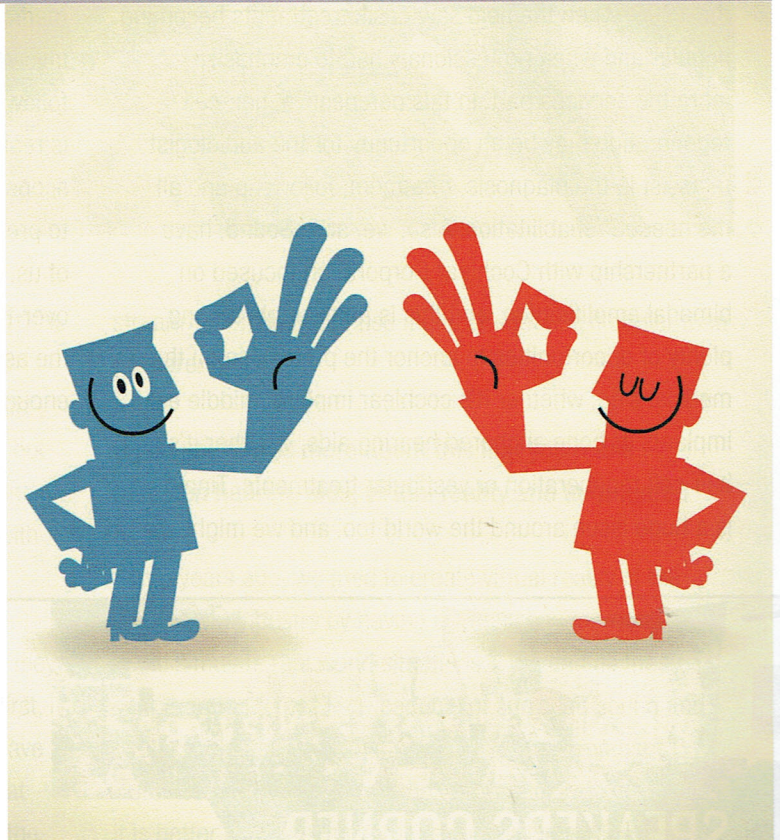


“A premium clinic is more important than a premium hearing aid”

SUSAN CLUTTERBUCK B.SC. (HONS),
OUTSTANDING SERVICE AWARD
FROM AUDIOLOGY AUSTRALIA IN 2016,
PRESENTS HERE A SPECIAL PREVIEW
OF HER LECTURE
“REAL WORLD OUTCOMES FOR
BASIC AND PREMIUM HEARING
AID TECHNOLOGY: IS THERE A
DIFFERENCE?” AT THE EUHA CONGRESS,
FRIDAY 20 AT 12:00.

THE CURRENT STUDY WAS DESIGNED IN
RESPONSE TO THE RECOMMENDATIONS
MADE BY RESEARCHERS FROM THE
HEARING AID RESEARCH LABORATORY

(HARL), WHOSE SURVEY FOUND EVIDENCE SUGGESTING THAT “THE PATIENT CANNOT DETECT THAT PREMIUM FEATURES YIELD IMPROVEMENTS OVER BASIC FEATURES IN DAILY LIFE”. CLUTTERBUCK SHARES HERE THE INSIGHTS THAT MAKE HER CONCLUDE THAT A PREMIUM CLINIC IS MORE IMPORTANT THAN A PREMIUM HEARING AID.



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The key aim of the hearing care professional should be to help patients overcome the communication barriers caused by their loss of hearing. For permanent hearing loss, this usually involves the fitting of amplification to improve hearing acuity. These days there are a wide variety of hearing aid options to choose from. These options include a range of sound processing features, style of device and cost. One of the challenges for the professional is recommending the technology level that

will best meet the individual needs of the patient. In a perfect world, it would be wonderful if every patient could be offered premium devices with all the latest sound-processing features, to ensure optimum benefit from amplification is achieved. But this is not a perfect world. Premium devices come at a premium cost. Most patients and funding organizations make cost-benefit decisions in determining the choice of technology level.

Hearing aid manufacturers typically market a range of technology levels in their products, with premium devices having features not found in basic level devices. Manufacturers produce guides outlining where their different technology levels would best match the communication needs of the patient. These outlines suggest that higher technology is better able to meet the needs of patients with more complex communication needs. "Match your listening demands to the right solution." (Unitron Stride) Such guides are frequently used by professionals and patients in the selection of the most appropriate technology for the individual.

