

The Value of Speech in Noise Assessments

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When patients come to see an audiologist, one of the most frequent complaints the patient has is an inability to communicate in the presence of background noise. Audiologists then proceed to perform at least pure tone audiometry, tympanometry, and speech perception testing in quiet. But only some audiologists perform a speech perception in noise assessment despite the fact that this was the client's principle complaint.

I believe that performing speech in noise assessments have a huge number of benefits for both you and your client.

1. **Equipment Selection.** We have a huge number of solutions available for hearing loss. We have different styles and sizes of hearing aids, and different levels of technology within each style. We also have conventional directional microphones or adaptive directional microphones that work binaurally. We have Bluetooth, fixed gain FM systems, and newer adaptive Roger digital wireless systems. Which ones do you pick? How will you know if that technology will even solve the problem? For example, if someone requires a signal to noise ratio improvement of 15 dB, there is no way that ear level directional microphones of any kind will address this client's issue.
2. **Informed Consent.** If the assessment shows a client requires adaptive directional microphones, but the client instead has opted for a small discrete CIC style of hearing aid, I would hope that the client knows what he or she is giving up. Specifically, the client should know that communication in a restaurant would still be problematic since at least a directional microphone is needed. It is certainly the patients right to choose but this should be a fully informed choice.
3. **Realistic Expectations.** The speech in noise testing will give the audiologist valuable information about the client will perform in more challenging listening environments. In turn, the audiologist can help the patient form realistic expectations about the selected equipment.
3. **Credibility.** Your client came in complaining about hearing in noise, and you then actually assessed this problem. I believe this will significantly enhance your credibility as an audiologist.
4. **Time Saving.** I have seen some audiologists unknowingly use a trial and error approach. I don't think they planned at the outset to do this, but it often ends up that way. Specifically, the audiologist starts with only the smallest hearing instruments possible but then keeps working up to additional solutions when the previous ones have failed. Why not start off from the beginning with correct solution? Why go through a series of failed solutions? This is not a good use of your valuable time or the patients'. A speech in noise test will help tell you right away what is needed.
5. **Treatment Planning.** We cannot be seen as merely hearing aid sellers, but rather providers of solutions to communication problems. To do this, I believe we should be employing more treatment planning in our practices. In our toolkit of treatments, we have the various hearing instruments, wireless microphone systems, alerting devices as well as counseling on when and

how to use the equipment effectively. In my next column I would like to share my ideas on how one can treatment plan in audiology, but it all starts with fully understanding the patient needs. The speech in noise test in conjunction with the case history and the COSI will greatly assist in understanding the patient's needs and potential solutions.

I have been incorporating speech in noise testing at several open house events. Specifically, I have been using the LiSN-S PGA developed by the folks at the National Acoustics Laboratory in Australia (see this link for more information: <http://capd.nal.gov.au/lisn-s-pga.shtml>). I have found it useful to administer to all the patients, even those with milder losses. Two recent cases come to mind in which the administration of the LiSN-S PGA proved immensely helpful.

In one case, the client (78-year-old female) presented with a mild sloping to moderate loss with good word identification in quiet. One would not have typically thought that a person as a candidate for an advanced wireless microphone system, however, the LiSN-S PGA test clearly showed a significant deficit with hearing in noise. As this client had never worn hearing aids before, I only wanted to plant the seed that additional microphones will be required to hear better in noise. I also wanted to ensure that the hearing aid she selected would offer the most amount of flexibility down the road. As such, the client agreed to obtain a RICS hearing aid with a number 13 battery rather than a 312 as this offers greater options for additional help down the road. Specifically, it ensures that we can use any type of wireless receiver including ear level receivers, which offer the best performance in noise.

In another case (72-year-old male), the LiSN-S PGA again showed that an advanced wireless microphone system was needed. As he had a fixed budget for his hearing instruments, he decided that a wireless Roger system combined with mid-level hearing aids provided the best cost-benefit solution, rather than just premium hearing instruments without advanced wireless microphones.