

Empowered Patients, Efficient Practices: Continuous Clinical Improvements

Rene Gifford, PhD, CCC-
A; Jacob Hunter, MD;
Phillip Chang, MD

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Empowered Patients.
Efficient Practices.
Continuous Clinical Improvement

September 5, 2024

Presenters:

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Empowered Patients. Efficient Practices.

Continuous Clinical Improvement

Course goals and objectives

After this course, participants will be able to identify:

- one change that they could implement to improve clinical efficiency
- one strategy that could be utilized to get CI candidates into CI clinics
- one AB resource to help CI candidates connect with CI clinics

Helping People Find the Right Hearing Solution, Earlier

There are around

1.3

million
cochlear implant
candidates
in the US
who have not been
treated

Less than

10%

of people
who could benefit
from a cochlear
implant (CI) have
one

What do you see as having the
potential to increase
awareness and utilization of
hearing technology?

On average, we estimate that a private practice clinic has

about 30 potential CI candidates

in their patient database and
see 1 new potential CI candidate
every month

Sources: Otology & Neurotology, Vol. 43, 2022, GMInsights, Advanced Bionics internal estimates.





Empowered Patients. Efficient Practices.

Continuous Clinical Improvement



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Philadelphia, PA, US



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Vanderbilt University Medical Center

Nashville, TN, US



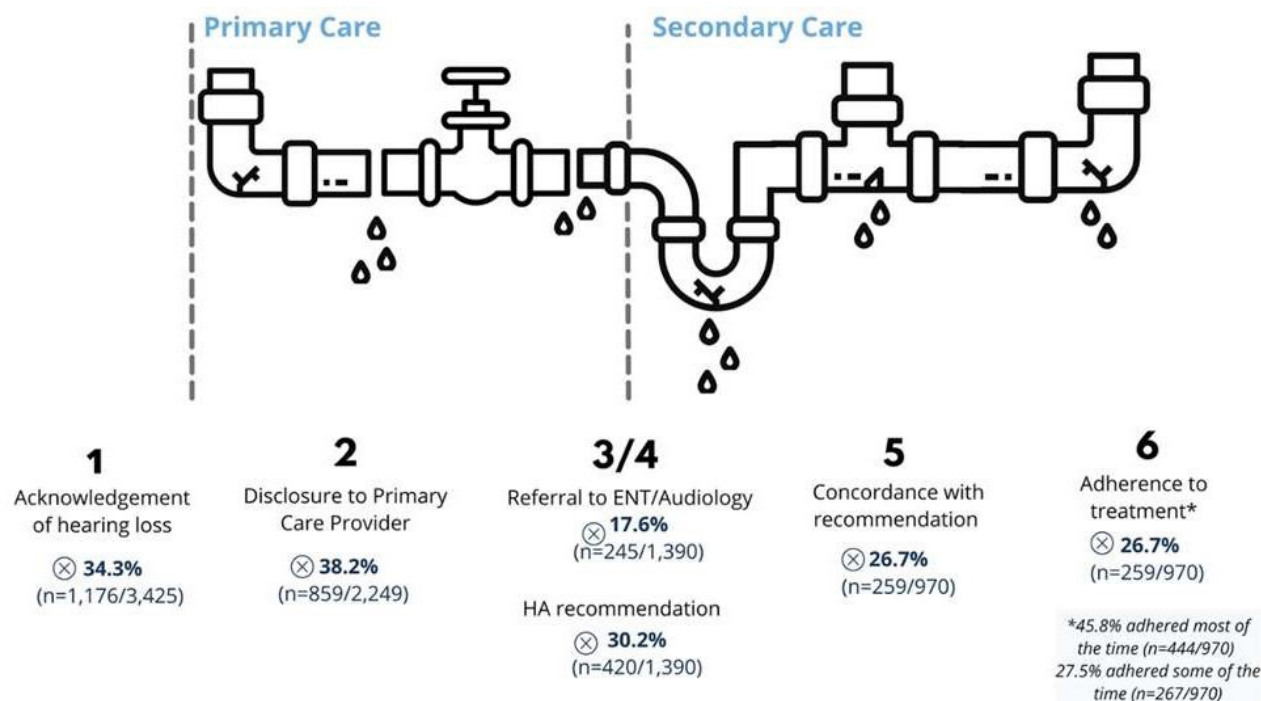
Phillip Chang, M.D.

