Modern Technologies for the Management of Tinnitus: The Colorado Model of Care

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Brian Taylor:
Hello and welcome to the Signia Podcast at AudiologyOnline. I'm Brian Taylor. Our topic today, the Colorado Model of Tinnitus Treatment and Management. Here at the Signia Podcast, we're always on the lookout for practical approaches to addressing common challenges in the clinic. Today, our focus will be on the treatment and management of tinnitus. As you listen to our interview today with our guest, hopefully you'll be able to find at least a few nuggets of insight and knowledge that you can apply in your own clinic to help you more effectively manage tinnitus patients. Now, let me introduce our guest.

Dr. Cory Portnuff is a clinical audiologist at the University of Colorado Hospital UCHealth Hearing and Balance Clinic and an assistant clinical professor at the University of Colorado School of Medicine. In the clinic, he works with patients of all ages with a focus on audiologic rehabilitation, treatment for tinnitus, and services for musicians. Dr. Portnuff's research focuses on noise-induced hearing loss with a particular emphasis in music-induced hearing loss and in understanding music players using health belief modeling. He also focuses on clinical and translational research within the clinical setting.

Let me tell you that about six months ago, last fall, I had the privilege of hearing Cory lecture on this topic and that's why I wanted to have him on the podcast. With all that out of the way, let me welcome Cory to the podcast. Thanks for taking time to be with us today.

Cory Portnuff:
Thanks for having me today, Brian.

Brian Taylor:

We're excited to talk about this topic. I think it's one of those that you know can never learn enough about. There's always a new wrinkle. There's always maybe a new approach that you want to add to what you're doing in the clinic. But before we get into the topic at hand, I thought it would be a really good idea to maybe talk a little bit about your background. I know you have both an AuD and a PhD. Talk about your journey to where you are today and what got you interested in tinnitus management services.

Cory Portnuff:
Absolutely. As you mentioned, I'm a clinical audiologist at the University of Colorado Hospital. I see adults and kids there, and I've been an audiologist for, oh, about 15 years now. When I started out in practice, I was like many young audiologists. I didn't know much about tinnitus. Frankly, my AuD program didn't include a lot of information about it. I'll be honest, I avoided talking with patients about their tinnitus. I would dodge the question. I wouldn't necessarily ask people if they had tinnitus. But if they volunteered that, we'd talk about it, and then I'd try to refer them to a little better tentative specialist in the area.

About 10 years ago, I changed jobs and moved into a position where there was some need for a specialist in tinnitus at the University of Colorado. I decided that I should learn that. I was also the low person on the totem pole, so I got voluntold to take over the tinnitus program. What I found as I got more and more into learning about tinnitus and managing tinnitus, I found it really interesting. As an aside, I have tinnitus. I've had tinnitus since I was in college. For me, I used some of the normal natural management strategies that we teach our patients just innately. I didn't like to study without some background noise turned on, for example.

The tinnitus generally isn't something that impacts me day to day. But I found that my understanding of tinnitus and my experience of it really helped me relate to patients

who had troubling tinnitus. I found that I was able to parlay some of my experiences into understanding how patients experience the world, and that informed my practice quite a bit. Nowadays, I see a whole lot of tinnitus patients. It's something that is a challenge at times, but it's also really rewarding, because these are patients who, some of them, are really, really struggling and this has become something that has really impacted their lives.

Often informational counseling alone makes a huge impact. Even when informational counseling alone doesn't make a huge impact, we still can find solutions for tinnitus. We can find ways to help patients manage it day to day and even in some cases reduce how much they hear it.

Brian Taylor:
Could you take us through the approach? It sounds like you've over time because of your interest and your background have maybe taken things from different approaches that are out there and incorporated it into your own. Maybe tell us about your own approach to tin management and how it might be different or unique from other approaches that are well known in the profession.

Cory Portnuff:
I'm going to start by giving some credit to Dr. Melinda Anderson. She was my predecessor in this program, a friend and mentor, and she created the underpinnings of the program that we use at the University of Colorado Hospital. I took the reins from her and have built a little bit further. But I'll tell you a little bit about our theory behind tinnitus. Tinnitus management, when we look at most of the programs and systems designed for managing tinnitus out there, tinnitus management run by audiologists tends to be a very rehabilitation model. The basics of it are it doesn't matter what caused your tinnitus.

