The importance of shared Care

Ronel Chester-Browne

Bimodal Management & Auditory Rehabilitation

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Learning objectives

1. Define bimodal hearing
2. List considerations for bimodal hearing
3. Identify sources of information on streaming options
4. Outline when and how to balance the CI and the HA
5. List possible funding sources for CI
6. Describe the cochlear implant rehabilitation process

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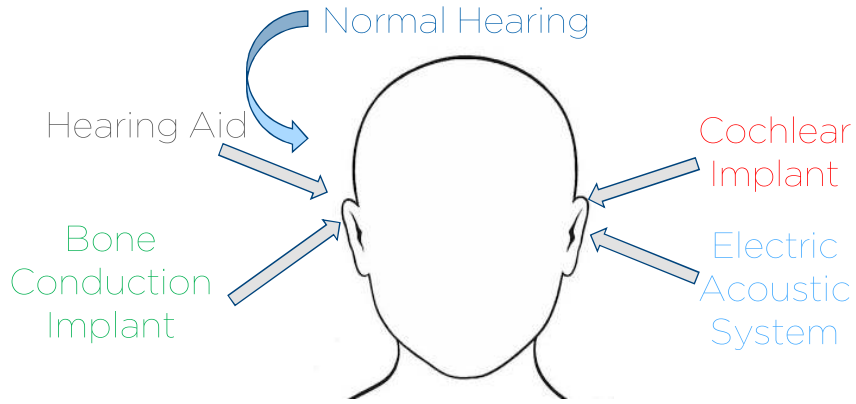
What is bimodal hearing?



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Why are we seeing more bimodally fitted clients?

Better hearing outcomes
- Improved uptake of CI in general

CI candidacy criteria and funding changes
- Improved awareness of changes for people with greater levels of hearing in one or both ears

Benefits of binaural hearing
- **Greater awareness and acknowledgement of benefits**

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Considerations for our bimodally fitted clients

- Cochlear Implant model options
- Hearing Aid prescription
- How to fit bimodally
- Device use (apps and accessories)
- Funding
- Joint client management

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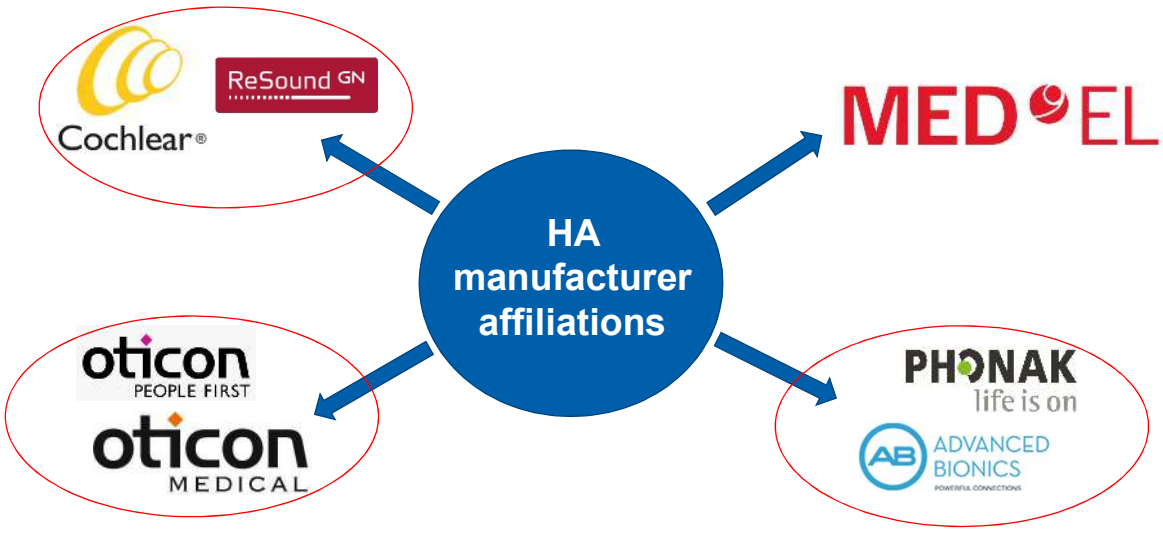
Device Selection



