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Starkey Sound Bites: Product Durability and Quality Excellence

Presenters: Dave Fabry, PhD, Brian Dahl, MS

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Welcome to Starkey Sound Bites. I'm Dave Fabry, Starkey's chief hearing health officer and host of the show. Today we're diving into a very exciting topic, product durability and quality. Now, in my role as an audiologist, many of my patients will ask me, you know, what are the best hearing aids? And my answer is always the same, the ones that are worn.

And while we've been focused, really since 2018 with the industry's first AI labeled hearing aids, and focused really on taking that technology to bring outstanding sound quality, the link to health and wellness, and even with generative AI for voice assistant, we also know that hearing aids work in a hostile work environment, the earth. And that environment is often one where precipitation, perspiration, dust and debris can encroach inside the hearing aid and can cause ingress. And so one area we know that if devices cannot stand up to the places and the areas where patients want to wear their hearing aids today, it's just not going to measure up. And so I'm really enamored with the quote by Steve Jobs where he talked about the yardstick and being a measure of yardstick of quality. And really my guest today is Brian Dahl, our VP of quality and regulatory.

And I think, Brian, I'm not sucking up to you here, but you are someone who is a yardstick of quality and you recognize the importance that not only the quality is inside our technology in terms of AI and the way that we're using signal processing to benefit those with hearing loss, but but also those devices have to survive and be as bulletproof as possible. And you've really brought that culture of excellence over the years that you've been with Starkey. So thank you for joining us today to talk about this. Thanks for having me back, Dave. Of course.

So let's talk. For those who haven't seen you on a previous episode, talk a little bit about your past experience, how long you've been with Starkey and something I don't know about you, you know, quite a bit. But so I've been with Starkey nine and a half. We'll round it up to 10 years. Almost before Starkey,

I was what you would say was in high electronics.

So high precision hard drives was really where I cut my teeth right out of school. And, you know, that also is an environment different, but one that required high performance, took those skills and came to Starkey. And what I found with the hearing aid technology is there's so many areas to improve, so many areas to push the limits but what I really liked out of it is that there's people at the end of it. You know, in other companies, it could be a business or it could be some infrastructure, but we can go through and we can see there's people at the end of this every single day. And, you know, that makes our job both rewarding but also high stress.

Yeah. So to your point, when we get it right, people wear it. When we don't get it right, they don't wear it right. It is, I will say that it is. Some quality is somewhat of a thankless job in the sense that if you're doing everything right, people maybe don't even notice that you're doing your job.

But if things go poorly, everyone knows your name. Right. You know, and it's something. I bring that up with every new hire orientation. I always ask our new employees, what does quality mean to you?

I'll ask you, what does it mean? What is quality? Yeah, for me, that's a great question. So I would say that quality is something that needs to be boiled into the device to work for its intended purpose in every case, not just in a prototype or not in a first product. So I'll jump to the ending chapter on the story I tell.

So most of the time when I have new hires come in, there's engineers, there's some sales, customer service across the company, most of the engineers will gravitate towards what you shared, which more or less aligns around conformance to spec. Right. That's where engineers get involved. I need to have a 51 hour battery life. Does it meet it plus or minus?

Is the color, this pantone color, very measurable and very specific. And that's where a lot of engineers thrive and survive. And that's how a lot of industry works. But what's interesting about that first element of quality is that even though it's highly engineering, left brain, if you get it wrong, it ends up becoming a very right brain emotional problem. So if we ship the wrong hearing aid, it's not a factual problem, it's now a very highly emotional one.

Or if hearing aids don't work in the field, someone doesn't objectively say, oh, it's broken, I'll deal with this. They say, this is a big problem. Right. So the first rule of quality is conform to spec or keep your promise. Right.

So at the end of the day when we say quality is our reputation, what we're really saying is we keep our promise. And that's very relatable. Right? Yeah, I love that. And I will clarify one point or maybe, just maybe, expand on one point.

Maybe we go down a rabbit hole here. But one of the issues, Starkey, is Prim, primarily a B2B company. Most of our listeners or viewers are hearing care professionals, audiologists or dispensers, and they may indeed frame the answer to this very differently. But I would say as somebody that has been and continues to be someone who works with patients, quality ensures that I don't look stupid in front of my patient. Because although we provide the technology and we develop this sophisticated device that works in all of these different environments, we design it to be impervious to ingress by dust and moisture and water.