The Shepherd Centre &
Hearing Implants Australia

Sydney, New South Wales, AU

Jacob Hunter and René Gifford are consultants for Advanced Bionics, LLC. The comments provided by them are their own opinions and do not reflect the opinion of Advanced Bionics.

The patient pathway for adults with acquired hearing loss - the leaky pipeline of hearing healthcare



Tsimpida et al. (2023): The leaky pipeline of hearing care: primary to secondary care evidence from the English Longitudinal Study of Ageing (ELSA), International Journal of Audiology

Missing Patients

- Low Penetration/Utilization
 - Why?

Clinical Capsule Report

Current Estimates of Cochlear Implant Utilization in the United States

*Ashley M. Nassiri, †Donna L. Sorkin, and *Matthew L. Carlson

**Department of Otolaryngology - Head and Neck Surgery, Mayo Clinic, Rochester, Minnesota; and †American Cochlear Implant Alliance, McLean, Virginia*

Objective: To present key data from a private marketing report that characterizes U.S. cochlear implant (CI) utilization, potential CI candidate and recipient population sizes, and CI market growth.

Patients: Individuals who may benefit from CI and CI recipients in the United States.

Interventions: Cochlear implantation.

Main outcome measures: CI utilization, potential CI candidate and recipient population sizes, and CI market size and value.

Results: As of 2015, a cumulative 170,252 people (240,056 devices) had undergone cochlear implantation in the United States. In the year 2015, approximately 30% of devices were implanted in bilateral CI patients, through simultaneous or sequential implantation. When considering traditional audiometric CI candidacy criteria (patients with severe to profound sensorineural hearing loss in the better hearing ear), utilization rates among the population who may benefit from CI approximated 12.7%. When considering expanded criteria

including individuals with single-sided deafness or asymmetrical hearing loss (severe to profound hearing loss in the worse hearing ear), utilization rates approximated 2.1%. In 2015, there was a net increase of 20,093 individuals who may have benefited from CI who had not undergone CI, adding to the group of about 1.3M untreated audiometric CI candidates who existed prior to that year. The CI market was valued at \$450.8M in 2015, with an average device selling price of \$25,701 per device.

Conclusions: CI utilization rates remain low among individuals who meet audiometric criteria for CI. Although the annual proportion of CI recipients to new audiometric candidates has increased, the total population of untreated audiometric CI candidates continues to rise.

Key Words: Cochlear implant—Epidemiology—Market—Penetration—Price—Utilization.

Otol Neurotol 43:e558–e562, 2022



The Barriers

- Delay in accessing device
 - Tyranny of distance
 - Outdated implant criteria
 - Outdated means of assessment
 - Limitations of traditional centralised models of care
- 



Dr Phillip Chang

Founder, Director and Lead Surgeon of
Sydney Children's Hospital Cochlear Implant Program
Hearing Implants Australia

*Based on my opinions, hospital protocols and clinical experience. Information may not be representative of all patients (or physician/HCP) outcomes.

Background/Context

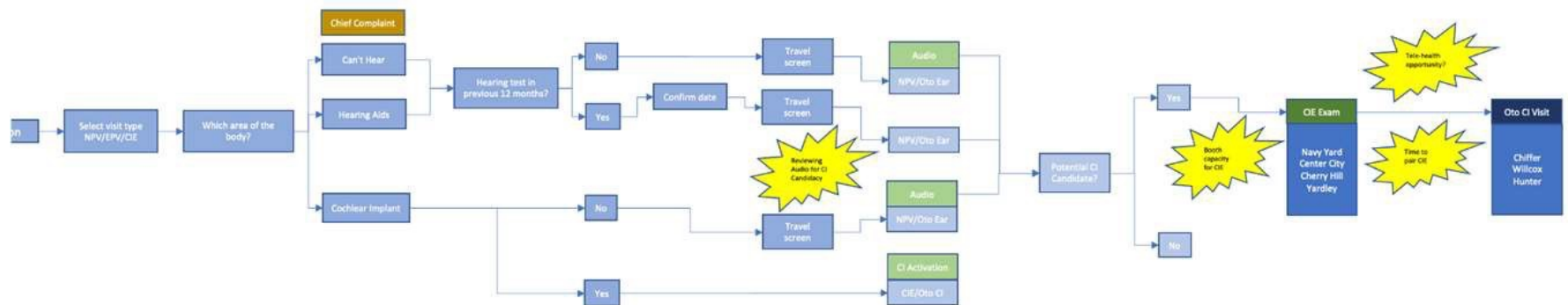
- My experiences shape who I am
 - Biography
- Challenges
 - Want to evaluate everybody... but that is not possible (consider Audiology)
 - Don't want a qualification rate of 100%, it means we are missing patients

