Based on

AAA survey of CI practice Guidelines published in 2019

Two related publications in 2018 in Otol Neurotol by Carlson et al **:**

**Survey of the American Neurotology Society on Cochlear Implantation: Part 1, Candidacy Assessment and Expanding Indications**

Matthew L Carlson et al. Otol Neurotol. 2018 Jan., 39(1):e12-e19. doi: 10.1097/MAO.0000000000001632.

1 Department of Otolaryngology-Head and Neck Surgery, Mayo Clinic School of Medicine, Rochester, Minnesota.

2 Division of Otolaryngology-Head and Neck Surgery, Department of Surgery, University of Utah, Salt Lake City, Utah.

**Abstract**

**Objective:** To examine practice variance of cochlear implant candidacy assessment and off-label indications across centers in the United States.

**Methods:** Cross-sectional survey of the American Neurotology Society (ANS).

**Results:** A total of 81 surveys were returned from ANS members who report regular involvement in cochlear implant care. Overall there was a broad distribution in age and clinical experience, with most respondents reporting ACGME accreditation in neurotology and employment at an academic center. The annual volume of cochlear implant surgeries varied considerably across centers. Seventy-eight percent of respondents performed cochlear implantation for at least one of the following indications within the last 2 years: profound hearing loss in children less than 12 months of age (35, 43%), children with asymmetrical hearing loss where at least one ear was better than performance cutoff for age (25, 31%), adults with asymmetrical hearing where at least one ear was better than the performance cutoff for adult criteria (49, 61%), single-sided deafness (37, 46%), and ipsilateral vestibular schwannoma (28, 35%). Centers with a higher annual implant volume more frequently performed off-label implantation in all queried populations (all, p≤0.001), and performed surgery on infants with congenital deafness at a younger age (p = 0.013), compared with centers with lower surgical volume. When surveyed regarding speech perception testing practices for adult candidacy assessment, 75 (100%) respondents who answered this question reported routine use of AzBio sentences, 42 (56%) CNC word scores, and 26 (35%) HINT testing; only 7 (9%) reported using BKB-SIN testing and 6 (8%) reported using CUNY scores. Fifty-one (68%) reported routine use of speech-in-noise testing to determine adult cochlear implant candidacy, 21 (28%) reported selective use only when patient scores were borderline in quiet, and 3 (4%) reported that their center does not currently use testing in noise for candidacy determination. Nineteen (26%) solely used +10 dB signal-to-noise ratio (SNR), 12 (16%) solely used +5 dB SNR, and 41 (55%) used both +10 and +5 dB SNR. Overall, 19% (N = 14) only perform unilateral implantation in the Medicare population, while 81% (N = 58) consider bilateral implantation.

**Conclusion:** Significant variation in cochlear implant candidacy assessment and off-label implantation exists across centers and providers in the United States resulting in healthcare inequities. The high percentage of surgeons performing implantations for off-label or nontraditional indications reflects the overly restrictive and dated status of current implant guidelines. With greater adoption of more difficult speech perception testing in noise, careful clinical judgment is needed to maintain a favorable risk-benefit balance for prospective implant candidates

**Survey of the American Neurotology Society on Cochlear Implantation: Part 2, Surgical and Device-Related Practice Patterns**

[Matthew L Carlson](https://pubmed.ncbi.nlm.nih.gov/?sort=date&term=Carlson+ML&cauthor_id=29210943) [1](https://pubmed.ncbi.nlm.nih.gov/29210943/#affiliation-1) , [Brendan P O'Connell](https://pubmed.ncbi.nlm.nih.gov/?sort=date&term=O%27Connell+BP&cauthor_id=29210943) [2](https://pubmed.ncbi.nlm.nih.gov/29210943/#affiliation-2) , [Christine M Lohse](https://pubmed.ncbi.nlm.nih.gov/?sort=date&term=Lohse+CM&cauthor_id=29210943) [3](https://pubmed.ncbi.nlm.nih.gov/29210943/#affiliation-3) , [Colin L Driscoll](https://pubmed.ncbi.nlm.nih.gov/?sort=date&term=Driscoll+CL&cauthor_id=29210943) [1](https://pubmed.ncbi.nlm.nih.gov/29210943/#affiliation-1) , [Alex D Sweeney](https://pubmed.ncbi.nlm.nih.gov/?sort=date&term=Sweeney+AD&cauthor_id=29210943) [4](https://pubmed.ncbi.nlm.nih.gov/29210943/#affiliation-4)