Ultimately, if it does break patients, blaming the professional and making the professional look bad, they don't necessarily. The patient doesn't think about Starkey as the culprit in this case. So it is a partnership and a responsibility and a trust that we have with our customers. Right. And, you know, we can only go so far then.

Right. I mean, our, our job and our engineering teams can only go up to that point of the hearing care professional. And they're putting their trust in us. Yes. So I really like playing with that concept of quality because on one hand, it's very much engineering, factual, hard science, but there's this deep layer of personal connection and care and empathy that at the end of the day, I think that's what really drives what we do, and it's really driven a lot of the improvements we've made since the last time you hosted the podcast.

Yeah, I love the way you. You frame that, though, because, I mean, you grew up in Rochester, Minnesota. I spent a lot of time in my career, the formative stages of my career at Mayo Clinic, where the needs of the patient are the only interests that need to be considered is their central and driving force. We have a culture similar to that here, I think, in that we are talking about patient, dr, Patient focused technology. And if we focus on where the patient wants to use their hearing aids, how they want to interface with their hearing aids, where they live, you know, all of those things that the professional knows about the patient that we don't.

And we have to build these devices that can withstand high heat, high humidity, high heat, low humidity, and on the other end of the extreme, people who don't know Minnesota think that it's never humid here in the winter, but that condensation when you go from outdoors to indoors can actually be quite problematic for devices too. And we have to. Your team is ultimately responsible for thinking of that. Emotional element where it is that the patient wants to wear their devices and how they will feel if they have to make concessions or they can't wear their devices in those environments. And that's that process of how do we get there?

It's an interesting flywheel in the sense that when we launched Genesis, that's where we made a huge push on waterproof battery life. And the interesting thing that we didn't tell people behind the scenes was that we were already looking at the next generation coatings. And then you ask the question, why?

Why would you do such a thing? You've got a great brand new product coming out.

Why would you essentially clean the slate and start all over again? But it's because of that, that as we continue to learn and feed that new information back into our process to our engineerings, our customer service teams, our customer quality teams, we will find all of these new corner cases that emerge. Or what is the analogy? When the water lowers, you start to see new rocks you've never seen before. So we solve a problem.

We now get to a new point where we can update that logic. As we were launching Genesis and it was going out through the field and getting, you know, successful reviews, we were also deep in the throes of the next generation waterproof coating. Yeah, in a way, to quote Clayton Christensen, we were self disrupting what we had. Or Apple frequently is held as a sort of a model of this, where when they had the ipods, they basically self disrupted and eliminated one of their most popular products to introduce the phone that was capable of adding in additional functionality plus storage to be able to have thousands of songs in your pocket, as they phrased it. And so what you're saying is, you know, we've had effectively waterproof hearing aids in the manner in which patients are gonna wear their devices since Genesis IP68.

But that didn't. That wasn't good enough. No, no. And so talk a little bit about the development that went in there. How did you push the technology to then be able to first assess where we were, which was already pretty good to be even better.

Yeah. So this is where I always preface. There's a huge talented engineering team that is hungry for these things. So it's not just me, it's everyone else. So I'll speak generally in terms of the teams and who we are in the engineering center.

So when I reflect on that development from Genesis to Edge and now to Omega, when we look at each step, what's happening is that we're discovering the first principles of what drives the performance? And then when we put it into the field, we're actively tracking every single unit, every single phone call, every single post on Facebook. We have systems that we've developed and refined over a couple years. So they're very fast and very short feedback loops. So we put them out there.

We've got engineering data for those that have been on campus. They've seen our quality lab where we do the torture testing, and those give us enough confidence. And those tests are also being iterated. So you've got a flywheel of improvements for verification testing. We then have a very strong feedback loop from the field.

And then at the basis of it is the knowledge we're building. That knowledge with Genesys then was, what are the areas that we really have to coat? What are the potential hypothetical weaknesses when we build that scale? And then as we looked at that picture on a whole, in a multifaceted way, then we started kind of doing that casual search, well, what's out there? What could we find?

And then we found a new technology that is far better, far more consistent. Our old coating style was, we'll call it liquid based. And it worked. But we wanted something that was high volume, fully auto consistent. Right.

Because at one point in time we had a human applying those coatings. And, you know, I mean, as somebody, it worked. But the reality is there's going to be variation throughout the day based on my fatigue, my eye strain, my mental status at the time. And a machine, if we can automate it, is going to be able to reliably apply those coatings 24, seven, you know, technically 365. Right.

