

Interview with Kevin Kavanagh M.D., Otolaryngologist and Website Innovator

Kevin Kavanagh, MD

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AO/Beck: Hi Dr. Kavanagh. It's a pleasure to speak with you. If you don't mind, I'd like to start by learning a little about your professional background and education please.

Kavanagh: Sure. I got my medical degree from the State University of New York at Buffalo in 1978 and I completed my residency in ENT at the University of Iowa in 1983. After finishing my residency I went to the University of Tennessee at Memphis for about 9 years and during that time I was on the medical staff at St. Jude's Children's Hospital. For the last 9 years I've been in private practice.

AO/Beck: Where is your office located?

Kavanagh: I'm located in the hills of Appalachia, here in Kentucky. In fact, I believe I am the only otolaryngologist in south-central Kentucky.

AO/Beck: What type of practice do you have?

Kavanagh: My practice is a general ENT practice, but I do focus on pediatrics and otology. We get a lot of tubes and tonsils, adenoids and a surprisingly high number of chronic ears in this area. I think a lot of the mastoid disease I've seen here was due to a lack of medical care. When I first moved here, I was operating on four mastoids a month for cholesteatoma - that's a very high number of cholesteatomas. Now I'm seeing about 4 a year, which is much more in line with mainstream ENT. It took a while to catch up to the backlog, but it's more typical now.

AO/Beck: I know you've been instrumental in the design and development of a few websites, can you tell me about those please?

Kavanagh: Sure, www.entusa.com, was initially created for the patients, but it's now geared more towards physicians. The website has sound and video too, and that makes it really useful as a counseling tool. We've got several **video** clips on placing PE Tubes, and I think parents really appreciate seeing that - it helps set their minds at ease when they see the video, and it helps explain what's going on. The second website is www.earanatomy.com and it's a little unusual because it started with a set of temporal bone slides which I received from my father, he was an otolaryngologist too. Anyway, we purchased a high resolution slide scanner and we were successful in scanning and reproducing the slides.

We've had about 4000 hits, which was a pleasant surprise for me. The slides can be displayed a number of ways from standard to "close-up" display. The tissue anatomy is quite good, but the cellular anatomy is not well represented. The third one called www.occupationalhearingloss.com and that site was a result of my work for the railroad when I was at the University of Tennessee. I wrote a small program years ago and I tried to distribute that program, but it really went nowhere. With the advent of the internet, and high speed processing and connections, of course, the ease and popularity of these sites is vastly improved. As you know, on the third website, I list lots of different formulas to convert hearing loss to percentages, and this really is useful for audiologists and physicians dealing with hearing loss.

AO/Beck: Can you track, and are you aware of, which conversion formula is the most requested and used formula?

Kavanagh: We don't really track that specifically, but I think the AAO (1979) and the NIOSH (1972) are probably the most popular formulas. The NIOSH (1997) gives heavier weighting to the high frequencies. Of course, the 1997 NIOSH formula was originally proposed to track hearing loss, some are now advocating that it be used as the basis from which to convert hearing thresholds to percentage of hearing loss. I personally disagree with this stance and feel the AAO (1979) formula gives a better representation of the individuals hearing impairment. Regarding the formula you actually pick, you're usually at the mercy of the state within which the case resides. It's always interesting to me on how these things work. The method chosen really should be based on science and figuring out which formula really best represents hearing. Then again, other concerns which go into these decisions include economics and politics. So we have all sorts of formulas on the website and some are used more than others depending on the location, the judge, the plaintiff, the employer and related factors. It gets complicated very quickly and you have to use the formula prescribed. Nonetheless, on the website you can use the master calculator to compare the formulas and the outcomes.

AO/Beck: What about factoring in speech audiometry and what about tinnitus?

Kavanagh: Well, those are great issues clinically. However, the problem is that speech audiometry is not part of the majority of the formulas. Most states simply don't use that information in determining disability. The measures they believe are the most useful are the air conduction pure tones, and that's the basis of the argument and the award. So pretty much, that's all we include in the formulas. Speech discrimination, word recognition, and tinnitus are typically measured, reported and evaluated separately, if at all. Of course, word recognition and tinnitus measures are highly variable, and it's just not part of the percentage of hearing loss, as defined by most of the formulas.

AO/Beck: Tell me a little about the prediction of future hearing loss?

Kavanagh: On the website, we have a section which helps to determine a little "guidance" regarding what the hearing loss might be in a few years, assuming everything remains relatively constant.

AO/Beck: How would you use this tool?

Kavanagh: Suppose you have an employee who gets a pre-employment audiogram, and it demonstrates hearing loss. Then, suppose the employee has a greater hearing loss after working for you for 20 years. At the end of the 20 year period, the question is asked..."How much of the hearing loss would have occurred if the employee had not worked here?" That is, based on the pre-employment audiogram, and the age of the individual, what portion (all or part) of the progression might have happened anyway.

AO/Beck: That sounds like a very interesting analysis. Who's formula did you use in determining the "guidance" factors?

Kavanagh: There are two that we use. The first is Spoor, and the second is Robinson et al. The predicted amount of presbycusis may also be combined with a preexisting noise induced hearing loss using the ISO-1999 compression factor. The point is that these formulas can be used to try to determine hearing loss which is essentially unrelated to industrial noise, while accounting a bit for aging, noise exposure in social situations, and possible exposure to other non-occupational factors.

Of course we recognize that these numbers and formulas are highly variable, and they serve only as a guide. Nonetheless, they are very interesting. Sometimes these numbers can help us decide what the most likely event is, and sometimes the final judgment will hinge on what is more likely than not, to have happened. Remember, medical causation and legal causation can be very different things.

I'd like to mention that the website also has the NIOSH and OSHA noise recommendations, both of which are supported by the federal government and your tax dollars, but they recommend very different protocols and they yield very different results. It'll be fun for the readers to enter some data based on the OSHA recommendations, and then enter the same data using the NIOSH recommendations, and you can really appreciate the differences, they are impressive. It boils down to the fact that NIOSH says that if you follow their guidelines, there is an 8 percent chance you'll develop hearing loss over 40 years of employment, whereas with OSHA there is a 25 percent chance. But even the 8 percent NIOSH outcome is very high, considering that noise induced hearing loss is theoretically 100 percent preventable.

AO/Beck: This really is a fascinating subject and I thank you for your time, your knowledge and the websites. I think these are very clever websites and I'll bet you see the number of hits rise dramatically as more and more people learn about them.

Kavanagh: Thanks Doug, I appreciate the exposure on Audiology Online!

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