**Affiliations**

1 Department of Otolaryngology-Head and Neck Surgery, Mayo Clinic School of Medicine, Rochester, Minnesota.

2 Department of Otolaryngology-Head and Neck Surgery, University of North Carolina at Chapel Hill, Chapel Hill, North Carolina.

3 Department of Health Sciences Research, Mayo Clinic School of Medicine, Rochester, Minnesota.

4 Bobby R. Alford Department of Otolaryngology-Head and Neck Surgery, Baylor College of Medicine, Houston, Texas.

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**Abstract**

**Objective:** To examine surgical and device-related cochlear implant practice patterns across centers in the United States.

**Methods:** Cross-sectional survey of the American Neurotology Society (ANS).

**Results:** A total of 81 surveys were returned from ANS members who report regular involvement in cochlear implant care. Overall there was a broad distribution in age and clinical experience, with most respondents reporting Accreditation Council for Graduate Medical Education (ACGME) accreditation in neurotology and employment at an academic center. The annual volume of cochlear implant surgeries varied considerably across centers. Eighty percent of respondents report to offer all three Food and Drug Administration (FDA) approved device brands at their center.In cases where hearing preservation is not a goal, 56% of respondents prefer a perimodiolar electrode design, while 44% prefer a lateral wall electrode. With regard to insertion technique for scala tympani access, 64% prefer inserting through the round window (RW) membrane, 26% prefer an extended round window (ERW) approach, while only 10% prefer a cochleostomy. In cases where hearing preservation is a goal of surgery, 86% of respondents prefer a lateral wall electrode design, while only 14% prefer a perimodiolar electrode design. With regard to insertion technique, 86% prefer RW insertion, while only 9% prefer an ERW approach, and only 5% prefer a cochleostomy. Respondents who prefer RW electrode insertion more commonly use a lateral wall electrode, whereas those who prefer an ERW or cochleostomy approach more commonly use a periomodiolar electrode (p < 0.001). There was a statistically significant greater number of surgeons that prefer lateral wall electrodes (p < 0.001) and RW insertion (p < 0.001) for hearing preservation cases compared with non-hearing preservation cases. For implantation of a hypothetical patient with significant residual hearing, within the range of hybrid device candidacy, the great majority of surgeons prefer a conventional length electrode and only 29% prefer to implant a hybrid device.In cases where hearing preservation is a goal, the overwhelming majority of respondents (96%, n = 74) reported using at least one form of steroid application. Ninety-two percent (n = 71) used intraoperative intravenous steroids, 55% (n = 42) prescribed postoperative oral steroids, 44% (n = 34) bathed the middle ear with steroids during surgery, and 30% (n = 23) prescribed preoperative oral steroids.Together, 65% of respondents use a variation of the tight subperiosteal pocket technique for internal device fixation, 19% prefer a bony well and trough with tie-downs, 10% prefer a bony well and trough without tie-downs, and 5% prefer a screw fixation system. Of the 50 who prefer utilizing a subperiosteal pocket, 31 (62%) incorporate a bony trough and 19 (38%) perform a subperiosteal pocket alone without a bony trough.

**Conclusion:** The results of this survey reflect the evolution in surgical and device-related preferences for cochlear implantation in the United States. An increasing number of surgeons prefer the RW approach for electrode insertion. When hearing preservation is not a goal, there is a near even preference for lateral wall and perimodiolar electrode designs; however, the great majority of surgeons prefer a lateral wall design when attempting to preserve residual acoustic hearing. Even in cases where substantial residual hearing exists, many surgeons prefer conventional length electrodes to hybrid designs. These changes reflect the prioritization of atraumatic surgery and parallel the development of thinner and more atraumatic electrodes.