The HARL study

One attempt to find evidence that premium technology yields significantly better performance compared to basic technology was made by the Hearing Aid Research Laboratory (HARL) at the University of Memphis, Tennessee.^{1,2} A single-blinded study of 45 people found no significant difference between basic and premium hearing aids on a range of laboratory and self-report measures that could be assumed to differentiate between the two technology levels. They concluded "It could reasonably be asserted that the patient's perspective is the gold standard for hearing aid effectiveness. While the acoustical processing provided by premium features can potentially improve scores on tests conducted in contrived conditions in a laboratory, or on specific items in a questionnaire, this does not ensure that the processing will be of noteworthy benefit when the hearing aid is used in the real world challenges faced by the patient. If evidence suggests the patient cannot detect that premium features yield improvements over basic features in daily life, what is the responsibility of the provider in recommending hearing aid technology level?"

The HARL researchers made two recommendations –

1. That further studies be done with a larger sample size.
2. That self-report measures were preferable to laboratory tests.

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Is there evidence that premium technology yields significantly better performance compared to basic technology?

Given the high cost of premium instruments, this is an important consideration. Ethical questions arise if recommendations are made without a solid evidence-based rationale.

Study aims

This study was designed to test two hypotheses:

Hypothesis 1. Satisfaction with hearing improvement in a variety of listening situations would be significantly better for premium-level hearing aids compared to basic-level hearing aids.

Hypothesis 2. Satisfaction with hearing aid features would be significantly better with premium-level hearing aids compared to basic-level hearing aids.

Method

Clinics using a standardized protocol (EARtrak) for surveying patient satisfaction with hearing aids and service delivery sent surveys to patients six months after hearing aid fitting. The survey tool includes the International Outcome Inventory – Hearing Aids (IOI-HA), as well as specific questions relating to satisfaction with hearing improvement across 11 listening situations, satisfaction with 13 hearing aid features and satisfaction with 8 aspects of service delivery (based on validated items from MarkeTrak). Responses were on a 5-point Likert scale, varying from “Very satisfied – Satisfied – Neutral – Dissatisfied – Very Dissatisfied”. A “Not relevant” option was included for patients to opt out of a forced choice for any situations that did not apply to their communication world e.g. Workplace, if they were retired. The survey can be viewed on www.eartrak.com.

Patients returned their completed surveys (by reply-paid post or email) to an independent

third party (EARtrak) for data processing and reporting. This data yields a substantial database of patient opinions about the effectiveness of their hearing care. These opinions can be matched to demographic and technology information provided to EARtrak for each patient by their provider.

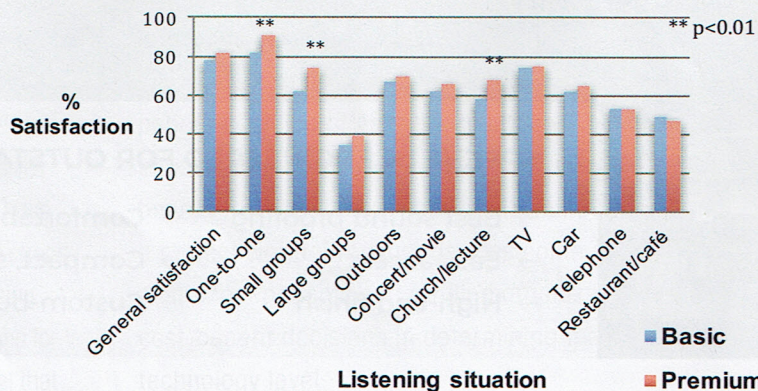
For this study, patient opinions regarding their satisfaction with their hearing improvement across different listening situations, and satisfaction with various features of their hearing aids, was analyzed for Basic and Premium technology. Data were for hearing aids fitted between July 2014 – December 2016. (Data relating to Basic-enhanced and Mid-range technology was also collected, but not included in this study).

The data were filtered to include only binaural fittings for adults with symmetrical hearing loss and technology (style, manufacturer, model). Distribution by hearing aid fitting by technology was 81.3% (1,535) for Basic hearing aids, 18.7% (353) for Premium hearing aids (filtered dataset).

