A Clinician’s Guide
ADULT EXPECTATIONS

Hear now. And always.
Professionals and recipients will find helpful and useful support resources on our website: http://www.cochlear.com/intl/rehabilitation

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A Clinicians Guide: Maximising Outcomes

This guide is designed to give Clinicians insights into their recipient’s progress post activation and to support the recipient’s progress with their cochlear implant. This resource is based on four adult recipient profiles;

1. Post-Lingual / short duration / with or without residual hearing
2. Post-Lingual / medium – long duration / residual hearing
3. Post-lingual / medium – long duration / poor residual hearing
4. Pre-lingual / auditory-oral history

This guide provides valuable insights into the possible outcomes and behaviours experienced by some recipients during their journey at activation, one week, one month, three months, six months and long term. The guide takes into consideration the following experiences in;

- Sound quality
- Performance outcomes
- Functional outcomes
- Emotions
- Questions and suggestions
- Actions
A Clinician’s Guide
ADULT EXPECTATIONS

ADULTS WITH POST-LINGUAL HEARING LOSS | SHORT DURATION | WITH OR WITHOUT RESIDUAL HEARING
### Sounds Quality

- Implant may sound like static, squeaks, robotic or synthesised speech
- Speech may sound familiar but unrecognisable

### Performance Outcomes

- May detect main sounds across speech range (m, oo, ar, ee, sh, s)
- May hear difference between some of the sounds across the speech frequencies (m, oo, ar, ee, sh, s)
- May recognise common phrases such as "hello" vs. "How are you?" based on the length of the phrase and with only a few phrases from which to choose
- May recognise own name when compared to other familiar names of different length and number of syllables
- May follow along (read) a passage as a partner reads it out loud (tracking)

### Functional Outcomes

- May turn when people speak
- May hear name called
- May hear environmental sounds: cars, telephone ringing, dogs barking
- May feel comfortable wearing device all day and evening

### Emotions

- May feel a sense of relief at being connected with the world once again
- May feel disappointed or nervous by the initial sound quality of the device
- May feel excited by the prospect of hearing again
- May worry about the amount of practice that is required to reach auditory potential with the implant
- May feel embarrassed or shy explaining the equipment to friends and family

### Questions & Suggestions

- How often do I need to practise listening with my implant?
- Practising for 15 minutes every day will improve your chances of understanding speech through the implant without lip-reading
- Do I have to see a specialist in order to practise every day?
- You can practise with any adult willing to help: a partner, friend, neighbour, relative
- You need to be guided by an expert that can give you appropriate training exercises

### Actions

Ensure you have signed up with an aural rehabilitation specialist to guide your listening practice. If your clinic does not provide this service, contact the Cochlear Ltd Clinical Specialist in your area.
Make a list of questions to ask your clinician and aural rehab specialist. Ensure you understand how your device works and can trouble shoot for problems should they arise. Practise this with your clinician.

How soon will I be able to hear normally?

- The implant is a medical device designed to stimulate the auditory nerve. It replaces 65,000 hair cells with 24 electrodes. Very good perception of speech is possible for some patients, however, it does not repair the hearing organ back to its original state.

What if I don’t have a partner to practise with every day?

- Progress will likely be slower if a patient is unable to practise every day. Some practise can be done on-line and by using recorded material provided by Cochlear Ltd. (www.cochlear.com/teensandadults)

Actions

Make a list of questions to ask your clinician and aural rehab specialist. Ensure you understand how your device works and can trouble shoot for problems should they arise. Practise this with your clinician.
I’m still having difficulty listening in noisy environments. Can practice help this?

- The best results for listening in noise are achieved when two ears are functioning equally. Practise listening in noise and practising lip-reading can help improve results, however, even people with typical hearing have difficulty in noise.

**EMOTIONS**

- May feel excited about possibility of acquiring a second implant
- May feel disappointed with self for waiting so long to get implant
- May feel depressed if progress isn’t matching expectation
- May be impatient to reach the top level of listening

**FUNCTIONAL OUTCOMES**

- May find social circle has increased in size
- May feel more independent
- May re-join social groups previously unable to sustain due to hearing loss
- Feeling of isolation may be gone
- May feel safer walking alone in busy areas

**SOUND QUALITY**

- May feel the quality of the sound is very natural
- May recognise individual voices
- May guide the audiologist in the programming of the device to achieve individual preference
- Squeaks, static and other noises may be replaced by natural sounding speech

**PERFORMANCE OUTCOMES**

- May identify 6 representative sounds across the speech range at a distance of 5 metres (m, oo, ar, ee, sh, s)
- May participate in a conversation with a known speaker about a selected topic which is narrow in scope
- May identify common phrases written down in small groups of 5-10 on the telephone with a known speaker
- May follow along the printed page while listening to audio books
- May participate in conversations with 2-3 other people in a quiet environment with the aid of lip-reading
- May identify the difference between rhyming words in small groups of 4-5 words, listening only

**QUESTIONS & SUGGESTIONS**

Ensure you practise listening with a variety of people. Listening to only one person does not prepare you well for understanding many different speakers.
**SOUND QUALITY**

- May feel the quality of the sound is good enough to listen to music
- May use a variety of programmes in processor for various listening conditions, one-to-one, noise, telephone, small group, music

**PERFORMANCE OUTCOMES**

- May participate in a conversation with one other person in a quiet environment on unknown topics and without lip-reading
- May answer common questions on the telephone with a familiar speaker
- May comprehend some TV without captions
- May comprehend weather or familiar news on the radio
- May find communicating in noisy environments easier with lip-reading
- May hear people speaking and environmental sounds from greater distances

**FUNCTIONAL OUTCOMES**

- May reconnect with friends and family incidentally by phone, skype, etc.
- May feel confident to experience activities once too difficult to contemplate
- May be able to do two things at once due to decreased need to look at each speaker (wash dishes and talk, drive and keep eyes on road while talking)

**EMOTIONS**

- May feel optimistic about future job prospects
- May find a decrease in stress levels around difficult communication settings
- May feel guilty about not practising enough and feel disheartened at lack of progress

**QUESTIONS & SUGGESTIONS**

I’m starting to hear sounds and I don’t know what is causing them. Is there a problem with my device?