We assume that you've figured that out or you've talked to your physician and they've figured it out, or we just are never going to know what caused your tinnitus, and therefore it doesn't matter. Let's work on managing it day to day. Now, that's a fine approach. There's nothing wrong with doing that. But I find that if we approach it from a little bit more medical model, we can get a little bit bigger impact for our patients. We break our approach down into three parts. Step one is identifying and treating any cause or ideology of tinnitus. Step two is identifying and treating triggers or exacerbating factors that make someone's tinnitus worse.

Step number three is using audiologic management techniques to teach patients how to manage tinnitus day-to-day, how to live with it rather than fighting against it, for example. Let me walk through a few of those real quick.

Brian Taylor:
Please.

Cory Portnuff:
First step is identifying causes of tinnitus. In the vast majority of tinnitus patients, this is an academic exercise, we don't have a cause we can treat. But it's really important to patients to know why they have tinnitus. For the majority of it, we can identify cochlear changes, hearing loss, abnormal otoacoustic emissions, abnormal speech perception in noise, and that can be suggestive of some degree of cochlear damage or deterioration that might trigger the onset of tinnitus. Now, of course, we consider tinnitus to be a neural phenomenon, but often triggered by peripheral changes or damage from loud noise.

Patients who understand that their tinnitus is related to their hearing loss can more easily accept why it's there and what's happening, or if we can identify it caused by a medication, or if we can identify a specific cause from a brain injury, for example.

Having patients understand what the likely cause of tinnitus is is important. I wish I could say that when I send a patient to see my amazing neurotologists, they said, "Your tinnitus is caused by your hearing loss," but that doesn't always happen. I think that falls under the scope of an audiologist. We can easily say this is related. It's more likely than not that your tinnitus is related to your history of working in a loud environment.

I think that's something that we often miss in the conversation about tinnitus that's important to patients. Now, even if we can't fix it, it's still an important part of how patients understand their perception. Following etiology, we talk about triggers that make tinnitus worse. I think this is also something that we often give away to physicians and say, "Well, if they go see the ENT, they'll talk to them about all these factors." But most ENTs don't. Now, there are a handful of ENTs who specialize in tinnitus out there, a small handful in the country, and they'll certainly go through all these exacerbating factors with patients.

I would love it if I didn't have to do that. But we find that most patients come in with no knowledge of things that might make their tinnitus worse. The big factors, we often talk about diet, sodium, caffeine, and alcohol being triggered for tinnitus, but what we don't often talk about is stress being a major trigger for tinnitus and anxiety or sleep or sleep apnea can be major triggers for tinnitus, musculoskeletal problems of the neck and jaw, particularly neck tension, jaw tension, or temporomandibular joint inflammation can be big triggers that make tinnitus worse.

We also think about chronic pain as being related to tinnitus, and then physical activity because we know that people who have better levels of physical activity deal with their tinnitus better. One of my big goals in taking a case history with a patient is trying to identify factors that make their tinnitus worse. I'll actually start out just by saying, what makes your tinnitus worse or better? A lot of patients have identified some of these

things, but then we can go into more specific depth about each various piece. And from there, we're going to try to treat those. I want to treat them for two reasons. Number one, if somebody has tinnitus that is worsened by stress, of course, we want to manage that stress.

If somebody has tinnitus that's worsened by their jaw clenching or teeth grinding, we want to manage that. Most of this management, of course, is not done by me. I'm the wrong person to give you a night guard for your jaw clenching. But I've built up a nice network of local providers who we can send people to. Physical therapists and dentists to manage TMJ. We've got a great sleep clinic that I send people to who talk about sleep apnea or have symptoms of sleep apnea. We've got fantastic counselors that we send people to manage stress and anxiety.

Part of my job as an audiologist is be that case manager, help point people in the right direction of where they need to go to help to manage these triggers that are making their tinnitus worse. Now, I'm going to be direct and say, I'm not going to diagnose you with depression. I'm not going to diagnose you with temporomandibular joint problems or migraine headaches. I might know very clearly you're complaining of migraine headaches, but what I'm going to do is I'm going to help the patient recognize that symptom and then direct them to the right neurologist, physical therapist, et cetera.