Results

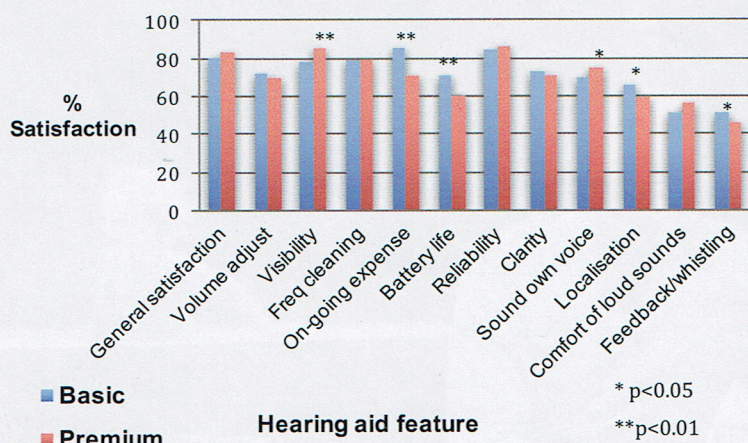
Premium technology yielded significantly higher patient satisfaction than Basic technology for listening One-to-one, in Small groups and for Church/lecture situations. There were no significant differences in satisfaction between Premium and Basic technology for all other listening situations.

Patient satisfaction with hearing improvement across 11 different listening situations for Basic and Premium technology:



USER SATISFACTION

Satisfaction with various hearing aid features for Basic and Premium technology:



Satisfaction with Premium technology was significantly higher for Visibility and the Sound of one's own voice. Satisfaction with Basic technology was significantly higher for On-going expense, Battery life, Localization and Feedback/whistling. There were no significant differences in satisfaction between Basic and Premium technology for other hearing aid features.

Discussion

These results demonstrate some evidence for improved patient satisfaction with Premium technology, compared to Basic technology. There are many areas where Premium devices do not appear to be offering significant improvements over Basic devices. Basic technology is yielding significantly better satisfaction with some aspects of the hearing aids, such as on-going expense and battery life, the ability to localize sounds, and feedback/whistling. Localization and feedback/whistling are two areas where higher levels of technology could be expected to deliver better outcomes. This does not appear to be the case in this study.

One surprising outcome was higher patient satisfaction with Premium technology in the most basic communication situation – listening one-to-one. This is certainly not the area where marketing of Premium devices is targeted, or the area where professionals are focusing when recommending higher level technology. In contrast to the results of the HARL research, **there is some evidence that patients have higher satisfaction with Premium devices in situations with moderate levels of**

background noise – small groups. The results of this study agreed with the results of the HARL study for situations with higher levels of background noise, with no difference in patient satisfaction between Premium and Basic technology for large groups or restaurant/café situations.

Unlike the HARL research, where no difference in localization was found between Basic and Premium technology, **the current study showed significantly higher levels of patient satisfaction with their ability to localize sounds with Basic technology devices** – another unexpected finding.

Some factors need to be considered in comparing the differences between the outcomes of the current study and the outcomes of the HARL research:

- Patients in the current study were not blinded to the level of technology they were wearing.
- Hearing aids at both Basic and Premium level in the current study incorporated more recent technology developments compared to devices used by the HARL group (released 2011).
- Patients in the current study had worn their hearing aids for six months before self-reporting their experiences, compared to one month in the HARL research.
- Patients in the current study were fit by a variety of hearing clinics, each using their own procedures i.e. "in the real world", rather than by a standardized protocol.

Conclusion

As dispensed in the "real world", Premium technology delivered more satisfactory outcomes for 3 out of 11 listening situations, compared to Basic technology. This provides some, limited, evidence that Premium level technology offers some improved hearing benefit for patients, compared to Basic technology. Premium technology delivered higher satisfaction for 2 out of 13 hearing aid features. This provides some, limited, evidence that hearing aid features of devices with Premium technology provide some benefit compared to Basic technology.

Are we asking the right question?

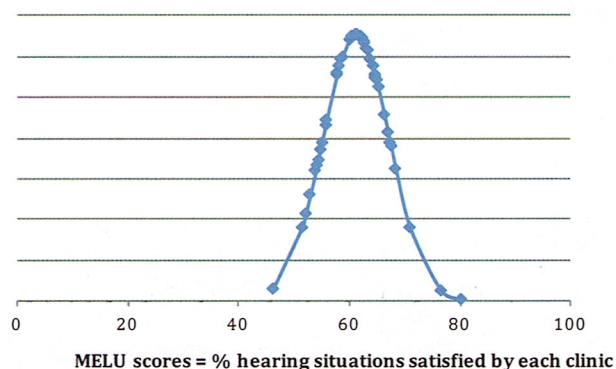
These results are disturbing for manufacturers, dispensing professionals, consumers and funding organizations. Considering the considerable investment in research and development of new technology, there appears to be limited evidence that patients are better served by purchasing anything higher than Basic technology.