And that's what we did with Genesis. Right. So we went from human liquid coating to machine based. But this new coating is really kind of a step function higher, explain more. So what it is is it's a vapor

deposition of a very hard polymer.

And this polymer, what it does is it forms basically this shell that encompasses all of the electronics. And it's far thicker, it's far more durable, it's far more consistent. And we've studied it in many different ways. And what we find is that it coats everything we want it to and it stays put. And when we started doing AB testing, old coating style versus new coating style, the new one just, it lasted far, far longer than what we've ever seen before.

And that then was proof positive that this new coding style was worth it. And again, we reached this inflection point as a business where we could have said, look, old one's good enough, not Worth the investment this, that, and the other. But the way our leadership team works and the underlying decision theories we have is, well, is it best for the patient? Right? And then everything else comes right.

And for me, with my clinician hat on, the best compliment any patient can give me is when they apologetically call me and say, I jumped in the pool with my hearing aids on, and I'm worried that I did something to them, or I jumped in the shower, or I went in the steam room and forgot that I still had them on. Do I need to come and see you? And, you know, I'll say, run self check, which gives you a quick diagnostic tool as to whether there's been any immediate damage. But then I'll have them come in. But for me, it's the best compliment because if they forgot their hearing aids, that it was so natural for them, that it was sort of embedded in their life, I say, don't worry about apologizing.

In the old days, we often had to send hearing aids in for repair, but that I haven't seen. And so anything that makes those devices as bulletproof as possible is great. And for those people who've been on our campus, one of the most popular stops on our tech tour is always the quality lab, as you mentioned, the torture chamber. Close partnership between mechanical engineering and quality to develop tests that meet or exceed standards where they exist. But also, to your point, thinking of corner cases, coming up with new ways to ensure that where a standard exists, we exceed it.

Where there's no standard, and we want to test it to get to that issue of quality, we can empirically measure it. And one of the tests that's my favorite to show to customers is the salt fog chamber that we borrowed from the military because it is a 100% saline salt fog chamber. And my understanding is comparing even Genesis, where we were really good to where we are with Omega is night and day. Yeah. Yeah.

So as a background, the salt fog chamber that is used, it's a military standard, military specification. And really, that test is kind of narrowly focused. It defines the humidity, the temperature, the salt ratio. But where we have applied our hearing aid knowledge is what acceptable looks like. So on an engineering basis, you can play with, well, how much corrosion or how much battery drain is acceptable, and you can really kind of play that line.

And, you know, our standards are well done. You can't have it, or, you know, the battery shall be in the same criteria as if it was never in there. And really, that's where we started shifting towards functional testing. Yeah. Functional testing aid.

We've also upgraded our hearing aid. We've got. We essentially tap into the firmware to look at that battery drain profile. So it isn't black or white. Right.

You put it in and it works. We look at the little murmurs and the deviation. Similar to getting an ekg. Yeah, exactly. When you go in to look at, yes, not only is your, what's your pulse, which is how many hours of battery life are you getting?

But what are those little imperfections in the EKG that could signal something more serious with regards to the depletion of the battery over time? And that's where really we've set. At least when we're in that phase of development, it's a really fun curiosity problem where you kind of say, huh, what

happened? Why is that happening? And we've got a really skilled FAA failure analysis team who then digs into it and they try to figure out what could have caused this slight degradation.

And for those that have been with us from Genesis to Edge and Omega, I mean, that flywheel has been working for years. Well, and even before, when you think of within the industry, the first gen of rechargeability produced devices that maybe had 20 hours of battery life when they were new. Increasingly, I can tell you now that I've got patients who wear their hearing aids 15, 17 hours a day, meaning they're going in in the morning, staying in all day. The last thing they take, the first thing they put in in the morning, they last thing they take off at night is their hearing aids, because they become that essential. And the expectation is that we remove range anxiety, if you will, that we had a turbocharger at one point in time, when we had those first gen of rechargeable devices, when we disrupted the field by providing up to 51 hours or up to 41 hours, 42 hours in custom style, the Rico, the larger Ric is up to 51 hours.