Brian Taylor:
Go ahead. No, go ahead. I don't want to interrupt you.

Cory Portnuff:
I'll say one more thing on managing triggers. Managing triggers is certainly important for trying to reduce the level of tinnitus, and indeed, it's the only real way to reduce the perceived intensity of tinnitus, but it also gives patients a level of control. One of the things that we lose with tinnitus is our sense of control, and it's really hard to accept

big changes in your life when you feel like you have exactly no control over them. There's an entire avenue of counseling called acceptance and commitment therapy where we teach people how to manage changes in their life that are permanent.

Medical changes, in this case. Using some of these tools to manage triggers of tinnitus gives a patient a degree of control over their tinnitus. And at minimum, it gives them something to do and think about and focus on rather than just sitting there staring at their tinnitus. I'm always going to try to find something that the patient can actively do to take part in their care before we get into what are sometimes more passive management strategies.

Brian Taylor:
That's really good input. I'd like to unpack some of what you've explained so far, Cory. My first question or my next question is take us through the initial appointment or interview case history, however you want to phrase it. What's your approach when you first see the patient? What are some of the questions that you might ask the patient? I know you've already mentioned at least one question, but maybe some of the other line of questions that you asked the patient about their tinnitus during that intake.

Cory Portnuff:
We're going to start with a hearing evaluation, and usually in our clinic we'll have a hearing evaluation separate from a tinnitus consultation. In that hearing evaluation, of course, we're going to do all the normal things. We're going to test their hearing. My simple two questions in a hearing evaluation about tinnitus are, does it interfere with your sleep? Does it interfere with your concentration? If the answer to those is yes, then probably we need a higher level intervention. If the answer is no, then we may not need to bother with tinnitus intervention. We may be just focusing on hearing or some simple masking at home.

Hearing evaluation, I think it's important, especially in people with normal hearing to include higher level tests like otoacoustic emissions or speech and noise testing to get a good picture of the auditory system. Following getting a good view of their hearing, we can move into talking about the patient's experience of their tinnitus. From here, I ask two sets of questions. One set is about the tinnitus. We ask, when did it start? Was there anything that triggered it to start that you know of? Patients love to answer that question. They often know right when it started and they say, "Oh yeah, it started when I did X, Y, Z."

Well, then you might actually know your etiology. Oh, it started because of a car accident. Great. We can focus things from there. I like to ask some basic questions. Is it one ear or both ears? What does it sound like? Now, of course, we have no research that says that high frequency buzzing tinnitus is physiologically different from high frequency ringing tinnitus. Maybe we say that roaring tinnitus that fluctuates is more consistent with Meniere's disease or something to that effect. But patients always want to tell you what their tinnitus sounds like. And if you don't ask that question, they're not feeling like you're actually understanding them.

We'll ask about fluctuation. Does it change day to day? And then from there, we can talk about what makes it worse and what makes it better. If patients have daily fluctuating tinnitus, to me what that means is there is something external or external to the tinnitus that is causing it to fluctuate. Maybe that's a musculoskeletal problem. Maybe that's stress levels. Maybe it's poor sleep. But if it's fluctuating, something is changing for that patient and we can look to try to find what's changing. I also like to ask what previous treatment patients have had and what their experiences have been learning about their tinnitus, because there's a fair bit of negative counseling that happens out there.

There's a lot of patients who go and see their primary care physician or an ear, nose and throat specialist and they're told, "There's nothing you can do about this. Go home and live with it." That statement's not wrong. Maybe there's no cure for it, and that's the physician viewpoint, but patients take that as, "My life is going to be terrible forever because I hate this tinnitus." We know that that's not true. We can find ways to manage it. We have to identify when patients have that negative counseling and be able to turn that around. It's going to change entirely how I relate to a patient if I think that they walk in thinking there's nothing to do.

Brian Taylor:
Right. I'm curious about your, I guess, triaging approach. You mentioned that you ask a couple of these questions during a routine hearing assessment. Do you have a feel for how many of those patients that you see during the routine hearing assessment that might need that second tinnitus consultation appointment as a percentage? What guides your thinking behind or your decision making process between the tinnitus at the initial audio and then having to come back for a consultation?

