

Musicians, Hearing Preservation, In-ear Monitors, and More: An Interview with Michael Santucci, AuD

By DOUGLAS L. BECK, AuD

If you've ever attended a rock concert, an Indy racing event, a NASA space shuttle launch, or even a speech by the President and observed his Secret Service detail, there is a decent chance that Michael Santucci, AuD, and his colleagues were involved somehow with their in-ear monitors (IEMs). Santucci started Sensaphonics Hearing Conservation Inc in Chicago in 1985 as an R&D company committed to hearing conservation, especially for musicians concerned about hearing loss. As the one and only custom-only ear-phone manufacturer founded and operated by an audiologist, Santucci has worked with a vast and diverse group of superstars, as well as "lesser-known stars" with unique hearing monitoring needs, ranging from the Dave Matthews Band to Prince and Beyonce, to the Willow Creek Community Church.

As ubiquitous as Sensaphonics' products are in the music business, sports, and elsewhere, IEMs remain something of a mystery for many hearing care professionals. Thus, I thought I'd tap Dr Santucci's expertise for some more information on IEMs.

Beck: Hi Michael. Thanks for your time. I know IEMs can be confusing and frustrating for many hearing care professionals and musicians. And so, it's a delight to once again speak with the guy who pretty much invented



the IEM industry some 30 years ago—back in the 80s—if I recall?

Santucci: Thanks Doug. Right! I started Sensaphonics in 1985 as a research and development company to control the damaging effects of loud sound, especially regarding musicians and hearing loss. With the advent of in-ear monitor (IEM) systems in the early 90s, Sensaphonics developed custom-fitted earphones designed to act as hearing protectors, isolating performers from ambient sound while allowing the in-ear monitor mix to be heard more clearly, even at lower volumes.

Beck: And your success and leadership with IEMs is unmatched, as evidenced by the use of Sensaphonics products by the Dave Matthews Band, Taylor Swift, Usher, Coldplay, and many others. In fact, I wonder if you can guess as to how many musicians, or perhaps what percentage of performing musicians use IEMs?

Santucci: Well, there's no way to know the actual number, but my best guess is about 50,000 working musicians use IEMs, more or less. Of course, there are likely hundreds of thousands more using IEMs to travel on airplanes, perform in houses of worship, enjoy music at home, etc. In addition, we supply IEMs to astronauts, broadcasters, and theater technicians, and they're used in industry, too. But with specific regard to performing musicians, my guess is about 50,000 professional

musicians.

Beck: And so to place that in perspective, how many major tours are out there in 2016?

Santucci: Again, hard to say, but probably about 150 to 200 major touring acts, and if we have about 20 or 25 people touring per band on average, then you've got about 4,000-5,000 people on the road touring. But only about 1,000 of them are on-stage musicians...and they're the real candidates. That is, Doug, you've been in lots of bands...and you know that when the guys are playing locally for \$100 per person per night, for 2 to 4 nights per week, they're generally not going to be getting the custom-made IEMs.

Beck: I agree. When you think about acquiring or supplying IEMs and doing it really well, you've got hearing tests, hearing protection consultations, sound mixing education, custom earmolds, transmitters, belt-pack receivers, mixing consoles, and more. Price becomes a major factor.

Santucci: Sure. It's a lot like many things in life. If you're a race car driver, you may own a Chevy or a Toyota to commute in, but on the track where the rubber meets the road, it's all custom made.

Beck: Right, and with IEMs, there are no "go to" strategies. Everything has to be thought through for the specific performer, the band, the venue shape and size, and it changes all the time.

Okay, so for the touring musician, they



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have wedge monitors on most stages as part of the house set-up. At what point does a touring musician say, “You know, the time has come for IEMs.”

Santucci: Money. It’s really that simple. When the band or the performer is successful enough, they generally want the very best sound, and IEMs can deliver that better than anything else. I was recently working with Kelly Rowland [previously with Destiny’s Child] and she was putting together an all-woman band. All her musicians were top performers, and they were all experienced and had toured and recorded. But when I fit them with their IEMs, I heard them say “We’ve finally made it!” In this light, IEMs are actually “the standard” or a benchmark for successful bands.

