Learner Outcomes

• After this course learners will be able to identify barriers to treatment for hearing loss.

• After this course learners will be able to explain “evidence-based practice” as applied to cochlear implant clinical care.

• After this course learners will be able to describe the difference between expected vs observed compliance to follow-up appointments.
Clinical care over time

1990: ~ 3000 patients

2006: ~ 30,000 patients

2020: >450,000 patients

Data tells a story

1981-85: Clinical Trials

1990: ~3000

1996: ~30,000

2006: ~30,000 patients

2020: ~450,000

2050: ~?
Patient outcomes

Key insights

- Independent Audiology Clinic
- Private Practice/ENT Clinic
- Large Hospital/Network
- University Clinic
Current Delivery Model Facts

Dunn, C. Best practice for the CI patient with residual hearing.

Diagram titled 'Testing for Candidacy' showing various percentages of testing outcomes.
Our Mission

We help people hear and be heard.
We empower people to connect with others and live a full life.
We transform the way people understand and treat hearing loss.
We innovate and bring to market a range of implantable hearing solutions that deliver a lifetime of hearing outcomes.

Clinical Challenges
Current Guidelines

• Working Group on Cochlear Implants

• Minimum Reporting Standards for Adult Cochlear Implantation
  – AAO – Implantable Hearing Device Committee (2018)

• Clinical Practice Guideline
  – AAA (2019)

What does evidence-based practice look like?

[Diagram showing current best evidence, client patient values, and clinical expertise leading to informed auditory treatment plan, tools & services, and outcomes]

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Partnering in data collection

Applying an evidence-based approach

Data → Key Insights → Products & Tools

- Pre-Surgery
- Surgical
- Initial Activation
- 1 month
- 3 months
- 6 months
- Follow-up

Services

Validate
Clinic challenges and patient needs

Independent Audiology Clinic

Private Practice/ENT Clinic

Large Hospital/Network

University Clinic

Visit Schedule

Q2 What is the current first year visit schedule for most of your post-lingual adult cochlear implant patients? Check all that apply.

- Initial activation day: 33.75%
- Initial activation follow-up: 43.75%
- 1-week follow-up: 79.36%
- 3-month visit: 100.00%
- 6-month visit: 100.00%
- 9-month visit: 38.25%
- 12-month visit: 100.00%

Preworkshop Survey March 2020 N=16
**Patient Follow Up Visits**

![Graph showing expected vs. observed visits.](image)

- **%Expected** = \(#\text{Expected} \div \#\text{Activated}\)
- **%Observed** = \(#\text{Observed} \div \#\text{Activated}\)

Follow-up Adherence = ★
N=118

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**Considerations**

- What are the key milestone visits and what should we assess?
- What is the minimum?
- What information did you use to answer the questions?
Evidence-based approach to CI care

- Lifetime monitoring & support
- Maximising performance
- Real world hearing
- MAP optimization & fine tuning
- Audibility & Device Acceptance

Basic Minimum Assessment

...
Clinical impact

Stability of T- and C levels over time - adults

- Change in T- and C levels per year, over 8-10 years, as a function of average dynamic range (n=128)

- Median change was less than 3%, and 75% showed less than a 6% change

- For a MAP with an average dynamic range of 33 current levels – this would translate to less than a 2 current level change per year

Gajadeera et al, 2017
When do T and C levels stabilize?

![Comfort, threshold and dynamic ranges graph]

- Pre-post improvement
- Minimum
- What is significant?
Supporting data

<table>
<thead>
<tr>
<th>Percentage Point Improvement</th>
<th>3 Months CI Alone (N = 96)</th>
<th>6 Months CI Alone (N = 96)</th>
<th>Bimodal (N = 94)</th>
</tr>
</thead>
<tbody>
<tr>
<td>40% Improvement</td>
<td>56/96 (58%)</td>
<td>57/96 (59%)</td>
<td>48/94 (51%)</td>
</tr>
<tr>
<td>30% Improvement</td>
<td>64/96 (67%)</td>
<td>76/96 (79%)</td>
<td>68/94 (72%)</td>
</tr>
<tr>
<td>20% Improvement</td>
<td>77/96 (80%)</td>
<td>84/96 (88%)</td>
<td>74/94 (79%)</td>
</tr>
</tbody>
</table>

Clinical Evaluation of the Cochlear™ Nucleus CI532 Cochlear Implant in Adults 2019:

Changing the conversation

<table>
<thead>
<tr>
<th>HEARING PERFORMANCE</th>
<th>Satisfaction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ability to understand what is said on TV</td>
<td>76%</td>
</tr>
<tr>
<td>Ability to understand conversations in a small group</td>
<td>79%</td>
</tr>
<tr>
<td>Hearing performance in background noise</td>
<td>58%</td>
</tr>
<tr>
<td>Ability to listen to and appreciate music</td>
<td>68%</td>
</tr>
<tr>
<td>Ability to understand people on the phone</td>
<td>71%</td>
</tr>
</tbody>
</table>

Data on file at Cochlear Americas
Basic minimum assessment

Initial Activation
- Fit Device
- Basic Use
- Acclimate to sound

1 month
- Audibility
- Accessories based on COSI

3 months
- Audibility
- CNC words
- COSI

6 months
- CNC words
- Patient reported
  - COSI
  - SSQ-12

Patient outcomes