The custom styles, 42 hours. That's all day now and five years down the road. And I think again, in the same way that moisture and dust ingress can ruin some hearing aid user's day if it causes their devices to fail the same way as the best technology in the world, if it only lasts 10 hours after a couple years, is an all day performance. No, I think it's a bold statement, but I think we have removed range anxiety from the hearing aid user's life when they choose to have a rechargeable battery rather than a replaceable battery. And that when you think of the grand scheme of how we fit into the industry, that is exactly what we can do.

We can't be in the office with providers, but our job is to build the technology so that we can help them take away that fear or that emotion. And, you know, I know the engineers won't admit it, but we're in the business of, you know, solving that emotional problem. And then the goal is if they take away the rain anxiety, the patients are using their hearing in more and they're enjoying the experience more. We want

in that camp, not in the, say, functionally things broken camp. Right.

Yeah. And you mentioned the salt fog chamber going back to the moisture for just a minute. And you mentioned functional testing beyond just putting it in a column of water and putting it in with the receiver, which is the weak link, you know, and ensuring that a lot of times, as you know, much to your consternation, I'll put devices in the water chamber while we're doing the tour and even leave it streaming to my phone. Not that you're going to listen and stream underwater, but just to show that that connection is robust. The other area in the same area where we have the salt fog chamber, we have the wand that introduces like a rain shower someone might expect to encounter in the summer in South Florida and unexpectedly just would be wearing their devices.

We and your team, we challenge you to say not only do we want the device not to fail, stop performing in the rain, we also want the device to keep performing. And we'd love to see that if they were streaming or if they were listening to ambient environments. What's the sound quality like when they're in the rain and the devices are wet? Yeah, yeah. We did that testing early on when we were looking at this platform.

And what we found is that there's an intermittency because you're hearing the rain, but then when it's gone, it's gone. That's exactly what we want for a user experience. Yeah, really, when we look at each one of these tests, they're all little stories in and of themselves, and they're all developed from the experience of the engineers. How could things fail? But then also cross checking it with expectations that are currently happening with what people shared with us, tapping into that patient provider dynamic to see where we want to go.

And so there's a lot of fun areas where we can take quality. Let's talk about another area. You know, as you said, they're all little stories unto themselves. But as the industry leader in both custom devices and custom case molds and really moving beyond that dome tip, which I know for many people works great.

But I think a differentiating feature is when you can customize and personalize the form factor in addition to the acoustic performance.

And one of the issues is, I often say, you know, we're not fitting a device to the inside of a coffee cup. And if anyone wants to test this, just put your finger in an ear while you're talking or chewing, and you can feel even the difference between two ears of the movement in the cartilaginous portion of the canal. That really complicates your job in that we need material that is strong, whether it's a custom mold or a custom case, that it's strong, but that it is still pliable to a degree. And one of the ways that you guys only half kiddingly say defy the laws of physics is to increase the strength of our custom products while also leaving them still pliable, if you will. How did you go about doing that?

Yeah, so that was a really fun project was our new shell resin. So, you know, again, if we look at how we get there to what we did, it was this interesting problem where we had a polymeric resin for many years, and we had a test. And that test, we dropped hearing aids onto a hard concrete surface, and they told us an answer, and we kept going. But what was interesting is when we listened to our customer service teams, listened to the phone calls, looked at the numbers, we said, hold on. Something's.

Something's not connecting here. And we had a very good partnership with our customer service team. We said, well, hold on. How are you testing it? And then that took us down that rabbit hole and said, okay, we might not be testing it in a way that patients are actually using it.

So that started the rebirth of, let's develop a test that wasn't from here, but was much higher. And then how do we define what a failure looks like? So we had very deep philosophical discussions on that. And where that took us then through those processes is we reached the inevitable conclusion that we needed a new shell resin, which is not a small project by any means. And this resin, just for people who may not have been here and seen this, We've been using 3D printing for 20 years or more.

But the resin is the material that is 3D printed in the shell or the mold. It is the shell, yes. And when it's 3D printed, then it cures. And, you know, there were a point. I mean, we had the discussion, right?

Do you go with a polymer stick with what you know, or do you go with something else. And again, that's where we had to check with providers and said, okay, there are some providers out there that still like to modify in office. The data suggested that a polymer based one is still more preferred, more comfortable. And so that then narrowed our design window because it'd be really easy to make something strong that's a brand new material, but we had to stick within the realm of what was known. And so then we worked with partners to find a material that, like you said, is stronger.