Cory Portnuff:
Of patients that I see in the clinic for hearing testing alone for any reason, the number of people who come back for a tinnitus consult is relatively small. It's probably under 10%. More patients are coming back for hearing aid consultations to talk about their hearing. The way I like to stratify these patients in terms of whether we're focusing on hearing versus focusing on tinnitus is whether the tinnitus is persistent and bothersome. If the tinnitus has been present for six months or more, we call that persistent.

If the tinnitus has been present and is frustrating to the patient, particularly I think about interfering with sleep and concentration, then we consider it bothersome and I'm

going to triage them to that tinnitus consultation rather than to talking straight about hearing aids.

Brian Taylor:
Got it.

Cory Portnuff:
Now, hearing aids maybe and usually are a critical part of managing tinnitus. Please don't get me wrong. But when I'm talking to the patient, we're framing it in terms of tinnitus versus hearing. Sometimes it's both. Patients who come in with significant hearing laws and have difficulty with both tinnitus and hearing, we're going to work to address that. For patients who come back to a tinnitus consultation, they always start with a couple of questionnaires. Questionnaire number one is the Tinnitus and Hearing Survey, which is a VA produced short questionnaire that divides your complaints into tinnitus, hearing loss, and sound sensitivity problems.

Then for patients who have tinnitus, I also like them to complete the Tinnitus Functional Inventory, the TFI, because that's a really useful tool for understanding how patients perceive their tinnitus. The Tinnitus and Hearing Survey can help you differentiate between how much tinnitus is bothersome versus hearing loss is bothersome versus both.

Brian Taylor:
The THS and the TFI, are those the acronyms for the two questionnaires that you use?

Cory Portnuff:
That's right.

Brian Taylor:

Okay.

Cory Portnuff:
Both are freely available. The THS you can get from the VA's Progressive Tinnitus Management program website, and the TFI believe is on the Oregon Health Science of University website.

Brian Taylor:
That's good to know. We have some notes that correspond with the podcast. We'll try to put a link to those in those notes so people can find those easily. Thank you for that, Cory. I wanted to ask you about, you hear a couple of terms. You've already mentioned one of them, that's managing triggers and the other is the vicious cycle of tinnitus. I was hoping if you could maybe explain those concepts in more detail and how you think about those in your management of tinnitus patients.

Cory Portnuff:
Certainly. When we talk about managing triggers, my next set of history questions are asking about sleep, dental problems, jaw clenching, teeth grinding, diet, physical activity, chronic pain, stress and anxiety, and depression. Managing triggers, it's identifying what they are, helping the patient to see what those are, and then making a management plan. In many cases, that's a referral to another provider. I'm going to send you to my favorite TMJ specialist dentist in your area. I'm going to send you to my favorite physical therapist. Or when all else fails, I'm going to refer you back to your primary care doctor to talk about these things.

When we get into the stress, anxiety, and depression part of this, that's where we talk about that vicious cycle, as you put it. The vicious cycle of tinnitus is the tinnitus emotional response and stress response cycle. As you hear your tinnitus, you have an emotional response to that. Emotional responses are normal. I always want to

normalize with patients that it's okay to be frustrated by your tinnitus. It's okay to be angry about your tinnitus. It's okay to find it something that you absolutely hate, because it sucks. It's not a fun thing to have. But how that then translates into your stress level is what's going to affect your tinnitus.

We know that stress increases tinnitus, and we have some very good evidence that there are connections into the auditory system from our limbic system. Both at a lower level, at the level of the pons, and at a higher level into the thalamus and even into the auditory cortex. What we see in patients is that as their stress levels go up, their tinnitus goes up. If your tinnitus itself is causing you stress, you end up in this cycle where your tinnitus causes you an emotional response, which causes a stress response, which makes your tinnitus worse, which causes more emotional response, which causes more stress response, which makes your tinnitus worse.

