

# Three Ideas For IOM To Encourage More Use of Hearing Technology By People With Minimal to Moderate Hearing Loss

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## Introduction

Today, a large majority of people who need to hear better don't bother to go to doctors or hearing healthcare providers - or do very much about it at all. To say the least, this is a problem, for reasons everyone here knows all too well: hearing problems have a profound effect on quality of life, employment opportunities, and the course of other conditions.

What can be done? I'll speak today about three ideas that share a common theme: they seek to make the use of hearing enhancement and assistive listening technology a normative experience, not an exclusively medical one.

These ideas may seem counterintuitive or even controversial, especially if you perceive efforts to hear better as exclusively the province of medical professionals and hearing healthcare providers. So let's be clear about a fundamental point from the outset:

All hearing technology should be safe to use and should work well. But there's one more "should" we need to address: hearing technology should be *used*. And for many people who could benefit from it, it's not. That's what I'm going to focus on here, some ideas to change that.

First, I'd like to briefly talk about the crucial importance of open wireless audio protocols.

Next, I'd like to suggest that the current regulatory structure for hearing technology is based on some false assumptions.

Finally, I'd like to urge IOM to find ways to encourage people to use hearing technology long before they have severe problems - because they *want* to, because it's enjoyable, and because it will help them hear better.

## **A Non-Proprietary Wireless Audio Protocol**

If we really want more people to use hearing tech, we simply must make it as easy as possible for them to connect their hearing devices to other devices they use: smartphones, tablets, computers, theater sound systems, business conference audio, public address systems at sports centers, and so on. We need to encourage the development of an extremely fast and very flexible modern universal protocol for audio connectivity.

Currently, Ehima and Bluetooth are working on such a wireless protocol. It is absolutely essential that it be open, i.e., non-proprietary.

In other words, any manufacturer's equipment should connect easily with any other's. Proprietary schemes can only lead to confusion, and confusion will not encourage use. For example, imagine if Google, Apple, and Microsoft allowed you to connect online only to their own customers and made it impossible to connect to anyone using a competitor's device. We'd have three incompatible Internets! That is the situation created by proprietary wireless audio protocols.

An open wireless protocol is especially important for people with advanced hearing loss, of which many, in my experience, tend to be quite technophobic. If we want them to stay connected to the world, then we need to eliminate as much confusion as possible. People should be able to buy any brand of smartphone, for example, and directly connect it to whatever hearing instruments they happen to be wearing. That's for starters. There's much more to connect.

Thus, I believe IOM should urge those working on a wireless protocol for hearing technology to make it non-proprietary, open to all companies, and flexible enough to provide universal connectivity. As it will take time to develop such a protocol, the IOM should encourage the wider use of induction loop technology which is at present, the only system currently available that comes closest to providing practical universal connectivity.

## **Problems With the Current Regulatory Structure**

I believe that both the current and proposed guidelines for hearing technology neither reflect the realities of hearing health and loss nor the technology, making it needlessly difficult to purchase useful devices. Sometimes it feels like the theater of the absurd.

Let me give you an example. Full disclosure: I briefly consulted for this company, but not on this product.

Here's some new hearing tech that hit the market. You stick this device in your ear and it works right out of the box. But if you want, you can download an app that assesses your hearing and applies an algorithm that will personalize the sound.

And here's another device. You stick it in your ear and it too works right out of the box. And if you want, you can download the exact same app the other devices uses, assess your hearing and have it apply the same algorithm to personalize the sound.

These devices are absolutely identical. But this one is called a hearing aid, and this one is called a Personal Sound Amplifier Product. This one requires the user to sign a waiver if you want to buy it directly from a store or Web site but this one does not.

Because they are identical, a person with hearing loss can put the PSAP in her ear and receive the same benefit as if it were a hearing aid. Likewise, a person with normal hearing can safely use the hearing aid which is identical to the consumer product and meets all the safety requirements governing the consumer electronics industry.

They are only in different product categories because current guidelines draw a sharp distinction based on quote/unquote "intended use." The intended use of the first is "sound amplification to compensate for mild/moderate hearing loss;" therefore it's a hearing aid. The intended use of the second is "sound amplification in situations where a normal - hearing person might want help;" therefore, it's a personal sound amplifier product.

If we'd like to encourage people to use more hearing assistance devices, and sooner, then "intended use" is very confusing. Indeed, both devices have the same intended use. They help people to hear better. Used by a normal hearing person, either device will be used in only a few places. Used by a person with hearing loss, either device may be used in some more places. But the purpose is always the same: to hear better.

The "intended use" distinction in the regulation assumes a dichotomy between a non-medical condition - normal hearing - and a medical one - hearing loss. It also assumes that there is a unique set of audio technologies to compensate for hearing loss that, for various reasons, cannot and should not be provided without the assistance of specialists.