So that's the maximum force before something breaks, but is also tougher. That's how much we could say it bends before it breaks. And comparing our, we'll now say our old to our new. You can kind of think of it like the old resin was much more brittle. So it's very strong but brittle.

But it would fracture like glass or ceramic. So strong but brittle. The new one has longer polymer chains that they start to bend more before they break. And that has been really fun to see that roll out because our engineering data said it should be on a material basis, be 20 times tougher. 20 times 20 times tougher.

And term of art, tougher, not stronger. Okay, you can say either. That's all. Engineering data said that we'd have five times more drops to breakage, but the early numbers are showing much higher than that. Yeah, we saw our own eight.

I've seen it. I've seen your boot. Yeah, that was a fun one too. So for those that we'll see and maybe we can clip it in there, there's a clip of me stepping on them because we just wanted to show very plainly what is the difference between old and new. And so that has been wonderful.

The fun part about it too is we started to introduce it through a pilot without telling anyone. So a lot of times you have a choice, right? Do you wait and do a big launch or do you just go right away? And for these improvements and really going forward, we're now a just do it right away approach, because that is what matters. And it allows us then to study it in situ without having to test in the lab or see it otherwise.

And the feedback obviously was very positive. Oh, it was, yeah, it was really great. But it was a tough challenge. I mean, we had to fit process parameters and production across the world. Well, and then you've got biocompatibility.

You've got to make sure that any of the changes you're making aren't introducing something that could cause a reaction in the ear. And that's not for Someone who's worked with a lot of different compounds over the years. Some people are more sensitive to specific compounds, and then again, it becomes an emotional issue if they develop an external otitis or something as a result of some chemical found in the material. So I know that part of your job is not easy. And then you mentioned already that there are some old school people like myself who still like to modify the shell for minor things rather than remaking it from scratch if it doesn't fit comfortably or if it causes discomfort or feedback.

And so the new material can be modified by professionals still, same modification. I mean, here's the best way of sharing it is that we do modifications, grinding, buffing in our production facilities. We didn't change our tools, we didn't change our buffing wheels. Everything's the same. So again, a very narrow window to hit, but one that was necessary because we can't introduce a material that forces everyone in our customer base to have to change.

So that's not acceptable. Right. And to your point, biocompatible, Same, same. Same across the board. No, no differences.

Color, sheen, all of these matter. So it's a really fun project to have. But again, it was one of those decision points where we could have said, okay, good enough, don't do anymore, or do take the effort, do what's necessary because it's right for the patient, therefore it's right for the provider, and then therefore, it's right for us. And I think this really embodies another quote favorite of mine from Henry Ford. I think where it's quality is when you're doing things the right way, when no one's watching.

And that's really the boring part of your job. I like to say that your team has the most fun. They get up every morning and get to go thinking about how patients might destroy our hearing aids and then actively trying to invent new and creative ways to evaluate that in a controlled environment so that we can meet the standard and then anticipate other corner cases as they arrive. How do you assemble your team to get that mindset of people thinking toward the future, not in the Gretzky sense where the puck is, but where the puck will be as we continue to look at evolving ways of improving the durability and quality of our devices? So there's a couple.

I'll say there's tools and then there's philosophies and values that we use. And then underneath all of that is talent. How do we find the right talent from a tool standpoint, there's A lot of engineering based tools out there that help bring engineering minds into the realm of what could happen. And of course there's guard bands on it because it always can go down, you know, well, an asteroid's going to hit the Earth, right. We try to keep it very narrow.

So we encourage use those tools. Then the biggest thing we use, and I'd say the mechanism we've really invested the most on is our sensitivity to, we call it post market surveillance or customer quality. How can we really lower the threshold of sensitivity such that if someone calls in within a few phone calls, it can make it to my leadership team's desk, it can make it to mine, and then at that point we then can assess is it actionable or not. But we don't want to set the bar so high in terms of what we're hearing such that we're saying, oh, things are great, things are great. And we've got a huge population

that doesn't think that way.

So those tools have really worked really well. From a value standpoint, this is where we have, I'd say, strong alignment across our senior leadership team. And I'll say from our CEO on down, where his position is excellence. And the root meaning of excellence is you're good today and your reward for being great today is clean the slate and do it again tomorrow, Try to do it even better tomorrow. Exactly.