Program Growth

Key Additions

- Cochlear Implant Administrator Coordinator
- Appointment of new Cochlear Implant Clinical Coordinator
- Recent completion of the Institute of Cochlear Implant Training (ICIT) Program Efficiency Course
- Improving our care delivery model

Value Process Map



New Care Delivery Model

- Metrics
 - Wait time from phone call to cochlear implant evaluation (CIE)
 - Available weekly CIE slots
- Bottlenecks
 - Booth availability
- Continuity of Care between Phonak HA technology and AB CI



Outreach

- Relationship Development
 - Affable, available, and able
- Visiting Practices



Outreach



Patient Education



Professional Development

CI Utilization in adults and children

NIDCD (2021): As of late 2019 □ 118,100 CIs in adults, 65,000 CIs in children

- **Adults:** ~2.3 to 12.7% utilization
 - *Sorkin (2013). Cochlear Implant Intl, 14: S4-S12; Sorkin & Buchman (2016). Otol Neurotol, 37(2):e161–e4; Perkins et al. (2021). Otol Neurotol, 42(6):815-823; Nassiri et al. (2022). Otol Neurotol*
- **Children:** ~50 to 59% utilization in U.S.
 - *Sorkin & Buchman (2016). Otol Neurotol, 37(2):e161-164.*