We try to break this cycle. Now, we can break this cycle by getting rid of the tinnitus. That's the ideal world, right? And maybe we do that simply by temporary relief from the tinnitus through masking or through the use of a hearing aid. That may reduce the awareness of tinnitus, which reduces your emotional response to it. Alternately, we try to deal with that emotional response when it comes up, and that's where tools like cognitive behavioral therapy come in particularly useful, because we're trying to use our tools to reduce how much this is causing you stress. The Progressive Tinnitus Management program talks about a pyramid of patients.

They say about 80% of patients with tinnitus are not bothered by it, but 20% are bothered enough to come into the clinic, and a very small percentage are debilitated by it. What makes that 80% of people who have tinnitus not bothered by their tinnitus? It's not creating that emotional response and that stress response and causing the tinnitus to ramp up. If we can break that cycle, we can certainly find ways for the patient to manage and live with their tinnitus.

Brian Taylor:
If I understand you correctly, the essence of tinnitus management is breaking that vicious cycle.

Cory Portnuff:
That's right. If we can lower the volume of the tinnitus by reducing triggers, sure, that's great. If we can't, how do we deal with your focus on it that's causing you that emotional response?

Brian Taylor:
I wanted to move to another topic, and that is the use of we'll call them off-the-shelf devices and other types of programs. Tell us about how you think about some of these off-the-shelf devices and programs. When do you recommend them? Which ones do you recommend? Why do you recommend them? I know it's a big question, but if you could give us some insight on that, it would be great.

Cory Portnuff:
That's a huge question. We could be here for hours. As we think about the Colorado Model of Tinnitus Management, we talked about managing etiologies or identifying and treating etiologies, identifying and treating triggers, we get into the how do you manage tinnitus in day-to-day life. And that's where there's a whole variety of different options that we can consider for patients. When we talk about off-the-shelf devices and programs, I mean, step one, if you have hearing loss, it's always a hearing aid. If you've got hearing loss, it's always worth trying that out. We do demos in the office just to see what it does for your tinnitus.

I'm of the belief that if it helps somebody in the office, it's more than likely going to help them in their daily life. But then when we get into other recommendations, especially

thinking about tools to help to manage tinnitus and breaking that cycle, we might be recommending maskers for home use to make tinnitus less noticeable. I mean, there's lots of sound machines out there that you can use and you don't need an expensive one. There are pillow speakers designed to go underneath your pillow, plug into any device that can play sound. Bose makes a great set of what are called Sleepbuds that are in the ear sound machine.

Anker just came out with a new earphone designed for sleep, the soundcore A10, I believe. Then we go into programs that are designed to break that cycle at the emotional response level. Programs for cognitive behavioral therapy or mindfulness-based cognitive therapies. When you look at the literature, the only treatment for tinnitus that has even reasonable efficacy is cognitive behavioral therapy. Now, cognitive behavioral therapy doesn't fix tinnitus, but it changes the reaction to tinnitus. When we talk about cognitive behavioral therapy, there's a few different options.

The VA's Progressive Tinnitus Management program has been the probably best researched, best devised program out there for years. It's now available by videos online. You can watch the PTM program. The workbooks are free to download, and you can go through it just as if you were joining the class in person. In-person classes, of course, are restricted to veterans. Then we also have a great app called Oto, O-T-O. This is a cognitive behavioral therapy app for tinnitus, and it includes both tinnitus and some masking sounds and a little bit of mindfulness in there too. Really designed to walk you through how your thoughts and beliefs impact your tinnitus.

The other one of these that I like is the Mindfulness Based Tinnitus Stress Reduction program. The Mindfulness Based Tinnitus Stress Reduction program was a program created by Dr. Jennifer Gans out of the University of California, San Francisco. It started originally as an in-person course adapting the Jon Kabat-Zinn's Mindfulness

Based Stress Reduction program towards tinnitus. It teaches you how to live with tinnitus rather than fighting against it using mindfulness techniques, including meditation, yoga, deep breathing, and others. It's a really useful online program that patients can do on their own.

It's a little hard to identify the patients who would do better with one program than another. Certainly I live in Colorado where we have a fair number of people who are already interested in mindfulness. Somebody who identifies an interest in meditation or other mindfulness tools, I might send them down that path. For somebody who is particularly tech-savvy, the Oto app is a really nice choice. Especially for veterans, the PTM program is great, but that can also be good for just about anybody.