- There most likely is not a problem with the device; it could be you are hearing sounds from greater distances without realising. When you hear a sound, ask someone near you if they hear it and can identify it for you. At this point in time, you could be hearing sounds in other rooms of the house or even outside.

**ACTIONS**

Push yourself to listen in a variety of environments, even those that are difficult for you. Try to understand with less lip-reading.
## SOUND QUALITY

Everything may sound normal, and the initial stages of learning to listen to the new signal are a distant memory.

May still experience some fine listening difficulties:
- The difference between some numbers or sounds that are similar may be unclear.

## PERFORMANCE OUTCOMES

- May be "overhearing" other people speaking.
- May be able to carry on a conversation with a known speaker in another room.
- May speak on the telephone and understand unfamiliar speakers most of the time.
- May participate in group conversations in noisy environments with greater ease.
- May follow TV programmes and movies with greater ease without captioning.
- May want to wear device even while sleeping to stay connected to the world.

## FUNCTIONAL OUTCOMES

- May not need to think of hearing loss first anymore before accepting invitations or embarking on social engagements.

## EMOTIONS

- May have a sense of freedom and independence not felt since hearing loss began.
- May still have some frustrations around difficult listening environments.

## QUESTIONS & SUGGESTIONS

**Are there any accessories or other devices that would help listening through the implant?**

- An FM may assist listening in noise or in large auditoriums where a microphone is used. It is also helpful during group meetings.
- Cochlear Ltd offers a variety of accessories to aid clients in achieving the most from their device. Visit the Cochlear website to view these: http://www.cochlear.com/intl/rehabilitation

## ACTIONS

Read the manual that came with your device and familiarise yourself with the accessories available. Ask your clinician which accessories might benefit you at this time.
Adults with post-lingual hearing loss | Short duration | With or without residual hearing

**SOUND QUALITY**

- May perceive little difference in the signal from a live voice vs. a recorded message
- May feel sound quality is as good as before the hearing loss began
- May feel the signal is still distorted and have difficulty when listening conditions are not ideal

**PERFORMANCE OUTCOMES**

- May have complete confidence and independence using the telephone
- May achieve 100% on speech perception testing in quiet at normal conversation presentation levels using sentences
- May show an improvement in speech perception scores in noise

**FUNCTIONAL OUTCOMES**

- May be able to use land-line, mobile phones whenever necessary
- May be functioning totally independently and not be limited in employment opportunities due to hearing loss

**EMOTIONS**

- May feel a sense of freedom and relief that life is returning to normal
- May feel some disappointment that some communication environments remain difficult and information is missed

**QUESTIONS & SUGGESTIONS**

I’m doing really well with my device, do I still need to practise?

- If you have achieved everything you wanted to achieve with your listening and your quality of life is where you want it, then no further practise is needed. Wearing the device and using it every day is practise enough. However, if you feel there are still some areas that are troublesome for you, more practise may help. Talk to your rehabilitationist or clinician about the next steps. You can also find products on the Cochlear Ltd website to help you: www.cochlear.com/intl/rehabilitation

**ACTIONS**

Make an appointment with your clinician to test your speech perception. Determine if you have achieved the level you wanted using your implant.
A Clinician’s Guide
ADULT EXPECTATIONS

ADULTS WITH POST-LINGUAL HEARING LOSS | MEDIUM/LONG DURATION | RESIDUAL HEARING
Adults with post-lingual hearing loss  |  Medium/long duration  |  Residual hearing

### ACTIVATION

#### SOUND QUALITY

- May detect some of the main sounds across the speech frequencies (m, oo, ar, ee, sh, s)
- Speech may not sound familiar but rather like static, distorted unrecognisable sounds, high pitched squeals
- Input may seem too loud, particularly with high pitched sounds
- Input may seem too soft and everything may seem muddled

#### PERFORMANCE OUTCOMES

- May discriminate difference in phrases based on their length. "Hello" vs. "Would you care for a cup of tea?"

#### FUNCTIONAL OUTCOMES

- May tolerate wearing the device for longer periods each day
- May not feel comfortable wearing device all day
- May be able to hear sounds again but not recognise them
- May hear when partner calls name
- May need to wear device on softer settings

#### EMOTIONS

- May feel excited to be hearing sounds again even though they are not recognisable or familiar
- May feel frustrated or depressed at inability to make sense of the sound
- May feel disappointed at level of fatigue after wearing device all day
- May experience headaches and/or fatigue

#### QUESTIONS & SUGGESTIONS

**Why does the sound from the implant sound so horrible?**

- The signal from the implant is a result of electrical stimulation of your auditory nerve. This is different from the acoustic signal provided before implantation and it will sound strange until your brain adapts to the new signal.

**How long will this implant sound so terrible?**

- The auditory centres in your brain will adapt to the new sound a little each day. You can help this process by practising at least 15 minutes every day with the exercises your rehabilitationist has given you.

#### ACTIONS

- Wear your device as many hours a day as possible. If you do need a break, put it back on after you have rested. The goal is to wear it every hour of the day and evening.
- If you feel pain while using the implant, make an appointment with your clinician.
**SOUND QUALITY**

- May recognise the difference between high pitched sounds vs. low pitched sounds in main sounds representing the speech frequencies (m, oo, ar, ee, sh, s).
- May feel signal still sounds unfamiliar and a bit irritating.
- May feel the signal is beginning to sound a bit more like speech but nothing is recognisable.

**PERFORMANCE OUTCOMES**

- May begin to recognise speech vs. other sounds based on the rate and rhythm of speech, but may still not recognise what is said.
- May recognise familiar phrases based on the length in sets of 5-10 sentences (short – hi; medium – come with me; long – go and check the post and get the paper please).