Barriers

AWARENESS

**Varied &
overlapping
indications**

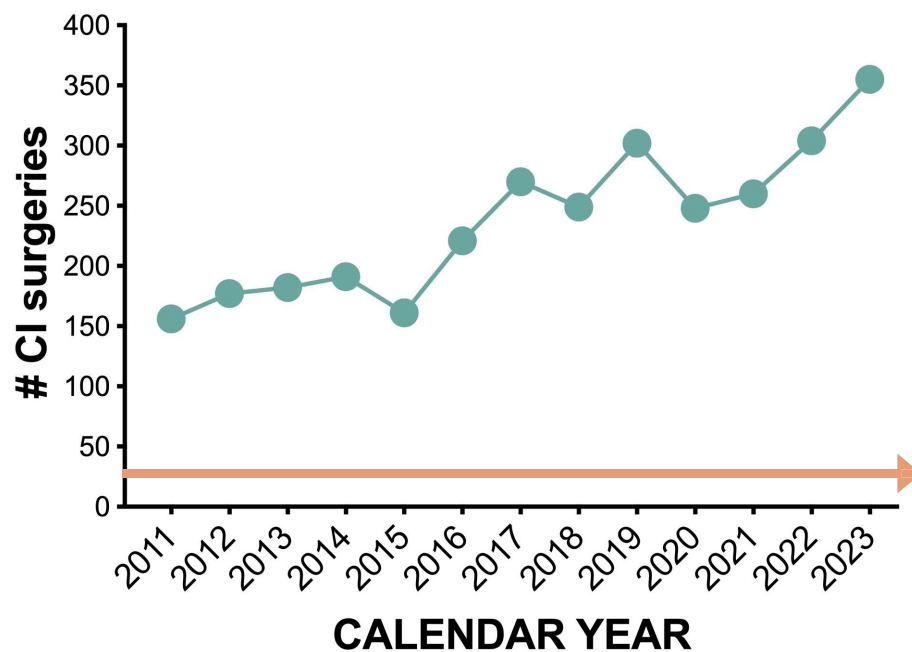
**Lack of defined
care pathways**

Insurance/\$

**Access to CI
clinics**

**Outcome
uncertainty**

VANDERBILT UNIVERSITY
MEDICAL CENTER



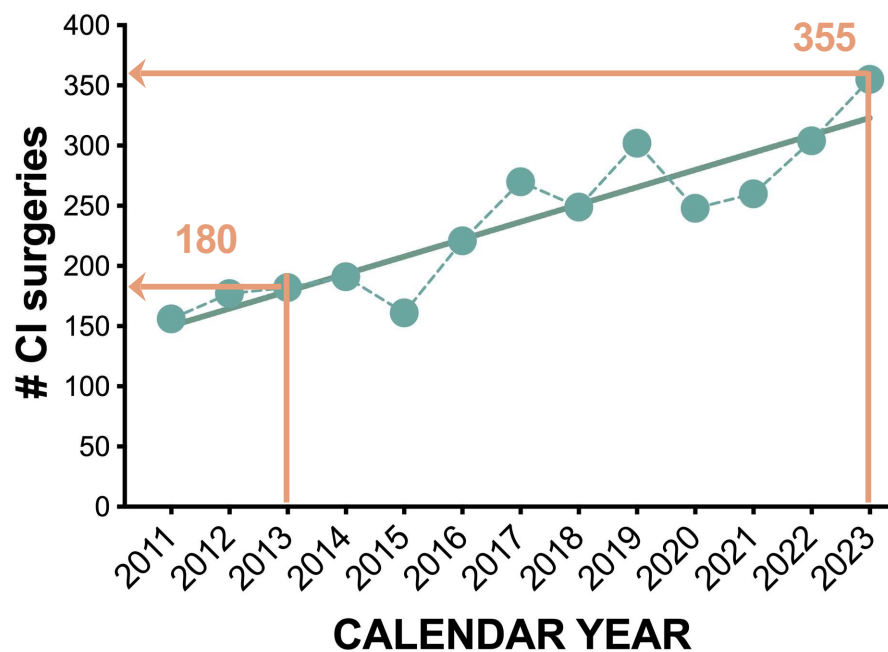
Expect Continued Growth:

- Expanded Indications
- 60,000 new cases of SSD/yr
- **Millions** of EAS/Hybrid candidates

Increasing prevalence of hearing loss!

Average
CI Program

VANDERBILT UNIVERSITY
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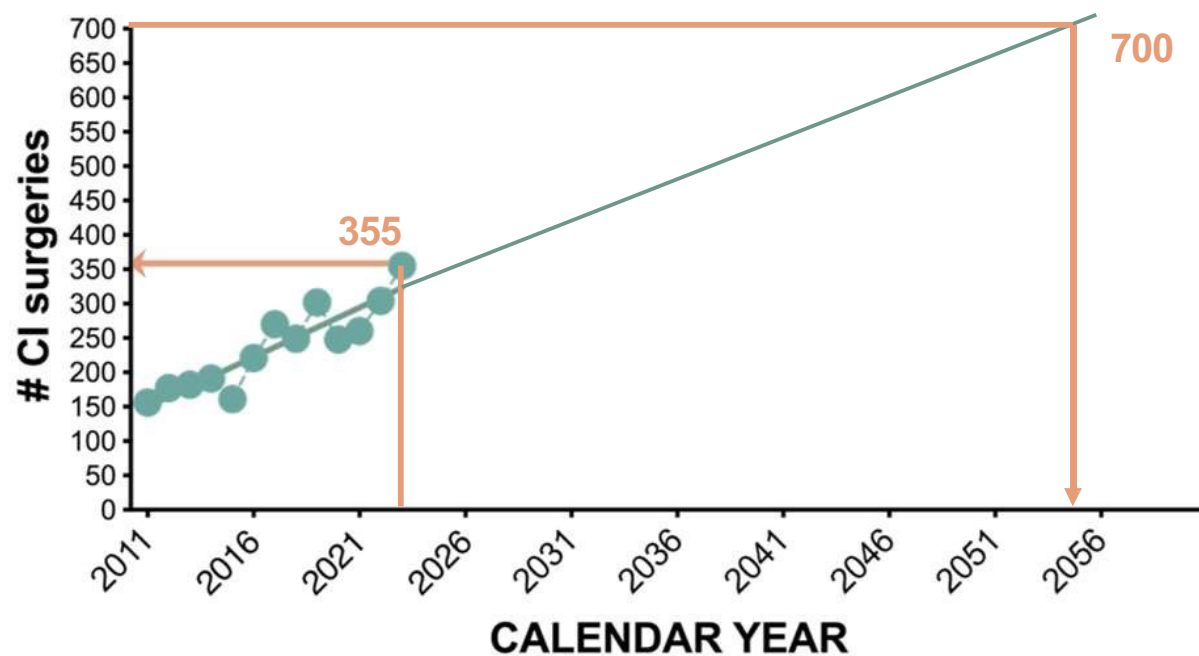
Expect Continued Growth:

- Expanded Indications
- 60,000 new cases of SSD/yr
- **Millions** of EAS/Hybrid candidates

Increasing prevalence of hearing loss

CI program doubled in ~10 years

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Projected to
double our CI
program size
again...

by 2054

Can we expedite growth?
How?