It's hard to differentiate what one person might like, and what I often do is give patients a list of all of those things and say, "I want you to go read through the information on them and see what you feel fits the best and start one of them."

Brian Taylor:
Yeah, no, I love that approach. I think that's really pragmatic and it takes advantage of all of the new app-based, web-based kinds of programs. It sounds like you just have an a la carte menu and you and the patient work together to devise the items on the menu that might fit best for them.

Cory Portnuff:
That's right. And then what's really, really important in all of this, a tinnitus consult will have an absolute ton of information that you're going to give to a patient. Unfortunately, as we well know from our health literacy research, patients don't retain much of that information. It's really, really critical to send a patient home with written information about their tinnitus, but also a written treatment plan. These are the things that I want you to do. It may be as simple as, I want you to call these people and get in

for an appointment, or I want you to use masking at night. If you don't send patients home with a written list, they will invariably come back and say, "Now, what was I supposed to do?"

Brian Taylor:
Right. That's a good point.

Cory Portnuff:
Fortunately, in many of our systems, patients now have access to electronic medical records and can see your notes. In our large hospital system, patient can see everything I write about them, which also means I need to be cautious about what I write about some of my patients. But that alone I don't think is enough. I want to actually hand them a piece of paper that says, "Do these five things, and then come back and see me, or call me if you're having trouble."

Brian Taylor:
Good advice. I'm glad that you mentioned the health literacy component. I think sometimes we forget about that. That's good information to share. I know that time is precious and I don't want to take too much of it. Two final questions I have for you, Cory. The first is there are probably a lot of audiologists out there that are interested in maybe starting their own tinnitus management program. What advice might you give them?

Cory Portnuff:
If you're interested in starting a tinnitus management program, there's a lot of great resources out there that you can use to learn how to start. The best beginning point, I think, is the American Board of Audiology's Certificate Holder in Tinnitus Management. The CH-TM is about a 14-hour course, I believe. It's done all online, and it's a high level overview of tinnitus, what it is, how to manage it. It doesn't get into the specific

techniques of things like Tinnitus Retraining Therapy or Progressive Tinnitus Management, but it does have a lot of really good information to give you a foundation.

From there, you can also consider certification programs like the Progressive Management Program if you work for the VA, or Tinnitus Retraining Therapy if you are so inclined in doing like that. The Tinnitus Activities Treatment from Rich Tyler, in Iowa, they run programs teaching that. Also, there are some very neat programs in the UK looking at cognitive behavioral therapies. A caution to US audiologists, of course, be careful of your scope of practice as you're providing cognitive behavioral strategies rather than therapy. Many of these programs are going online and you have easier access to them, which is nice.

The other thing that I'll say about tinnitus is as an audiologist, your primary benefit to patients and to the field of medicine is understanding a patient's perception of their environment and then being able to fine tune interventions for them. Talking to your patients about their tinnitus and helping to understand what somebody experiences is going to give you the skills to react to that and provide the best tools and techniques. 15 years ago when I was starting in practice, I avoided tinnitus and I didn't want to do it. Now, I jump headfirst into it. I find it interesting and rewarding, and it never hurts to ask a patient about their tinnitus.

Worst case is they might want to talk a whole lot about it. And if so, that's probably something they need to do. If you're a business owner, tinnitus is a very, very reasonable service... Management services for tinnitus are very reasonable to offer. Patients who have significant tinnitus are willing to spend money for therapists and see people to get results for their tinnitus, because it can be a significant problem. Tinnitus can certainly be a good business plan, but it's also a really good community service and service to people because there's no one else out there treating tinnitus. If you

send patients to their primary care doctor for tinnitus, you're going to get not much in the way of treatment.

If you send patients to an ear, nose, and throat physician, they're going to get better information, but not much in the way of treatment. Audiologists are the owners of tinnitus out there. Take ownership. Jump on in. There's more than enough patients with tinnitus out there for everybody.

Brian Taylor:
As a great role model, your story of how you were apprehensive at first and now it's something that you look forward to, that's great.

Cory Portnuff:
Now, I'll admit, I'm still apprehensive occasionally about some of those more severe tinnitus patients, but certainly it's become something that I find very rewarding.