**FUNCTIONAL OUTCOMES**

- May hear sounds around the house such as telephone and doorbell ringing, microwave beep, alarm clock, television, dog barking, etc.
- May hear when people begin speaking and be able to look up to participate by lip-reading.
- May be able to wear device at recommended settings in quiet environments.

**EMOTIONS**

- May feel agitated at the loudness of the signal in noisy environments.
- May feel optimistic that signal is beginning to sound better.
- May feel disheartened at the amount of practise needed and the slow rate of improvement.
- May feel tired after a day of wearing device and require more sleep.

**QUESTIONS & SUGGESTIONS**

**What can I do if I don’t have anyone to practise with every day?**

- If you cannot find a family member, friend or neighbour to practise with you every day, maybe you can get a group of people to help and make appointments with each of them so you have one person every day.
- If you cannot find enough people to practise with, you can use recorded materials which are available through Cochlear Ltd (cochlear.com/intl/rehabilitation). Though live voice is better in the beginning stages, any practise is better than no practise.

**ACTIONS**

- Go on a listening walk around your house and listen to the taps, microwave, air conditioner, fan, heater, television, doorbell, alarm clock, dishwasher, clothes dryer, washing machine, etc.
- If you are planning to fly, read your manual for tips on airport security and wearing your device on the aircraft.
**SOUND QUALITY**

- May feel comfortable with signal now, though much of what is heard is still not recognised.
- May feel the signal sounds more like speech now and the static and screechy sounds have diminished.

**PERFORMANCE OUTCOMES**

- May recognise the difference between a statement and a question based on the rising inflection, but may not recognise any of the words.
- May recognise very common phrases in small sets of 5-10 words (how are you, let's watch TV, I need some more please, etc.)
- May recognise own name and names of family and friends differing in number of syllables (mum vs. Susannah) or low vs. high pitched sounds (Margaret vs. Stephen) in small sets.
- May listen and follow along a written passage while a partner reads aloud.

**FUNCTIONAL OUTCOMES**

- May feel comfortable wearing device all day and evening.
- May only use recommended settings in quiet environments and still turn device down in noise.
- May begin to recognise some sounds around the house: water running, kettle boiling, timer ringing, etc.
- Most likely will require guidance from a rehabilitation specialist for the next 2-9 months.

**EMOTIONS**

- May feel some comfort in the knowledge that sounds are beginning to be recognisable.
- May feel guilty when unmotivated to practise every day.

**QUESTIONS & SUGGESTIONS**

Do I need to see the clinician so often for Mapping or programming?

- The clinician has scheduled you for the recommended number of visits to ensure your device is providing the optimal signal for your own auditory system. If you miss an appointment, your signal may become less clear or too soft to hear properly.

**ACTIONS**

Ensure you attend all the appointments scheduled by your clinician. These appointments are critical in the early stages of using a cochlear implant.

Go for a listening walk outside and note how various things sound through the implant: wind, car motors, horns, children playing, dogs barking, the beeping of crossing lights, etc.
**SOUND QUALITY**

- Signal may sound more normal or familiar now, more speech-like than noise
- Dynamic range in map may be large enough to perceive the differences in individual sounds in English
- May be hearing a difference between loud and soft sounds
- May detect sounds (m, oo, ar, ee, sh, s) from a distance of 2-5 metres

**PERFORMANCE OUTCOMES**

- May hear familiar voice on telephone and recognise common phrases such as hello and own name, from a list of 5
- May recognise family/friends’ (15-30) names in phrases: Give some to John. I think John wants some.
- May answer questions about self if content is discussed first but may not need them printed to select (What is your name, where do you live, etc.)

**FUNCTIONAL OUTCOMES**

- May begin to understand common phrases around the home when spoken in a quiet environment by a familiar speaker
- May hear name called in noisy environments, from distances up to 5 metres and when not expecting it

**EMOTIONS**

- May begin to feel slightly more independent in daily life
- May feel buoyed by more successful communications with strangers throughout the day (corner shop, newsagent, neighbours)

**QUESTIONS & SUGGESTIONS**

I am having success with small sets of well-known phrases. Will I ever be able to have a normal conversation and understand?

- Everyone develops at their own rate and achieves different levels. Two things ensure you will reach your own listening potential with your device: 1) practising every day and 2) wearing your device all day, every day, on the recommended settings.

**ACTIONS**

- If you are achieving 80% or greater in your listening practise, make the sets larger i.e. go from 5 phrases to 10-15.
- Action: If a list of sentences is too easy, ask your practise partner to say related phrases that are not written down and see if you can understand.
- Action: Ensure you have enough batteries and spare parts to last until your next audiology appointment.
**SOUND QUALITY**

- Signal may sound very normal now and the initial signal may be difficult to recall
- May be able to hear a bit better in noise
- Music may begin to sound more pleasant

**PERFORMANCE OUTCOMES**

- May recognise common phrases on the telephone, using a list of sentences from which to choose
- May participate in a conversation with one person without lip-reading when the topic is chosen beforehand and it is kept narrow in scope
- May comprehend simple phrases on tape with a printed list from which to choose

**FUNCTIONAL OUTCOMES**

- May find it easier to communicate in small groups with lip-reading as needed
- May be less reliant on captions while watching TV
- May feel more confident answering the telephone
- Distance hearing may be returning – hear sounds outside the house, people speaking out of eye-sight, birds chirping, etc.

**EMOTIONS**

- May feel confidence has increased in all communication settings, one-to-one, small groups, quiet and noisy environments
- May feel anxious communicating with new people or on the telephone

**QUESTIONS & SUGGESTIONS**

I’m starting to use the telephone now. Do I need to use the special settings and adapters?

- Many people, with practise, can use their normal programme and the microphone on their processor to speak on the phone. Proper placement of the telephone in relation to the microphone on the processor is essential. Use your “telecoil” accessory – this should help. However, some people do need to use specific programmes and adaptive equipment. Experiment yourself or seek the guidance of a rehabilitation professional.

