

# Satisfaction Differences Among New Hearing Aid Users When Selecting NAL-NL2 vs. Proprietary Fitting Formulas in the Fitting Software



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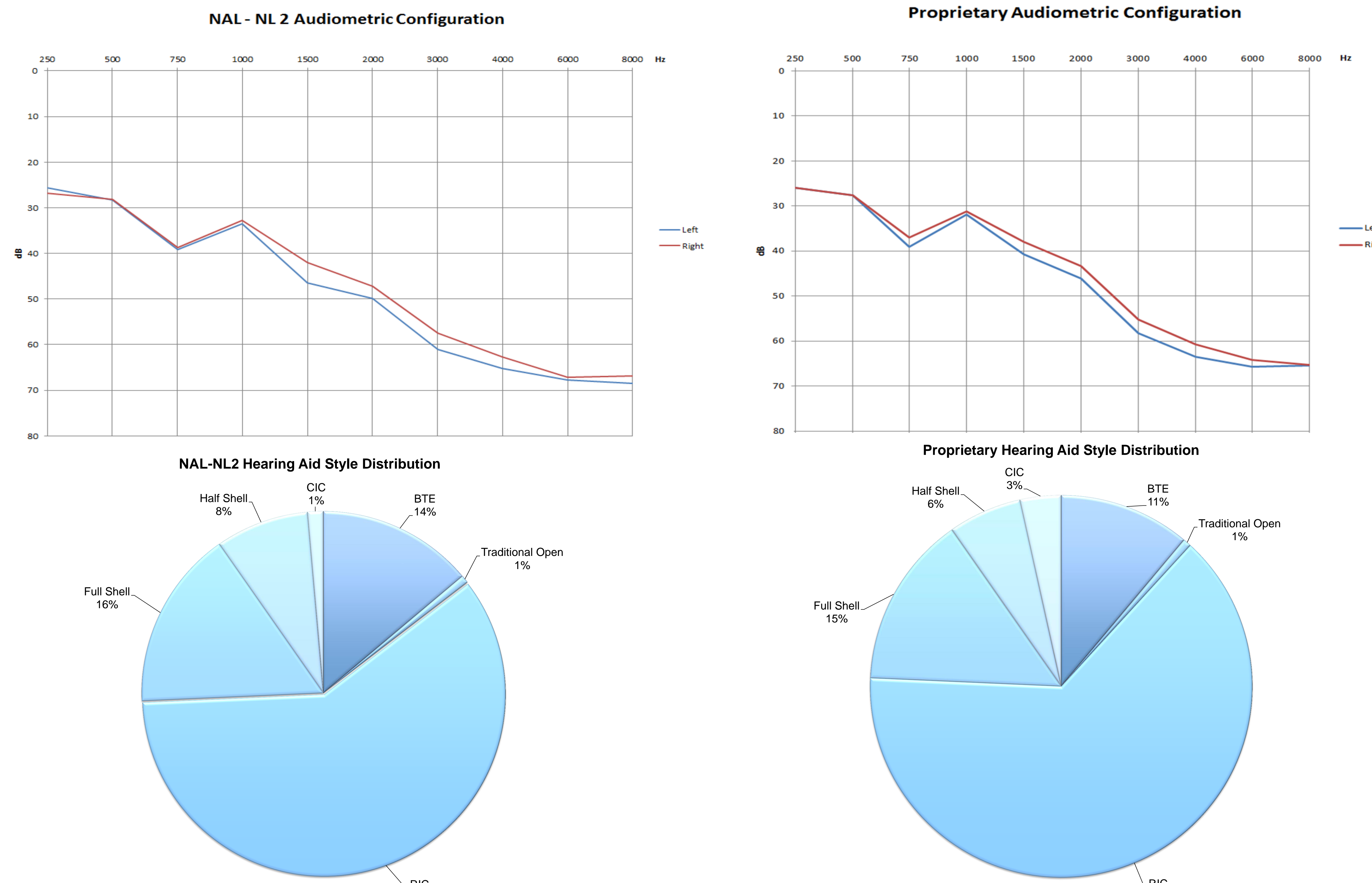
## Introduction

- The NAL-NL2 fitting formula is commonly used in adult based hearing aid fittings. However, it is not the only appropriate fitting formula for an adult population. (Munro & Mueller, 2016)
- Many hearing aid manufacturers use their own privately developed proprietary fitting algorithms to pre-program hearing aids prior to a fitting. While manufacturers allow the clinician to select whether or not the manufacturer's prescriptive formula is utilized, most companies will default to their own algorithms when hearing aids are ordered.
- While items such as appropriate audibility and effective counseling have shown improved patient satisfaction, few studies have compared the pre-fitting selected algorithm of the NAL-NL2 fitting formula to manufacturer's proprietary formulas with a best practices (complete real-ear probe tube measures) standard during the evaluation and fitting process (Leavitt & Flexor, 2012).
- This project expands on previous VA Pittsburgh research which found that providing written and orally based counseling leads to better satisfaction outcomes in new hearing aid users. These users were also fit meeting the best practices standards as set by the American Academy of Audiology (2004).