Beck: Fair enough. So let’s talk about money. What does it cost for generic IEMs?

Santucci: Well, the thing is, generic IEMs can be quite affordable—down to the \$200 range—but there are also universal-fit brands aimed at audiophiles that run well over \$1,000. Entry-level products have their place, especially for casual listeners.

Usually, the audiologist is only consulted when custom earphones are needed. Custom IEMs generally cost more, typically from about \$400 up to \$2,500. In addition, a live performance IEM system requires a wireless in-ear system, as well. Again, prices vary, but a basic transmitter/receiver runs about another \$1,000 per system.

For audiologists, it’s important to remember that we’re hearing doctors, and we don’t just sell widgets. Most musicians getting IEMs are trying to improve their *performance*, not their hearing. That’s why we should focus on custom IEMs that enable hearing preservation. It’s the reason we design Sensaphonics custom products in soft silicone: for maximum isolation, to retain the seal while singing, and to be comfortable when playing long sets.

In my view, too many audiologists and dispensers have allowed themselves to just be “goop shooters” for IEMs. I’m sure we all know people who take impressions for musicians, and that’s it—that’s all they do. But that’s not really a good thing for the client, because *hearing and knowledge* matters. If you just give them ear impressions without a hearing test, without a consultation on hearing preservation, and without knowing how this product will be used and how loud

it gets...the question is, have you helped or hurt the musician?

Beck: I remember a conversation you and I had maybe a decade or more ago, and you mentioned that when you give a touring band or a garage band IEMs and you let them set the loudness, their sound guy (who, by the way, is usually not a formally trained sound engineer and often just sets loudness levels to please the band) might set the SPL at 110 or 120 dB or more, and so the IEMs are very likely *causing* hearing loss! You’ve often underscored the fact that the professional’s role is to protect hearing, which often means ongoing hearing tests and proof that their hearing is being maintained and protected.

Santucci: Right. It’s our job to teach our musician patients to monitor safely with IEMs, and that requires changing their behavior.

We have to overcome the belief that monitors have to be loud. It’s one of the many myths associated with professional sound. The goal is for the IEM to shut out ambient sound, reducing the noise floor so that the musician can hear the mix clearly at reasonable, safe levels.

Beck: I’m glad you mentioned that! One of my favorite myths was the old cassette tape marketing battle between BASF, TDK, Maxell, and others, who stated their tape was best because it reproduced sound flat and faithfully within a dB or two out to 30 or 40 kHz. As an undergraduate I remember saying, “Wait! Humans can’t hear above 20 kHz at all, and there just isn’t much to hear above 15 kHz anyway, so how does this matter?”

Santucci: And even today, there are companies claiming that studies have demonstrated their technology prevents hearing loss and tinnitus, yet when I contacted a few of these research audiologists, they said they would not recommend these devices as being protective and the studies need further investigation before making the claim.

Another topic is the emergence of “Hi-Def” audio. Our products are certainly “Hi-Def,” but if the professional musician has significant hearing loss, who knows what their *actual listening experience* will be? Can you experience Hi-Def audio with “Low-Def” hearing from years of abuse and injury?

Beck: So, given all the myths and misinformation, what is the hearing care professional’s actual role in IEMs?

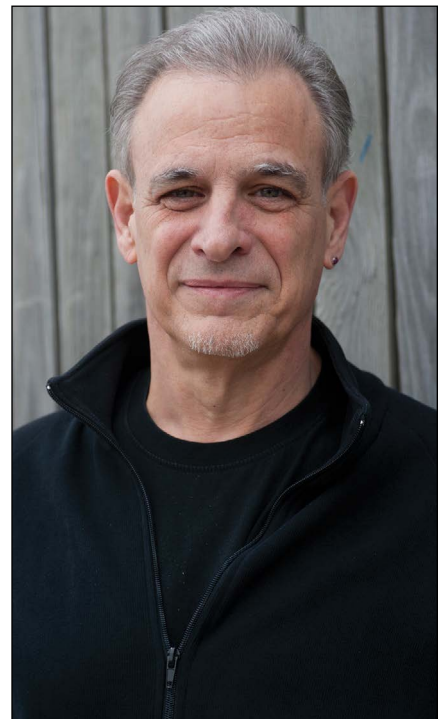
Santucci: I think we have to start with

hearing protection and preservation. Most hearing care professionals involved in IEMs act like technicians; they just take ear impressions and presume that’s the end of their liability. But it isn’t!