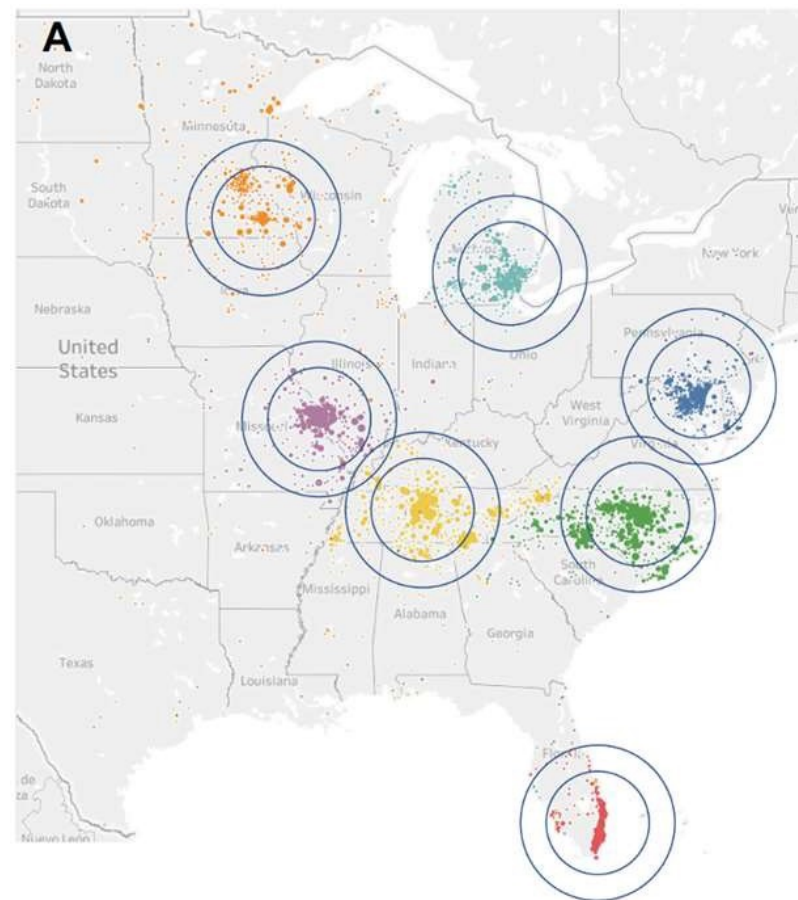
Catchment Profile of Large Cochlear Implant Centers in the United States

Ashley M. Nassiri, MD, MBA¹, Meredith A. Holcomb, AuD², Elizabeth L. Perkins, MD³, Andrea L. Bucker, AuD⁴, Sandra M. Prentiss, PhD², Christopher M. Welch, MD, PhD⁵, Nick S. Andresen, MD⁶, Carla V. Valenzuela, MD, MSCI⁷, Cameron C. Wick, MD⁷, Simon I. Angeli, MD², Daniel Q. Sun, MD⁶, Stephen P. Bowditch, AuD, MS⁶, Kevin D. Brown, MD, PhD⁴, Teresa A. Zwolan, PhD⁵, David S. Haynes, MD, MMHC³, Aniket A. Saoji, PhD¹, and Matthew L. Carlson, MD¹

- 91% within 200-mile radius resulting in concentration of care
- Over 6-year period, the number of CIs in these centers increased by 43%

Consider:

- Satellite programming/surgery
- Telehealth/remote programming
- **Optimizing delivery process**



The Science of Behavior Change

Stages-of-change model

Prochaska & DiClemente (1983). J Consult Clin Psychol, 51(3): 390–395.

5 stages of change

- Precontemplation
- Contemplation
- Preparation
- Action
- Maintenance



PRECONTEMPLATION

Build awareness for my need to change

CONTEMPLATION

Increase my pros for change
and decrease my cons

PREPARATION

Commit and plan

ACTION

Implement and revise my plan

MAINTENANCE

Integrate change into my lifestyle

Clinical care delivery

2011

Adults (6-7 visits in 1st year)

- Activation Day 1
- Activation Day 2 (optional)
- 1 week
- 1 month
- 3 month
- 6 month
- 12 month

Children (7-8 visits in 1st year)

- Activation Day 1
- Activation Day 2 (optional)
- 1 week
- 1 month
- 3 month
- 6 month
- 9 month
- 12 month

2015-present

Adults (3-4 visits in 1st year)