Device Selection

Over the Ear:
Nucleus 8, 7, 6, 5
Nucleus 8, 7 Hybrid
Off the Ear:
Kanso 2, Kanso

Over the Ear:
Sonnet 2, Sonnet
Sonnet 2 EAS,
Sonnet EAS
Off the Ear:
Rondo 3, 2, Rondo

Over the Ear:
Neuro 1, Neuro 2

Over the Ear:
Naida Q90, Harmony
Off the Ear:
Neptune

Direct Streaming Cochlear

Check website for most up to date information:
https://www.cochlear.com/global/en/apps/sound-processor-and-app/compatibility

Cochlear Ltd N7 / N8 (and Hybrid versions) and Kanso 2 processors

+ specific model GN Resound hearing aid

from compatible Phones, Ipads and Ipods

Cochlear® | ReSound GN
Smart Hearing Alliance

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NOTE: Hearing aid and cochlear implant have to be linked through Custom Sound software

Cochlear Additional Streaming options

For older devices and non compatible phones: Phone Clip

For streaming not related to bluetooth

- Mini Mic and Mini Mic2+
- TV streamer

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Streaming MED-EL

Check website for most up to date information:
https://www.medel.com/en-au/hearing-solutions/accessories/connectivity/audiostream

Sonnet and Sonnet 2 (and EAS versions)

+ **Audiostream** battery cover

from compatible phones and tablets

MED-EL Wireless Bimodal Streaming with Samsung Dual Audio

https://www.samsung.com/au/support/mobile-devices/setting-up-dual-audio/

MED-EL Additional Streaming options

Sonnet and Sonnet 2 (and EAS versions) and Rondo 3 sound processors:

- **AudioLink**
  - Connects with any Bluetooth phones
  - Remote microphone
  - TV streamer
  - Connect to any device via Direct Audio Input cable

Generic Bimodal Streaming: FM Systems

- **If no compatible phone or hearing aid, consider Roger (FM) System**
- **Many different configurations available, review options using the Roger Configurator:**
  - **https://www.phonakpro.com/com/en/support/product-support/wireless-accessories/roger-configurator.html**
- **A Bluetooth Neckloop (for telecoil) can be used**
- **Can a[COCHLEAR] ger 20 (Cochlear) and Rc[MED-EL] (Med-El)**

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Bimodal Streaming

Considerations:

- ✓ **COSI Goals**
- ✓ **Dexterity**
- ✓ **Cognitive skills**
- ✓ **Assistance from others**
- ✓ **Second side?**

Device Fitting: Considerations

- **Differences in sound quality**
  - Electrical stimulation vs AC
    - Electrical stimulation – pitch changes over time
  - Addition of a HA to the non-implanted ear may actually improve sound quality for CI/EAS users, even with very limited access to a narrow frequency range
  - Results in improved perception of speech in noise, music and general sound quality
- **Accessible frequency range**
- **Differences in processing**

Device Fitting: Adjusting the Frequency Response

Paired Comparison/Frequency Response

- Consider adjusting the frequency response of the HA once a stable CI map has been achieved
- Method
  - Create HA fitting with Low/High frequency emphasis(3 6dB/oct 0.25-2kHz) of NAL target
  - With CI off, present speech via FF at client's MCL with different frequency responses in pairs
  - Determine which frequency response (HF/LF emphasis/NAL) provides best speech understanding
  - If a particular fitting is chosen 8/10 times, use this, if not revert to NAL frequency response

'Fitting and Evaluating a Hearing Aid for Recipients of a Unilateral Cochlear Implant: The NAL Approach', The Hearing Review (Online) (Los Angeles, 2004)

Device Fitting: Adjusting Loudness Balance

Loudness Balancing

- Balance HA to CI once a stable map/setting has been achieved
- Method
  - Present continuous speech in FF to CI only at 65dBSPL: Ensure comfortably loud, if not return to implant audiologist
  - Compare loudness of speech with CI to loudness with HA and adjust HA gain until HA and CI loudness is judged equal using a loudness balancing scale: Repeat 2-3 times until you achieve the same gain
  - Present speech at 80dB SPL. Adjust CR until the speech is reported as loud as implant. If CR isn't adjustable, adjust CT
  - Present speech at 65 DB SPL with both devices on
    - Speech should be rated comfortable

