for writing.

Hear now. And always

As the global leader in implantable hearing solutions, Cochlear is dedicated to bringing the gift of sound to people with moderate to profound hearing loss. We have helped over 400,000 people of all ages live full and active lives by reconnecting them with family, friends and community.

We give our recipients the best lifelong hearing experience and access to innovative future technologies. For our professional partners, we offer the industry's largest clinical, research and support networks.

That's why more people choose Cochlear than any other hearing implant company.

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