**ACTIONS**

- If you are unable to hear on the telephone, ask your clinician for help.
- If you feel you have plateaued in your ability to listen, seek advice from an aural rehabilitation specialist.
### SOUND QUALITY

- May perceive no difference in signal even after adjustment
- May feel the quality of the signal is still not great
- May feel the sound through the implant is very clear and sounds normal

### PERFORMANCE OUTCOMES

- May show marked improvement in speech perception scores
- May carry on a conversation with one other person without lip-reading and follow a change in topic with no difficulty
- May comprehend television and radio programmes with little difficulty
- May have successful phone calls and follow the conversation when initiated and controlled

### FUNCTIONAL OUTCOMES

- May have greater independence in all aspects of daily life
- May perform independently at work and may have moved to a different job since regaining auditory functioning

### EMOTIONS

- May feel the nightmare of not hearing is a distant memory and be encouraged to get a second implant
- May feel lost and disappointed as life with the implant is not as great as anticipated
- May feel surprised that more practise and guidance is needed to continue to improve after a year of implant use

### QUESTIONS & SUGGESTIONS

I'm one year post switch-on and I'm still not hearing as well as I want. Is there any hope for improvement this far down the track?

- Yes, improvement is always possible, it depends on the areas that are still causing problems. Guidance from an auditory rehabilitationist is most likely necessary to determine your functioning level and provide practise at the appropriate level.

### ACTIONS

Make your next Mapping appointment and discuss with your audiologist what signs or symptoms might indicate you need to see them sooner.
A Clinician’s Guide
ADULT EXPECTATIONS

ADULTS WITH POST-LINGUAL HEARING LOSS | MEDIUM/LONG DURATION | POOR RESIDUAL HEARING
**SOUND QUALITY**

- May perceive sound through implant even though it sounds very unfamiliar
- May only hear static, squeaks, noise, beeps from signal
- May perceive sound provided by the implant as similar to speech heard through the hearing aids but only in terms of the rate and rhythm of speech, not individual words or phrases

**PERFORMANCE OUTCOMES**

- May detect some of the sounds of speech across the various pitches (m, oo, ar, ee, sh, s)
- May discriminate low pitched sounds from high pitched sounds, particularly if using the hybrid and low frequency hearing is still usable
- May recognise family members' voices
- May only hear "noise" or "high pitched" squeals from implant
- May have improved speech awareness, particularly when combined with hearing aid on opposite ear

**FUNCTIONAL OUTCOMES**

- May not tolerate wearing the implant for more than a few hours at a time
- May feel the new signal enhances the awareness of speech when combined with hearing aid on opposite ear or using the hybrid
- May recognise own name when called

**EMOTIONS**

- May be disappointed in the quality of sound provided by the implant
- May feel excitement and relief at ability to hear high frequency sounds such as /s/ again
- May experience confusion and distress when wearing both the implant and the hearing aid
- May feel disappointed if ability to understand speech is worse now than before the use of the implant, especially if good, low frequency hearing was present

**QUESTIONS & SUGGESTIONS**

The implant is too loud and I can't hear as well as I did through my hearing aid. Is the implant working correctly? Is my residual hearing gone?

- It may take a few weeks to a few months to get used to the new signal provided by the implant and for your brain to process and assimilate the two different signals provided by the hearing aid and the implant, this is common.

**ACTIONS**

Contact your clinician or Cochlear Clinical Specialist to discuss the timing of hearing tests to assess the level of your residual hearing and also to balance the hearing aid with the cochlear implant signal.

Listen through the implant alone for at least 15 minutes every day by turning off your hearing aid.
**SOUND QUALITY**

- May perceive the implant signal sounds less like static or non-speech sounds
- May perceive the signal from the implant as too soft
- Signal may still sound too loud and continue to sound like static or squealing
- May perceive the hearing aid signal to be too soft and only hear the signal through the implant
- May discriminate difference in environmental sounds vs. someone talking through the implant alone

**PERFORMANCE OUTCOMES**

- May begin to hear difference in some sounds across the speech frequencies (low pitch - m, oo, ar, ee, and high pitch sh, s)
- May begin to identify common words/phrases based on their rhythm and intonation (hi vs. how are you?) (in small lists of 3-5 phrases)
- May hear more of what is said now that high frequencies are heard, especially when combined with lip-reading

**FUNCTIONAL OUTCOMES**

- May have more awareness of life going on beyond immediate vicinity (greater than 1 metre)
- May hear sounds from greater distances increasing connection to the world
- May experience fatigue and might turn the volume down for a while or take it off for a short while

**EMOTIONS**

- May feel optimistic that more access to sound is possible
- May feel disappointed that nothing much has changed yet in terms of ease of communication
- May feel like giving up on the implant, it seems too hard and does not meet expectations at all
- May feel tired after a day of wearing device and require more sleep

**QUESTIONS & SUGGESTIONS**

I was expecting to hear like I used to hear before my hearing dropped. Is my implant working?

- It is very common for people to expect too much, too quickly from the CI signal. You and your body must first become familiar with the new signal and your body needs time to adapt to the physiological changes that are taking place from the inserted array. This initial phase can take up to 2 months, when the programming stabilises and your brain begins to recognise the new input.

**ACTIONS**

Listen to sounds around your house, or your practise partner talking; first through hearing aid alone, second through implant alone and third through both devices together. Note the differences you hear in each instance.

Practise, practise, practise – every day for at least 15 minutes using small, written sets of words and phrases, through the implant alone.
SOUND QUALITY

May hear more individual speech sounds after latest programming of device
May perceive signal to be less harsh and more representative of speech
May detect softer sounds and tolerate louder sounds than before

PERFORMANCE OUTCOMES

May hear when a phrase begins and ends but not recognise the content
May recognise familiar names in a list of <10 differing in the number of syllables (dad, Maryann, Lucy)
May recognise common daily phrases differing in length from a list of 10-15 (hello, What time are you leaving for work? Let’s eat lunch.)
May be able to follow along the printed material while a practise partner reads out loud

FUNCTIONAL OUTCOMES

May begin to recognise common phrases spoken by familiar people during the course of the day
May have improved communication ability while lip-reading
May continue to feel fatigued and require "quiet" time without the implant

EMOTIONS

May have a sense of re-joining the world, feel more connected and more successful in communicating
May feel discouraged at lack of progress and the amount of work required to make sense of signal

QUESTIONS & SUGGESTIONS

Why can I understand what people say during practise when it is written in a list but not understand when people talk to me throughout the day?