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Funding

- **Maintenance, parts and upgrades**
- **Adult HSP eligible patients**
  - CI recipients
    - Hearing Australia provides batteries, parts and maintenance
    - Eligible for ALDs (criteria applies)
    - Not covered for upgrades

NOTE: clients can maintain HA through their preferred HA provider or get a parallel service agreement with Hearing Australia

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Funding of upgrades

Private Health Insurance

Upgrades Every 3-5 years

NDIS

Criteria: <65 years age

- Permanent BILATERAL hearing loss >90dB in the better ear.
- Hearing impairment are equal or greater than 65dB in the better ear
- Hearing impairments <65dB in the better ear in conjunction with other permanent impairments (ie. cognitive, vision)

Self-funding

Hearing Australia

Children, students and young adults under 26 years of age

- CI recipients eligible for maintenance, spare parts and upgrades

Considerations for Second Side

- **Loss of residual hearing on 2nd side**
  - Changes in sound quality
    - Speech and music
  - Loss of ability to hear anything when removes CIs (safety concern)
- Additional surgery
- Additional costs of maintenance, etc.

- **Potential benefits when able to access for frequency range on both sides**
  - Improved awareness of sound
  - Safety
    - ? improved directionality/localization
    - Reduced need to have people sit on the "good" side
    - Improved hearing in quiet and noise

Auditory Rehabilitation

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Appointment Schedule: CI

MONTH	Details/Week	Appointment Content
Pre-Op		
Surgery		
Month 1	Week 1	Device Switch-on. This occurs 1 to 3 weeks after surgery. Report
	Week 2	Mapping + Rehab
Month 2	Week 5	Mapping + Rehab
Month 3	Week 9	Mapping + Rehab
	Week 12	3 Month Review (Audiogram, speech testing, device maintenance, Report)
Month 6	Week 24	Mapping + Rehab
	Week 26	6 Month Review (Audiogram, speech testing, Report)
Month 12	Week 56	12 Month Review, Mapping + Rehab
		(Audiogram, speech testing, Report)

Rehabilitation program

Starts at the Pre-op assessment

The client is counselled about the extensive rehab program

The difference between hearing with a CI and hearing with a HA is explained

Consent form is signed

- **Committing to the rehab program**

We discuss

- **Wearing the processor as much as possible**
- **A minimum of 20-30 min rehab per day is recommended**

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Auditory Listening Training 4 Steps

1. Sound Awareness
2. Sound Discrimination
3. Sound Identification
4. Sound Comprehension

Rehabilitation exercises

Analytic Approach
Individual sounds and clusters
Words in isolation
Words in phrases
Words in sentences
Synthetic Approach
The role of contextual or redundant information
Cognitive skills
Communication strategies
Comprehension

The last practical session 10 minutes at each station demonstrating

- Assistive listening devices: different manufacturers
- Rehabilitation material and exercises (see handout)

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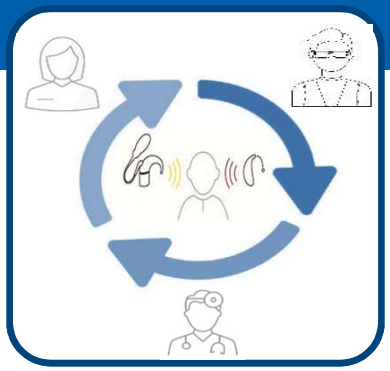
Shared care of Cochlear Implant candidates & recipients

- Empower you with the skills and tools to identify a CI candidate
- Provide tools & tips on how to discuss CI's with your clients
- Provide an understanding of outcomes your client might expect with a CI
- Provide referral resources
- Help you understand the CI journey from pre to post op
- Provide tools & knowledge to build your experience & confidence to share in your client's CI care
  - Expectations management
  - Optimising outcomes (tech, rehabilitation, device support)



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Thank you!

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Please fill in the feedback form, we welcome your input

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