That goes into our structures of development and how we test and how we develop production. And so those two together, the value, who we are, combined with the tactical, here's the science and the engineering, those two then come together and then you get the best, which is the talent. And the engineering staff at Starkey truly, truly does care at the outcome. Engineers always get the bad rap, right? Yeah.

But they truly, truly do care and they want to do what's right. They want to do what's right for the patient. The provider and the leadership team cultivates that. We find people who do that and we give them opportunities to see patients. I mean, as you know, during our design and development process, we have engineers sitting in on the clinical validation.

What other chance do people have to sit in and listen and you get the direct feedback and then they know exactly how to improve or they have that spark of innovation and they run with it well. And I'll also say we have a very engaging group of engineers who raise their hand when they already have more than enough to do. When we have customers on campus to volunteer the subject matter, experts in the different areas in our tech center volunteer to serve as Tour guides because they love the opportunity to talk to professionals about their experience about this essential piece of equipment. Increasingly, like I say, hearing aids are not something that people put in their ears and wear for a couple hours. We need to develop the technology that will that the patient, every time they puts them in, expects that they're going to be able to wear them all day, every day.

And our engineering team is committed to that as well. And they love hearing stories. And you know, the last thing I want to say, and then we, as usual, run out of time. You and I could go on for hours. But the issue is, is that people think that when they call customer service, the thing when I called customer service and I was on the other side, I never wanted to hear, well, that's the first time we've ever heard that.

And sometimes I think I was being given excuses if I called a manufacturer and told that. But in this case, when we've lowered the bar, it may really be the first time that we're in hearing of a novel case. And what I heard you say is that we're aggregating all of those cases and collecting them so that by the time we see 1, could be an aberration, 2 can start to already get on our radar, and 3 can become a trend. But as few as just a handful of people, if we are encountering something, hopefully this is a very rare occur. Occurrence.

I mean, increasingly, I don't hear about it that much. But you know, don't be, don't think that we're giving you a line when we're saying, oh, that's the first time we've heard it. We've set the bar low enough. You want. And your team wants to be able to hear about all of these stories if they're encountering and impacting the patient's life with their hearing.

Exactly. I mean, when you think about it, our business is to help people hear. We kind of also have to listen to our people. Yeah. So we've changed and we've refined our structures.

We have global input. So it isn't just one geography. It's all. And so it might be one in the US it might be one in France, it might be one in Japan. But those then give us enough of a trend that says, okay, let's take a look at it.

And that's exactly where we want to be. Right. We don't want to have a system or a business that operates. You've got 100 people knocking at your door saying something's broken. We want to look at it far ahead of things and where we're going, I won't get too far into it, but how can we introduce some of those diagnostics into the device such that it helps us understand what that device went through in say a use case scenario or something like that?

Really exciting because then that gives us much more rich data so that we can. Yeah, I know. When working with other members of the team and other parts of the RD organization, the data logging and some of the battery monitoring and some of the other things that we're doing really give a signature of performance of how this device is doing. And then being able to use AI to monitor aggregate different symptoms. The same way that when you go into a hospital and they're putting together all of the symptoms, it's no longer the blind men of Hindustan where they're all feeling a different part of the elephant.

We're treating that device as a whole that is going into the patient and impacting the patient's life. Yeah. And the introduction of AI internally has been a big help for a lot of those tools, not only in the devices for purposes of performance in terms of optimizing sound quality and speech understanding and noise, but for ensuring that the quality which never sleeps is maintained in our devices, not only from the point of manufacturer, but five years down the road. So, Brian, I really appreciate your time today and coming back to talk to us a little bit about this culture of innovation in quality. The way we've made gains even on the latest generation products and we've already set a very high bar for the industry in terms of quality of the product for ingress and also ensuring that all of those AI solutions are not sacrificing all day battery life.

And we lead the industry in that too with the most sophisticated AI products that will still last all day, every day now and into the future. And it's in no small part to you and your team helping ensure that the

professionals trust that we're delivering the best technology possible for their patients. Yeah, thanks for having me. And thanks for having me. Let me share the stories of what we have and the story of how we do what we do.

So you're a good storyteller. Hopefully we'll see in a few, a few other episodes with some more innovations. Look forward to it. So thank you for listening and viewing and if you have other ideas as to what Brian can come back to talk about or any of the other Starkey experts that we've had or that you'd like to see on the show, please send those to soundbytesarkey.com until then, thank you for listening and watching, and we look forward to seeing and hearing you again very soon.