• It is very common to progress through stages of learning to listen through the implant. Understanding when the choices are written is the first step. Increasing the number of choices will improve your ability to transfer your listening ability to everyday communications. The next step is to listen to known items without the printed material in front of you. The next step is understanding throughout the day when familiar speakers talk to you and the final step is understanding unfamiliar speakers.

ACTIONS

Increase your listening choices to as many as you can while still achieving at least 70% accuracy.
Practise with as many different people as you can during the week, and continue practising at least 15 minutes every day.
I want to use the phone. Will I be able to hear and do I need special equipment?

- You may be able to use the telephone by placing the receiver near the microphone of your speech processor. Try using your telecoil accessory. It is best to practise using the phone by listening to small lists of common phrases or names. Use the materials you practised with shortly after you received your implant.

QUESTIONS & SUGGESTIONS

If you do not have success using the telephone with the correct placement of the telephone receiver and using small lists, talk to your clinician about accessories that are available for use with telephones.

Contact your clinician to discuss balancing hearing aid signal with CI signal.
I'm so happy with my implant and I'm doing well. Could I benefit from a second implant in the other ear?

- Only your doctor and clinician can answer that question for you. Make an appointment with your surgeon and audiologist to determine if you are a candidate for a second implant. If you do decide to go ahead, keep in mind the amount of work and practise it took to reach the level you did with your first implant. Your second implant will require hard work also, and the outcome could be the same, better or worse, it is never known for certain.

Ensure you keep all recommended appointments with your clinician to ensure your implant is performing optimally.

If you experience a decrease in performance with your implant, make an appointment with your audiologist to determine the cause.
**SOUND QUALITY**

- CI signal may sound clear and more normal.
- Signal may sound clear even in noisy settings.
- May hear at greater distances (up to 5 metres).
- Signal may still sound robotic and not clear like normal speech.

**PERFORMANCE OUTCOMES**

- May show improvement in speech discrimination scores, up to 100% in quiet.
- May discriminate fine differences in words such as cat, hat, mat, etc.
- May participate in a conversation with an unfamiliar speaker by phone.
- May comprehend books on tape, GPS instructions in car, radio talk back, etc.
- May have improved speech discrimination scores with the aid of lip-reading if unable to improve through audition alone.

**FUNCTIONAL OUTCOMES**

- Signal may only provide rudimentary access to sound, presence or absence but limited identification without lip-reading.
- May carry on with daily life much as before the onset of the hearing loss.
- May have improved communication with implant but still require lip-reading and captions.

**EMOTIONS**

- May feel grateful for new abilities to live life much as before the hearing loss.
- May feel excited about prospect of second implant.
- May feel discouraged that expectations were not met.
- May feel any improvement in abilities with the implant were worth the effort.

**QUESTIONS & SUGGESTIONS**

Do I need to continue practising every day even though I am doing quite well?

- Once you have reached a level of satisfaction with your implant, you don’t need specific practise every day. Life itself is practise. Ensure you are always functioning at the level you want and if your abilities decrease, practising a bit may return you to your previous level.

**ACTIONS**

- Keep all recommended audiological appointments to ensure you are functioning at your optimal level.
- Keep in touch with the Cochlear Ltd website to keep abreast of new information, products and updates.
  www.cochlear.com/intl/rehabilitation
- Join on-line CI groups on the Cochlear website to speak to people in similar circumstances.
### ACTIVATION

#### WEEK 1

<table>
<thead>
<tr>
<th>SOUND QUALITY</th>
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<tbody>
<tr>
<td>May have a physical sensation to presence of sound (throbbing, pulsing)</td>
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<tr>
<td>May hear buzzing, static, squeaks</td>
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<tr>
<td>Both vocal and environmental sounds may sound the same</td>
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<tr>
<td>Signal may be very unpleasant and seem too loud</td>
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</tbody>
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<table>
<thead>
<tr>
<th>PERFORMANCE OUTCOMES</th>
</tr>
</thead>
<tbody>
<tr>
<td>May or may not have an auditory sensation to presence of key sounds across the speech frequencies (m, oo, ar, ee, sh, s)</td>
</tr>
<tr>
<td>May only have a sensation of sound in mid frequencies of speech spectrum (ar, ee)</td>
</tr>
<tr>
<td>May not recognise sound as speech or someone talking</td>
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<table>
<thead>
<tr>
<th>FUNCTIONAL OUTCOMES</th>
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<tbody>
<tr>
<td>May not tolerate wearing the device all day</td>
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<tr>
<td>May need to turn volume down</td>
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<tr>
<td>May hear constant &quot;noise&quot; through device and no recognisable sounds</td>
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<tr>
<td>People talking may only sound like noise, static, etc.</td>
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<table>
<thead>
<tr>
<th>EMOTIONS</th>
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<tbody>
<tr>
<td>May feel disheartened by the quality of the sound at this early stage</td>
</tr>
<tr>
<td>May feel disappointed that the implant has not been a &quot;cure&quot; for the deafness</td>
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<tr>
<td>May feel unsettled by the intensity of the sound provided by the implant</td>
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<tr>
<td>May feel excited to actually be detecting sounds in the environment</td>
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<tr>
<th>QUESTIONS &amp; SUGGESTIONS</th>
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<tbody>
<tr>
<td>At least with my hearing aid, I can tell when someone is talking even though I can’t understand them. With the implant I can’t tell if I’m hearing someone talking, the car engine, or the traffic. I feel my hearing is worse now than before the operation. Is the implant working?</td>
</tr>
<tr>
<td>• Only your clinician can ensure your implant is working properly, however, it is very common to experience sound as you have described. It is especially common during the very early stages of learning the new signal provided by the implant. Only time and practise will help improve your understanding through the implant.</td>
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<table>
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<tr>
<th>ACTIONS</th>
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<tbody>
<tr>
<td>Wear your device as many hours as possible each day.</td>
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<tr>
<td>If you require a rest from the stimulation, ensure you put the device back on after a short break.</td>
</tr>
<tr>
<td>Practise listening to all the sounds in and around your house with your implant on. If you are wearing a hearing aid on the opposite ear, turn it off when you practise every day.</td>
</tr>
<tr>
<td>When you are in environments where you are not confident to wear your implant alone, it is best to wear your hearing aid as well. Try having cochlear implant alone time with your therapist or at home with your family.</td>
</tr>
</tbody>
</table>
**SOUND QUALITY**

Sound through your implant may continue to sound like unidentifiable noise, static, etc.