I think that neither assumption is true. Putting aside the complexity of diagnosis, many people even with fairly serious hearing problems do not recognize their condition as important enough to get medical help. In regards to the second assumption, at least one study by Dianne Van Tasell indicates that many people with hearing loss are quite capable of adjusting the sound of a hearing device similar to NAL prescribed gain settings and, after some practice, can do so in about 20 seconds. Agreed: more research is needed, but the study suggests a far greater role for user adjustment than the current paradigm permits.

I am not suggesting the elimination of regulations for hearing devices. Instead I am suggesting a set of assumptions for far more realistic regulations:

- 1: We want to encourage people to hear better.
- 2: Hearing health and loss are a continuum, not a dichotomy.
3. Many people can personalize their own hearing devices.

Obviously, consumers need protection from devices capable of providing a potentially dangerous level of volume. These should only be available from licensed providers via in-office visits (or perhaps over carefully designed remote sessions that meet HIPAA requirements). Perhaps these devices should be called “hearing instruments,” analogous to scalpels being called surgical instruments, making it quite clear that they are medical devices. Since many manufacturers of hearing loss technology are already calling their products “hearing instruments” to promote their medical utility, the name seems quite apt.

For everything else, including devices useful for mild to moderate hearing losses that meet consumer safety requirements, we might consider replacing the category name “personal sound amplifier product” with the term “hearing aid.” This is a term many people know, of course, and applying it to devices that can be easily purchased could encourage use of hearing assistance. We should permit unrestricted sales of these devices - no waivers, and no professional gatekeepers. Packaging should include appropriate instructions and safety warnings, for example about the potential dangers of a unilateral hearing loss. People should, if they want to, be able to set up their hearing aids themselves and they should be used anywhere they’re needed. Of course, if someone wants to, they can purchase the device through a hearing aid provider, or bring it to one, and have it professionally calibrated and set up.

Many of you may think this is a quixotic, if not downright terrible idea! Fair enough, so let me merely urge IOM to carefully examine the scientific premises of the current FDA guidelines for hearing devices to see whether they accord with what the full spectrum of hearing health and loss actually comprises. Perhaps different guidelines based on different assumptions than the current ones could encourage wider and earlier use of hearing assistance without compromising either safety or efficacy.

### **Encouraging Use Early**

Now, to encourage people to actually use hearing assistance...

Right now, the traditional but false dichotomy - normal hearing vs. hearing loss - makes it difficult for someone to psychologically cross the line into thinking of themselves as needing medical help to hear. Indeed, most people, even the most knowledgeable, do not conceive of their hearing problem as a medical one.

Well, if we can't persuade them that they *need* to use hearing technology, maybe we can get people with nearly normal or mild hearing issues to *want* to use hearing technology, long before their hearing problems become dire.

I'm talking about the consumerization of hearing assistance.

Ordinary people - people with no or very insignificant hearing loss - are much less self-conscious today about sticking things on or in their ears. Large things. Visible things. These devices, are by definition, assistive hearing devices, helping people to hear music, phone calls, podcasts, and videos better.

Today, you can download apps that enable you to test your hearing in a fashion similar to audiological exams and personalize the sound of your smartphone.

A few weeks ago, the NY Times reported on something called "silent disco" - young people all over the world are going to parties where they dance the night away listening to music over wireless headphones - an entire dance hall crammed with kids using FM technology!

In addition, earbuds for joggers are hitting the market with built-in mics to mix in ambient sound for safety. And as mentioned earlier, some Personal Sound Amplifiers are 100% identical to devices marketed as hearing aids.

These are just a few examples of how consumer technology is helping to make the use of hearing technology *normal*.

I can actually *hear* the eyes rolling! Encourage more people to use consumer hearing technology when kids are already listening for far too long and far too loudly?

Well, yes! The more people who wear visible hearing technology, the less reason there is to be self-conscious about it. And that could make it easier to seek out professional hearing assistance when you need it and not wait ten years until you're desperate. By creating a more natural and comfortable transition to curated hearing health care, the daunting psychological barrier of stigma could become easier to overcome.

As for the issue of safety, I'll repeat: *of course*. The IOM should emphasize to both the consumer and professional audio industries that volume - from earbuds to sports arena pa systems - should always be at safe levels. Easier said than done, but safe levels can be quantified without affecting the enjoyment of great, rich, and full sound.

However, IOM should also consider the possibility that if hearing tech becomes more normative, those in need might pursue the transition into professional hearing healthcare sooner and find it less wrenching.

## **Conclusion**

So, to recap:

1. Please strongly support efforts to develop a non-proprietary wireless audio protocol.
2. Please examine the assumptions that underlie the current guidelines to see if they unintentionally and needlessly restrict access to useful hearing products.
3. Please encourage a culture of hearing health by ensuring that hearing technology is not only safe but that its use becomes normative rather than stigmatizing.