So my two big concerns are: 1) Helping musicians get great sound while maintaining their hearing, and 2) Making sure hearing care professionals understand their liability. Many of these IEM systems can output dangerous levels even at what looks like a moderate belt-pack setting. You owe it to your clients—and yourself—to know these dangers and advise your clients appropriately.

When I lecture to hearing care professionals, I usually ask “How many of you take ear impressions for IEM systems?” and generally all the hands go up. Then I ask “How loud do these systems go?” and none of the hands go up. This is simply a huge professional issue and a significant problem. I hate to think that one day someone is going to document hearing and hearing loss, then the attorney for the band starts to look for deep pockets and ultimately goes after the hearing care professional who facilitated the IEMs.

Beck: Excellent point. And absolutely something for all hearing professionals to be aware of. You’re not just buying and selling ear impressions, you’re participating in the larger issue, which is about facilitating



Michael Santucci, AuD

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substantial sound pressure levels directly to a human ear at levels which are known to cause damage—and that’s hard to defend as a doctor, as an audiologist, or as a hearing aid dispenser.

Santucci: Absolutely. I’m not trying to scare hearing professionals out of IEMs; in fact, we’re the most highly trained and knowledgeable people working with IEMs. However, I *am* trying to highlight and underscore our professional responsibilities and actions—before some attorney does that for us!

Beck: Sure. And, of course, the generic products and marketing claims are absolutely selling widgets. That is, they are corporations selling a product, and they are not licensed health care professionals. Their level of responsibility and their liability is very likely different than yours or mine. They might say in a footnote “Only use these products at safe listening levels” and “See your doctor for your health and hearing safety concerns,” and perhaps that does waive some of their responsibility. Frankly, I don’t know; that’s a legal issue for the courts, but I do know that we cannot duck our professional responsibilities of patient care.

Santucci: Exactly. As I said, we’re the most highly trained, licensed, and knowledgeable people in IEMs, so it’s our responsibility and obligation to do the work maximally to protect our patients.

Beck: Can you tell me the top issues the hearing care professional needs to address for patients seeking IEMs?

Santucci: It’s more or less a clinical hearing conservation approach. We need to get their personal medical history and their musical case history, including which instruments they play, how often, how loud, hearing protection history, and stage set-up. We talk about, query, and educate hearing loss causes such as the two major causes: loud sound exposure and vascular function. We address genetics, disease, and injury. Of course, many of the musicians believe aging is one of the primary etiologies for hearing loss, and as you know, Doug, there are millions of older

people with normal hearing. So yes, aging is a factor, but not the primary factor.

Beck: On that issue, I usually state that “aging in a noisy society” is the issue. That is, because we live in an industrialized society, and we live (on average) to about 80 years of age, our days are filled with sound for many decades...As we age, the sound exposure does catch up, but it’s not the aging in and of itself; it’s decades of noise exposure.


Santucci: Yes, that is the point. And so we educate and motivate, we test their hearing, and we eventually take ear impressions...but the problem is that most hearing care professionals just take ear impressions—and that’s dangerous for the professional and for the musician.

Beck: Michael...before we run out the clock, would you please tell me about the Gold Circle Seminar?

Santucci: Yes, thanks for mentioning that! The Gold Circle Seminar has been running for more than 20 years. It’s a hands-on IEM training for professionals. We actually bring in a local band and sound engineers to work with the hearing professionals, who learn how sound systems work, with and without IEMs. They experience and measure how loud it is, and the whole group, including the band, works together. It’s a pretty amazing process and it often involves a lot of “ah-ha!” moments.

Beck: Professionals can learn more about the Gold Circle training and IEMs and more at your web site at www.sensaphonics.com. Michael, it’s a joy to speak with you. I really appreciate your time, innovation, and knowledge. I urge all our colleagues to go to your website to find more information about these and related matters. ▀

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 REFERENCES are available in the online version of this article at: www.hearingreview.com