The signal may begin to sound different depending on the stimulus, talking vs. banging

The signal may sound familiar – similar to the rhythm and intonation of someone talking

**PERFORMANCE OUTCOMES**

May have a response to some high frequency sounds in speech spectrum

May have more consistent responses to the presence of sound

May tolerate louder stimuli during Mapping

May respond to softer sounds during Mapping

**FUNCTIONAL OUTCOMES**

May begin to tolerate wearing the device on recommended settings for longer periods of time

May begin to consistently recognise talking apart from environmental sounds around the house

May turn when people talk or call your name

May need to wear device on setting softer than recommended, especially in noisy settings

**EMOTIONS**

May feel encouraged now that sounds are beginning to sound different from just noise

May feel annoyed due to the quality of the sound and lack of understanding

May feel tired after a day of wearing device and require more sleep

May feel excited as more sounds are recognised around the house

**QUESTIONS & SUGGESTIONS**

**Why am I so tired after wearing my cochlear implant during the day?**

- The implant is providing much more sound to your auditory system than your hearing aids and this can cause fatigue. Your auditory system is not accustomed to this much stimulation and it may take a few months for you and your auditory system to accommodate this new level of stimulation.

**ACTIONS**

Practise for 15-30 minutes every day with a cochlear implant alone, with a practise partner or listening to the TV, radio, people talking, etc.

Keep a diary of sounds you are hearing, note when you have recognised the sound before looking for it.

Wear the device as many hours during the day as possible. The goal is to only take it off when you are sleeping, or remember when in the shower, pool or beach use the Aqua Accessory.
I'm beginning to regret ever getting the implant. What happens if I don't wear my processor anymore, do I need to have the implant removed?

- It is best to speak to your doctor and your clinician with regard to this question. It is very important to remember that your auditory system has not had access to this much sound before and it will take time and practice to learn to interpret the signal. You may need more guidance in the types of exercises and practice that will help you the most. Talk to your aural rehabilitationist or your Cochlear representative to get more help.

**EMOTIONS**

- May feel relieved at ability to hear sounds across the speech range for low to very high sounds
- May feel optimistic at progress made so far with implant
- May feel more secure and calm knowing you have access to events occurring within "earshot"
- May feel disappointed at the poor quality of the signal and the amount of time and practice required

**FUNCTIONAL OUTCOMES**

- May be able to wear device on recommended settings in quiet environments
- May be able to wear device all hours while awake
- May recognise name when called in a quiet environment
- May hear sounds from greater distances, up to 5 metres

**PERFORMANCE OUTCOMES**

- May detect all 6 sounds across the speech range /m, oo, ar, ee, sh, s/
- May begin to identify vocal input vs. environmental sounds
- May be able to identify names and common phrases based on the length (mum vs. Alexander) (hello vs. It's time for dinner) in lists of 5-10

**SOUND QUALITY**

- Overall sound may seem more “normal” and less like static, squeaks, etc.
- Talking may sound like talking but not be understood
- The signal may seem clearer and more distinct as more stimulation is tolerated now

**QUESTIONS & SUGGESTIONS**

- Practise listening to a variety of people practise your lists of sentences and names to ensure you get accustomed to many different pitches and voice patterns.
- Practise every day even if only for 15 minutes and keep in mind the extent of the journey you have begun. Try not to get disheartened as any improvements might be slow to develop but very worthwhile.
I am recognising sounds around the house such as the microwave bell, the telephone, the door closing, but I can't understand when people talk to me. Is the implant only good for environmental sounds?

- No, some people are able to talk on the telephone with the use of their cochlear implant, but each person's ability to interpret the signal provided by the device is individual. The one common denominator in all cases is the amount of practise done equals the level achieved. Not everyone will achieve the highest level of talking on the telephone, this is due to many, many individual factors. However, the more practise you do, the better your outcome will be in reaching your potential.

Check the Cochlear Ltd website for practise materials that may help you. www.cochlear.com/intl/rehabilitation

Try listening to familiar songs such as Happy Birthday, common children's songs, etc. and see if you can recognise the songs by their tunes.
### Long Term Adults with pre-lingual hearing loss | Auditory-oral history

<table>
<thead>
<tr>
<th>ACTIVATION</th>
<th>WEEK 1</th>
<th>MONTH 1</th>
<th>MONTH 3</th>
<th>MONTH 6</th>
<th>LONG TERM</th>
</tr>
</thead>
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#### 🎤 SOUND QUALITY

- Talking may sound like mumbling with the occasional word identifiable
- Low, medium and high pitched sounds may be identifiable

#### 🏷 PERFORMANCE OUTCOMES

- May show improvement in speech perception scores with lip-reading
- May identify phrases in a list of 5 with the same duration but different words at the end of the phrase (Let’s go to the movies. Let’s go to the mall. Let’s go to the beach, etc.)

#### 🎯 FUNCTIONAL OUTCOMES

- May recognise name when called
- May comprehend very common phrases, in context: hello, how are you, goodbye, do you want some more, etc. without lip-reading

#### ❤️ EMOTIONS

- May feel fortunate to have access to environmental sounds and some oral language without lip-reading
- May feel sad that TV, radio, movies are not any easier to understand

#### 🔎 QUESTIONS & SUGGESTIONS

Why can’t I understand my children and grandchildren when I’m understanding my partner some of the time?