## Methods

- To determine the effect fitting algorithms may have on patient satisfaction, the only modified variable was the specific fitting algorithm utilized (NAL-NL2 versus Manufacturer Proprietary).
- All other variables remained the same including, but not limited to: participants were new hearing aid users, utilizing bilateral amplification, fit via best practices in audiology (Real Ear Measures matching NAL-NL2 targets with measured RECD; Verifit), were not issued hearing aid accessories, received both oral and written forms of counseling, and followed routine follow-up procedures.
- In the current study, 288 Veterans who presented with bilateral symmetric, sensorineural hearing loss, and no prior hearing aid use were included. All of the Veterans received oral based counseling as well as written information during the hearing aid evaluation, via a pamphlet (*Hearing Aids: The Basics*) created by the National Center for Rehabilitative Auditory Research (NCRAR).
  - NAL-NL2
    - 144 Veterans were fit with the NAL-NL2 fitting formula pre-selected in the manufacturer's fitting software. NAL-NL2 targets were verified using real-ear probe tube measurements (REAR & RECD).
  - Proprietary Fitting Formula
    - 144 Veterans were fit with the manufacturers proprietary software pre-selected as the default formula. NAL-NL2 targets were verified using real-ear probe tube measurements (REAR & RECD).
- Self-perceived benefit was compared between the groups through pre-fitting and post-fitting HHIE measures as well as IOI-HA correspondence completed and returned by the Veterans.

## Average Audiometric Thresholds and Hearing Aid Selection



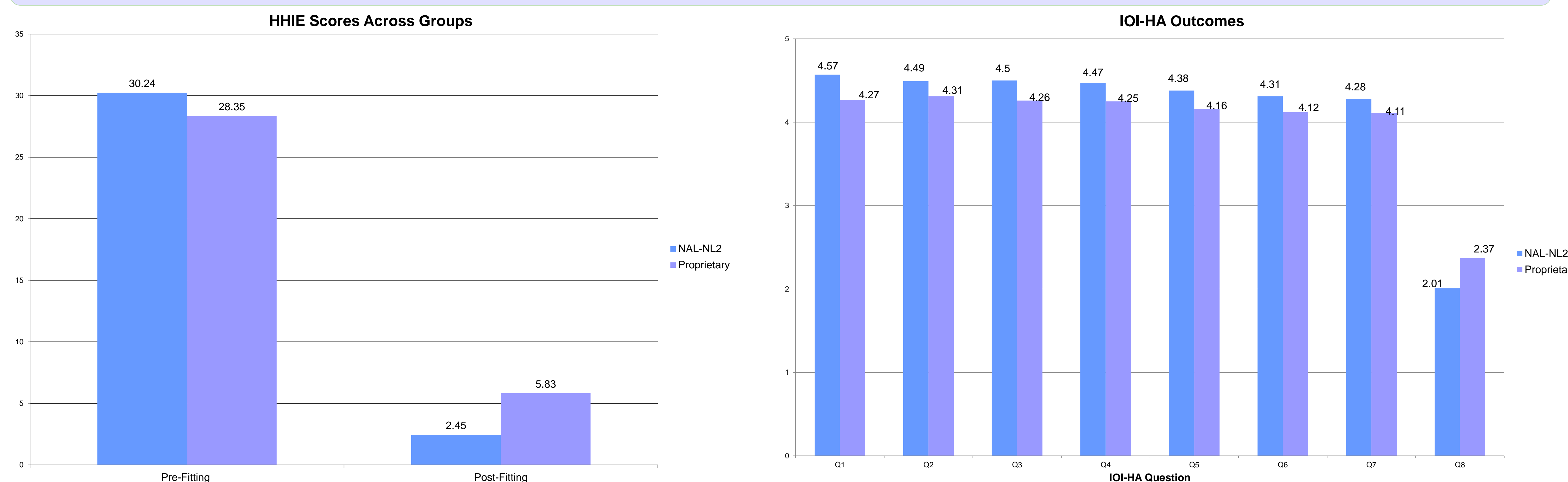
## Initial Findings

- No significant differences were found in the areas of audiometric configuration, age, hearing aid style, or pre-fitting HHIE scores.
- A small, but slightly significant improvement in hearing aid satisfaction was observed in post-fitting HHIE scores with the NAL-NL2 group showing more perceived improvement.
- IOI-HA scores were not significantly different between the two groups. However the NAL-NL2 group scored better in all of the areas measured.
- Overall the results indicate that with comprehensive counseling and appropriate audibility Veteran's will report high levels of satisfaction. Those fit with the NAL-NL2 algorithm using NAL-NL2 targets during verification may benefit the most.

## Implications

- Best practices including: comprehensive counseling pre and post fitting, appropriate selection of hearing aids, real-ear probe tube measures (including RECD), and providing appropriate audibility will lead to the greatest patient success.
- Providing written and oral based counseling (as was provided in this project) for new users may be beneficial. Providing specific information regarding the manufacturer, style, and other hearing aid information may be considered as a project in the future.
- As required by the VA, real-ear probe tube measures are to be completed during every hearing aid fitting to provide measurable, appropriate verification of hearing aid performance.

## Results



## References

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