- Activation
- 1 month
- 3 month (optional) AND/OR
- 6 month (optional)
- 12 month

2018-present

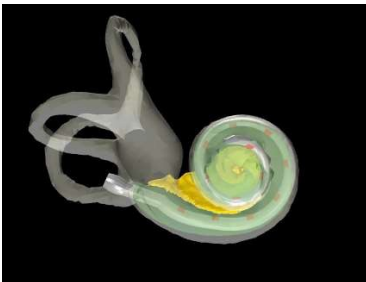
Children (4-5 visits in 1st year):

- Activation
- 1 week (optional)
- 1 month
- 3 month (optional)
- 6 month
- 12 month

Berg et al. (2023). Otol Neurotol, 44(8):e635-e640

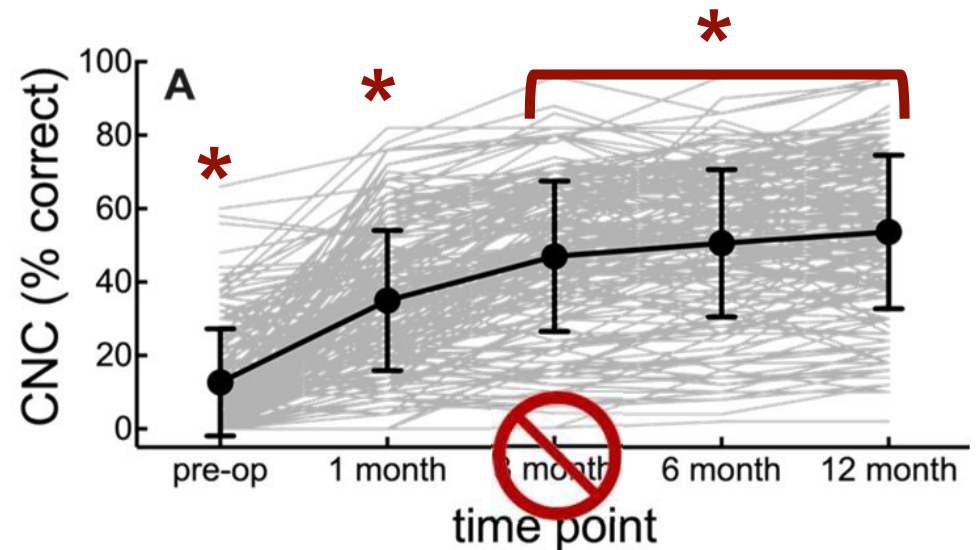
Retrospective review

- 18+ years
- CI-aided detection (20-30 dB HL)
- ESRTs at 1 month
 - Shape C/M/MCL profile
- **Oto-pilot:** VUMC CT imaging data available to audiologist at activation
- **CNC at 1, 3, and 6 mo**
- 171 adults (178 ears)

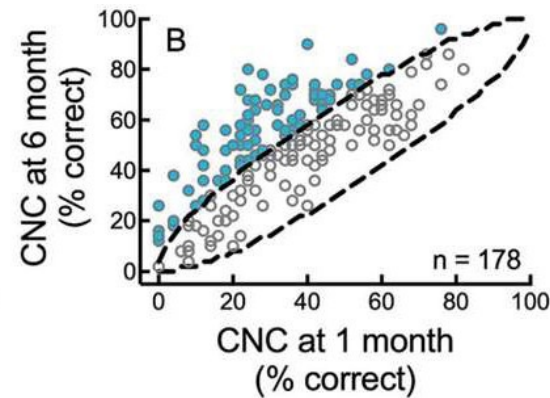
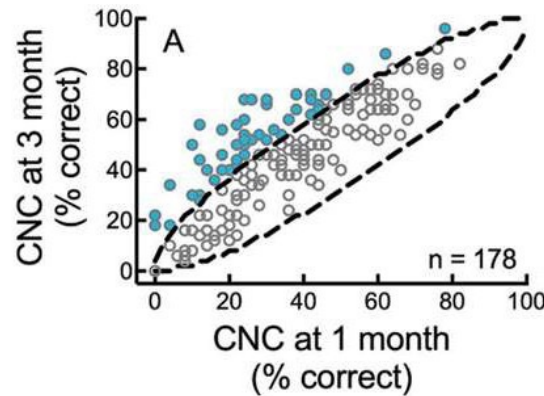


Streamlined protocol:

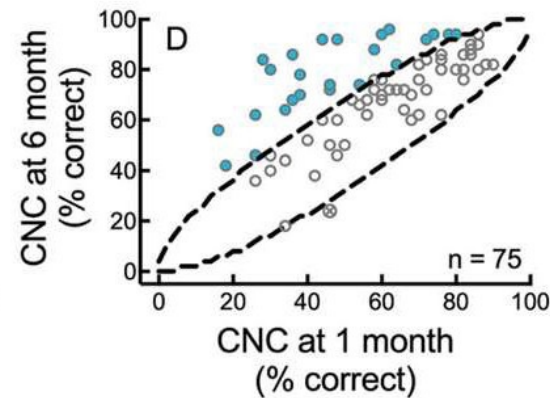
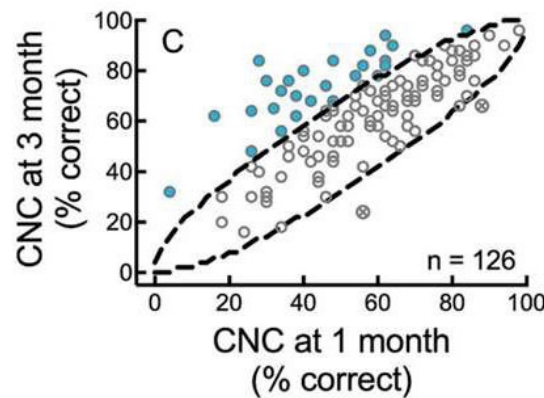
$\frac{2015}{161 \text{ CIs}} \rightarrow \frac{2019}{301 \text{ CIs}} \rightarrow \frac{2023}{355 \text{ CIs}}$



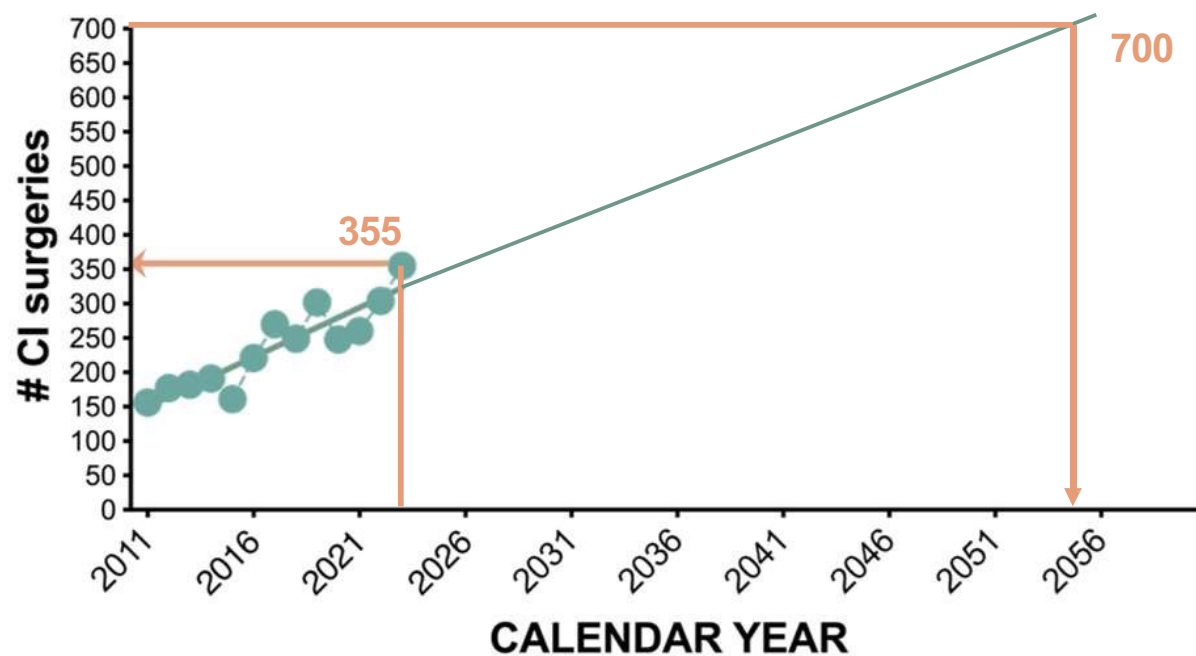
Berg et al. (2023). Otol Neurotol, 44(8):e635-e640



Top row:
CI ear



Bottom row:
Best aided



PRECONTEMPLATION

Build awareness for my need to change

CONTEMPLATION

Increase my pros for change
and decrease my cons

PREPARATION

Commit and plan

ACTION

Implement and revise my plan

MAINTENANCE

Integrate change into my lifestyle

What are your goals?