- It is common to understand the person you practise with or spend the most time with better than anyone else. You can help yourself by organising a variety of people to practise with you each week.

#### 🔵 ACTIONS

Ensure you make a schedule of different people to practise with each week.

Watch TV without captions when watching re-runs or programmes with content that you are very familiar with.
I don’t like feeling disconnected to the world. Can I wear my device to bed? It is good to rest the skin where the magnet attaches a few hours every day, it’s best to do this when you are asleep.

• It is best to check with your audiologist before wearing your implant 24 hours a day. The most important factor to consider is the battery usage and lack of time to put the processor in the drying box. Moisture is the biggest enemy of electronic equipment, so chat to your Cochlear Specialist to make an informed decision.

Continued practise may help you reach higher levels of listening such as simple telephone conversations, conversations in noisy environments, discriminating fine differences between words and many other skills.

Attend all recommended appointments with your audiologist to ensure your equipment is functioning optimally.
**SOUND QUALITY**

Your clinician/audiologist will ask you to respond when you 'first hear something'.

It may take some time to become aware of the test sounds.

The first sounds through your implant may not seem like hearing. It may seem like a 'feeling'.

Some sounds may be uncomfortable and unusual.

You may take home a program that is 'quiet' to begin with, so you can get used to it.

---

**PERFORMANCE OUTCOMES**

May hear sounds across the speech range; low sounds such as vowels e.g. ar, oo and high sounds such as consonants e.g. sh, s.

May not realise those sounds are speech.

---

**FUNCTIONAL OUTCOMES**

May hear speech when in a quiet room with one other person.

May hear more noises and speech sounds all around, but not be able to recognize what these sounds are.

May take some time to gradually wear the device all day.

---

**EMOTIONS**

May feel excited to hear so many different sounds.

May have questions about how to learn to listen for the first time.

May feel disappointed or nervous by the sounds from the device.

---

**QUESTIONS & ACTIONS**

Try to wear your device for more hours each day, build up gradually to all-day use.

Plan to go for a listening walk. Take a hearing friend/relative with you. As you are aware of new sounds, your hearing friend/relative will point out where the sounds are coming from and what is making those sounds.

Read the manual and prepare some question for your next session.

---

**ACTIONS**

Write down all the sounds you hear or things you feel for your next visit.

Read the manual and prepare some question for your next session.
**SOUND QUALITY**

The program may be increased gradually, and seem louder.

Sounds may seem more like ‘hearing’ and no longer seem like ‘feeling’

**PERFORMANCE OUTCOMES**

May be able to hear sounds across the speech range (m, oo, ar, ee, sh, s) but may not be able to tell which one is said

May be able to count the number of sounds e.g. ‘ar- ar- ar’ = 3 sounds. e.g. ‘sh-sh-sh-sh’ = 4 sounds

Maybe able to tell the difference between a long sound e.g. ‘aaaaa’ versus a short repeated sound e.g. ‘buh buh buh buh’

**FUNCTIONAL OUTCOMES**

May be able to wear the device for three or more hours per day

Will be familiar with changing batteries and how to use the settings

**EMOTIONS**

May be excited or frustrated by the amount of sound all around you

May be surprised by things you didn’t know made a sound (e.g. toilet flushing, eating crunchy food, dropping things onto a hard floor, footsteps on a hard floor)

May be disappointed that the implant wasn’t a magic cure/ Learning to listen takes a lot of practice and perseverance

May have friend and relatives expecting you to have normal hearing. May have to spend a lot of time explaining to different people.

**QUESTIONS & ACTIONS**

Keep increasing the amount of time you wear the device.

Keep a checklist of sounds in the environment you have heard.

Ask your hearing friend/relative to practice every day with you.

Ask your clinician for some suitable material to practice with.

**ACTIONS**

Keep going for your listening walks with your hearing friend/relative pointing out the sounds as you go. Choose some different environments (e.g. parks, café, shopping mall).
**SOUND QUALITY**

The settings may be too quiet now. You are ready to make it louder.

The settings may be too loud now. Ask your clinician to turn the levels down and give you a range of programs to adjust to.

Can tell when the sound has gone off.

May be able to wear device at recommended settings in quiet environments.

**PERFORMANCE OUTCOMES**

May be able to hear sounds across the speech range (m, oo, ee, sh, s) and can start to recognize that the ‘sh’ sounds different to the other sounds.

May be able to count the number of sounds e.g. ‘ar- ar- ar’ = 3 sounds. e.g. ‘sh-sh-sh-sh’ = 4 sounds with more accuracy now.

May be able to count the syllables in words when your speaker separates them clearly e.g. but- er- fly, e.g. hos-pi-tal.

**FUNCTIONAL OUTCOMES**

You may start to hear sounds in the environment and look up to see what is making those sounds.

May find you can use the sound to help your lip-reading.

**EMOTIONS**

May be comparing yourself with other friends who have had the implant.

May wonder if your own progress is fast or slow.

You may find you are explaining to your other Deaf friends why you chose to have the implant.

May feel tired at the end of a day of listening and look forward to taking it off.

May choose not to wear it if you are feeling unwell or have a headache.

**QUESTIONS & ACTIONS**

Make a list of questions to ask your clinician at your next visit. Ask him/her if you can stay in touch over e-mail until your next appointment.

What if I don’t have a partner to practise with every day? Progress will likely be slower if you are unable to practise every day. Ask your clinician if ‘on-line’ and recorded materials would be suitable.

**ACTIONS**

Continue to add to the list of sounds that are new to you. You could look up some websites that have commonly heard environmental sounds, can you hear differences in some of the sounds?
Cochlear™
Adults with pre-lingual hearing loss | Medium/long duration | with or without residual hearing

**ACTIVATION** | **WEEK 1** | **MONTH 1** | **MONTH 3** | **MONTH 6** | **LONG TERM**

### MONTH 3

#### SOUND QUALITY

- May be getting used to the sound quality now
- May feel signal still sounds unfamiliar and a bit irritating
- Continue to work with your clinician to adjust and fine-tune the settings. Perhaps the low sounds are too loud compared to the high pitched sounds. Or vice versa.