It is tempting to search deeper into the factors impacting on the difference between the outcomes for basic and premium technology. For example, do factors such as age, gender, degree of hearing loss, experience with amplification and funding source make a difference in outcomes? Do technology factors such as manufacturer and style of device make a difference? Some preliminary analysis has been done, demonstrating some small differences for some of these factors. **But evidence is also emerging that the strongest influence on outcomes is not related to characteristics of the client or the technology, but to the hearing aid dispenser.**

In 2010, a leading group of researchers in the US reported on factors affecting hearing aid outcomes in MarkeTrak VIII³. Their article "The Impact of the Hearing Healthcare Professional on Hearing Aid User Success" concluded "Although it is apparent hearing aids have improved significantly over the past decade, the data indicate that quality control at the point of dispensing has not kept pace with technological improvements." They identified a number of key areas where clinic procedures led to higher satisfaction with hearing aids.

In 2007, Dr Sergei Kochkin found that hearing aid success correlated highly with the ability of patients to successfully use their hearing aids in a variety of listening situations. He developed the concept of Multiple Environmental Listening Utility (MELU). Each business using the EARtrak survey process for quality assurance receives a MELU score for their clinic (N=53). The distribution of these scores indicates there is a wide range of success across these clinics in providing effective treatment for their patients (see next figure).

Most clinics are delivering satisfactory outcomes for approximately 60% of the listening situations relevant to their clients. Some clinics are delivering successful outcomes



for 70-80% of their clients' needs. And some clinics are delivering well below average outcomes.

The difference in dispensing profiles for the "Top 10" clinics (MELU range 62.7%-80.3%) and the "Bottom 10" clinics (MELU range 37.4% - 59.8%) was analyzed.

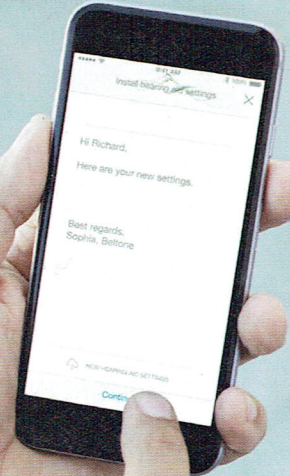
- (i) The Top 10 fit 3 times the rate of Premium technology (15.8%) compared to the Bottom 10 (5.7%).
- (ii) The Bottom 10 fit significantly more Basic technology devices (60.5%), compared to the Top 10 (36.1%).

So clearly, the Top 10 clinics are delivering better outcomes for their patients, but the higher rate of fitting of Premium technology may also be contributing to their success. The Bottom 10 are delivering below average results, but it could be argued their higher rate of fitting Basic technology could be contributing to their poorer performance.

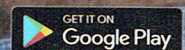
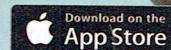
Dr. Atul Gawande, in his book *Better – A Surgeon's Notes on Performance*⁴ measured performance across a variety of health outcomes. He believed that a distribution of clinic performance scores should demonstrate a tight clustering of outcomes at the high end if all clinics were delivering the best possible care. His data clearly showed a wide distribution across clinics, with "some teams showing disturbingly poor outcomes for their patients, a handful obtaining remarkably good results, and a great undistinguished middle." As he remarked, "Who wants average in their healthcare?" When he examined what made the best clinics outstanding he concluded it had very little to do with the patient, or any special treatment, but everything to do with the diligence of the professional. This was the same conclusion drawn by Kochkin et al in their MarkeTrak VIII report.

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In other words, the differences between Basic/Premium technologies are important, but not as important as the differences between Basic/Premium clinics.

Given the relatively high cost of even Basic technology, if successful outcomes are not being consistently delivered by hearing professionals there is the chance that consumers will seek other, more cost effective, methods of seeking help for the communication problems caused by loss of hearing.

In conclusion, our results add further evidence to support the importance of the hearing aid provider in mediating successful outcomes for their clients. ■

By Susan Clutterbuck

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Susan Clutterbuck, B.Sc. (Hons)



Susan Clutterbuck has practiced as a clinical audiologist since 1970, and has worked in government, hospital, specialist medical and private audiology services. Her interest in measuring treatment effectiveness led to her development

of the EARtrak process for surveying client outcomes after hearing aid fitting. This process has been used by a number of hearing clinics in Australia, New Zealand, Germany, and the USA. She has presented at national conferences in these countries, as well as in professional workshops and industry publications. Susan Clutterbuck is a Fellow of the Australian College of Audiology, is a Life Member of Independent Audiology Australia, and was presented with the Outstanding Service Award from Audiology Australia in 2016.

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