Build a destination center? Grow your CI practice? Streamlined patient onboarding? *Significantly greater CI utilization?*
Improved processes inside and outside the operating room?
Use process analysis to improve your care delivery model?
Streamline your processes to prepare bundled payments?
App-based programming and increased use of telehealth?
Overcome barriers for Information Technology (IT) re: PHI (Protected health information)?

Deliver care differently

Clinical care delivery

2011

Adults (6-7 visits in 1st year)

- Activation Day 1
- Activation Day 2 (optional)
- 1 week
- 1 month
- 3 month
- 6 month
- 12 month

Children (7-8 visits in 1st year)

- Activation Day 1
- Activation Day 2 (optional)
- 1 week
- 1 month
- 3 month
- 6 month
- 9 month
- 12 month

2024-present

Adults (3-4 visits in 1st year)

- Activation
- 1 month
- 12 month
- 3 & 6 month determined individually, remote if possible

2018-present

Children (4 visits in 1st year):

- Activation
- ~~1 week (optional)~~
- 1 month
- 3 month (optional)
- 6 month
- 12 month

Clinical care delivery

2015-present

Adults (3-4 visits in 1st year)

- Activation
- 1 month
- 6 month (optional)
- 12 month

2018-present

Children (4-5 visits in 1st year)

- Activation
- 1 week (optional)
- 1 month
- 3 month (optional)
- 6 month
- 12 month

Goal: clinical follow-up

Adults (2 in-person visits in year 1)

- Activation
- 1 month
- Remote programming thereafter
- Biennial follow-up (as needed)
- ~260 adults/year, cutting 2 AUD visits in first year □
 - 520 visits/year □ 1040 hours/year
- *Opens up 520 new eval or complex follow-up slots/year*

Children (~4 in-person visits in year 1)

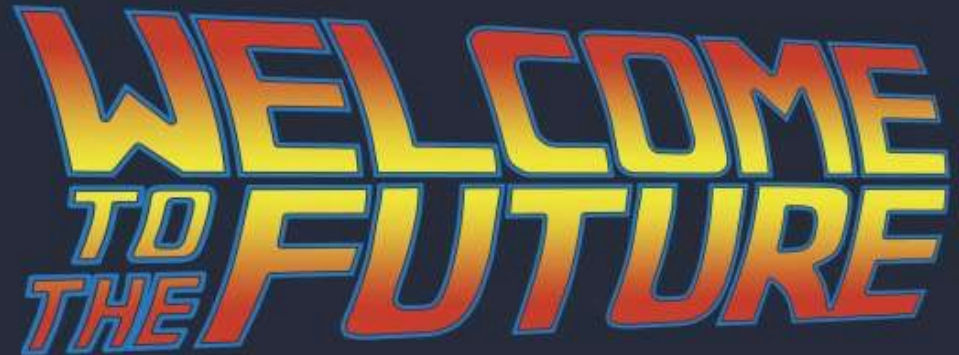
- Activation
- 1 month
- 3 month (optional, remote with SLP/AVT guidance)
- 6 month
- 12 month

The future of clinical care delivery

Remote programming

Considerations:

- Hospital vs. professional billing
- Licensure
- Patient/parent comfort with tech
- Cell phone and Wi-Fi service in patient's region



WELCOME
TO
THE FUTURE



ADVANCED
BIONICS

POWERFUL CONNECTIONS

Continuous Clinical Improvement and Remote Programming in Cochlear Implant Clinics

Course: #39947

Level: Intermediate

1 Hour

 Thu, Nov 7, 2024 at 12:00 pm EST

Search Courses

Today's CI clinics are experiencing increased numbers of patients with little increase in resources to support those patients. During this course, René Gifford, Ph.D., will provide information about how to improve clinical efficiency in CI clinics, identify ways to connect CI candidates with your CI clinic, and identify support resources from AB.

Cochlear Implants

Practice Management and Professional Issues

Telehealth

Presented By

René Gifford
PhD CCC-A

René Gifford holds the Fred H. Bess Chair in Audiology, is a tenured Professor of Hearing



RESOURCES



Thank you!

Please complete a short survey on today's training session.



<https://forms.office.com/e/nZRmuUwEaK>