#### PERFORMANCE OUTCOMES

- May be able to tell which sound is said from a choice to two sounds by using your hearing alone (no lip-reading) in a quiet room. e.g1. (low pitch) 'm’ vs (high pitch) ‘s’ e.g2. (low pitch) ‘ar’ vs (high pitch) ‘sh’ e.g3. (low pitch) ‘or’ vs (high pitch) ‘r’
- May be able to tell which sound is said louder/softer from a choice to two sounds by using your hearing alone (no lip-reading) in a quiet room, e.g1. ‘AR’ (loud) vs ‘ar’ (soft), e.g2. ‘SH’ (loud) vs ‘sh’ (soft),
- In a quiet room, maybe able to recognise the sounds are different (m, oo, ar, ee, sh, s)
- May be able to count the syllables in words when your speaker speaks at a normal pace e.g. butterfly, e.g. hospital

#### FUNCTIONAL OUTCOMES

- In a quiet room, may begin to recognise speech vs. other sounds based on the patterns (rate, duration, long versus short sounds), but would not recognise what is said.

#### EMOTIONS

- May still find noisy situations are too frustrating and want to turn the device off
- May be disappointed that improvements in learning to listen are slow to occur.
- May enjoy telling your friends/family what you can hear.
- People may tell you that your speaking sounds different. Perhaps your voice is louder or softer when the device is switched on.
- May feel more in touch with your environment and may feel safer when out in the environment

#### QUESTIONS & ACTIONS

- Ask if there are any accessories that would help you at this time. Re-read the manual, now that you are more familiar with the device. Make sure you are confident to trouble shoot any problems that may occur.
- Continue your daily listening practice.
- Ask a hearing friend/relative to read slowly aloud from a book, newspaper or magazine, while putting his/her finger on each word as he/she says it. Can you follow along using your hearing and reading (looking over his/her shoulder at the same page)?
- Consider seeing an aural rehabilitation specialist, speech pathologist or auditory verbal therapist to see if weekly/fortnightly sessions may help.

#### ACTIONS

- Practise, practise, practise – every day for at least 15 minutes using small, written sets of words and phrases, through the implant alone.
**SOUND QUALITY**

Sounds are familiar, but you can’t always tell where the sounds are coming from, or what is making the sounds.

---

**PERFORMANCE OUTCOMES**

- May be able to tell which word is said from a choice of two when the words have different syllables e.g1. butterfly versus dog, e.g2. helicopter versus boat.
- May be able to tell which phrase is said from a choice of two when the phrases have different syllables e.g1. ‘how are you’ versus ‘yesterday I went to school’. e.g2. ‘come with me’ versus ‘I like to read the paper’.

---

**FUNCTIONAL OUTCOMES**

- In a quiet house, may hear sounds such as telephone and doorbell ringing, microwave beep, alarm clock, television, dog barking, etc. Maybe starting to recognise the familiar sounds, particularly if you have a clue. e.g1. can hear and identify the microwave because you just put on a cup of soup and you are expecting it to beep. e.g2. can hear the doorbell /loud knock because you are expecting a visitor, e.g3. can hear baby crying from his cot because you were waiting/expecting him to wake from his nap.
- Even if noise is present, may hear when people begin speaking and be able to look up to participate by lip-reading.

---

**EMOTIONS**

- May be still surprised and excited by new sounds in new environments (e.g. going on holidays, visiting relatives and friends).
- May enjoy re-visiting places you have been to before but now you can hear different sounds (e.g. the beach, the football.)
- May be disappointed that progress has slowed and ‘this is all there is’.
- May be worried that you did not reach your goals.

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**QUESTIONS & ACTIONS**

- May decide to re-visit your goals and see what additional practice activities you can add to your schedule.

---

**ACTIONS**

- Listen to sounds around your house, or your practise partner talking; first through hearing aid alone, second through implant alone and third through both devices together. Note the differences you hear in each instance.
- Make an appointment with your audiologist to test your speech perception. Determine if you have achieved the level you wanted using your implant.
Adults with pre-lingual hearing loss | Medium/long duration | with or without residual hearing

**Sound Quality**

Sound is more natural now

**Performance Outcomes**

- May be able to tell you are listening to speech versus noise versus music
- You can count the syllables more accurately
- May be able to tell which phrase is said from a choice of 3 based on the length and number of syllables e.g. (short length of phrase) 'hi', (medium length) 'come with me', (long) 'go and check the letter box and see if there is any mail'

**Functional Outcomes**

- Speech is familiar and you can understand more easily when lip-reading
- May start to recognise when your name is called in a quiet room.
- May start to recognise familiar phrases "hello", "How are you" in a quiet room
- May hear sounds around the house such as telephone and doorbell ringing, microwave beep, alarm clock, television, dog barking, and start to recognise them if there is no additional noise

**Emotions**

- May feel optimistic that signal is beginning to sound better
- May still feel that learning to listen requires a lot of effort

**Questions & Actions**

- May be considering whether to seek another implant for your other ear
- May consider joining a communication group for more practice

**Actions**

- Keep all recommended audiological appointments to ensure you are functioning at your optimal level.
- Keep in touch with the Cochlear Ltd website to keep abreast of new information, products and updates:
  - www.cochlear.com/intl/rehabilitation
- Join on-line CI groups on the Cochlear website to speak to people in similar circumstances
Hear now. And always

As the leading global expert in implantable hearing solutions, Cochlear is dedicated to bringing the gift of sound to people all over the world. For thirty years, Cochlear has pioneered this technology, helping more than a quarter of a million people reconnect to their families and friends.

Along with the industry’s largest investment in research and development, we continue to partner with leading international researchers and hearing professionals, ensuring that we are at the forefront of hearing science.

For our customers, that means access to our latest technologies throughout their lives, and the ongoing support they need.

That is why seven out of ten people worldwide who choose a cochlear implant choose Cochlear as their hearing partner.