Brian Taylor:
Well, and that brings me to the last question I want to ask you, and you already mentioned this around a network, I think some of the apprehension that I know people have in the field is that they don't know where to send a person that might have some of these really more complex cases. Can you give us a little guidance on who should be part of your tinnitus referral network?

Cory Portnuff:
I think you should have a comprehensive referral network where you know anything you ask a patient about, you have somebody to send them to if they say, "Yes, I have significant depression." We screen all of our patients for depression. If somebody has substantial depression, I need to have a place to send them. I think it's important to have a good counselor and potentially a psychiatrist or a psychiatric provider in your

network that you can send referrals to. I think it's important that you're sending a lot of referrals back to a patient's primary care physician and allowing them to keep their medical home.

Also, some patients don't have primary care physicians, so good to have a relationship or two with a primary care physician that you can say, "Hey, oh, you need a PCP? Well, I know this person's taking new patients. Why don't you go down the hall and see them?" I think it's important to know physical therapists, dentists, and especially TMJ specialist dentists who are often the same as sleep specialist dentists. I think sleep medicine and sleep physicians are a good person to have in your back pocket. And of course, ear, nose, and throat physicians or otologists who are interested in tinnitus are always, always needed.

Certainly in our practice, we have that baked in, but that's not true everywhere. Make sure you've got someone good you can refer to that's then going to send them back to you for whatever treatment you need. Other specialists I sometimes refer to include neurology, acupuncture are both useful tools. Once in a while, nutrition or dietetics can be useful. And then just being ready with all those names and information to be able to jump in and give that to a patient. I've got it here. I'm going to copy and paste this into your treatment plan. Here we go. The other thing is if you have specialists that you're looking for in your community and they don't know anything about tinnitus, you can train them.

I've trained therapists in how tinnitus patients experience their world and they can take it from there to manage it. You can train primary care physicians. It's a great marketing tool. It's something useful to train PCPs to say, "Oh, yes, there is something you can do about this. Go see the audiologist." You can train psychiatrists. You can train neurologists. You can train physical therapists in what you're looking for when you send a patient somewhere. If you send a patient to physical therapy to manage their

tinnitus, probably nothing's going to happen. If you send them there because they have neck tension that is exacerbating their tinnitus, the physical therapist knows exactly what they're going to do.

Building a network I think is really important. It takes some work to find a good network of people. In a major medical system, you may have some of that built in already and it's nice. In private practice, you may need to do a little pavement pounding or emailing. I've found that most outside providers are very willing to have you refer them to them. If you say, "Hey, when you have questions, you call me directly. I'm happy to help explain this. I'm happy to help work with you on anything you need," and you can have a really nice referring relationship, especially with some of those specialists like dentists.

A lot of our TMJ specialists put tinnitus on their website as something they treat. And then when the patient with tinnitus shows up, they're like, "Well, I'll treat your jaw." That's the extent of it. If you're already there and they already know you, they're going to send you the patient.

Brian Taylor:
I think you're hitting on the important point of having a collaborative network within your community and how important that is, and it's a win-win for all the different professions involved.

Cory Portnuff:
And it's a win for the patient

Brian Taylor:
Right, exactly. I think our time is about up. Cory, I want to really thank you immensely for your time and your expertise. I love this pragmatic approach to tinnitus

management that you and the staff at the University of Colorado Hospital put together. It's one of those things that I think others in the profession should pay attention to and learn from what you're already doing. Thanks for your time.

Cory Portnuff:
Absolutely. I appreciate being able to share this with your listeners. Tinnitus is such an important topic that we sometimes don't cover as much as we should in our training programs and then subsequently with our patients. I invite anyone who's interested in managing tinnitus to join the fun. I'm happy to chat with you, and I'm happy to help give you more resources as we go if well.

Brian Taylor:
Great. Could you share your contact information, maybe your email address?

Cory Portnuff:
Absolutely. My email is cory.portnuff, C-O-R-Y.P-O-R-T-N-U-F-F, @uchealth.org.

Brian Taylor:
Well, Dr. Cory Portnuff, clinical audiologist and assistant clinical professor at the University of Colorado School of Medicine, thank you so much for your time. I really appreciate it.

Cory Portnuff:
Thank you, Brian.