Introduction to Dr. Hinshaw and Ablation

This is the Doctors Making a Difference podcast, living with metastatic cancer, highlighting patients, doctors, and researchers who are fighting to win against cancer.

I'm pleased to welcome Dr. Lewis Hinshaw here today with us. Dr Hinchaw is a radiologist at the University of Wisconsin. And as it pertains to me, I mean, Dr, Henshaws is pioneer in ablation therapies on solitary fibrous tumor and a lot of other tumors.

He's been doing it for a long time and I really appreciate the So I think you're going to find this conversation very interesting. I'm of course, very interested in it because it pertains to solitary fibrous tumor.

But as, as one of the technologies that can be used to manage all sorts of cancers, uh, it's really an important work that he's doing. So anyway, Dr. Hinshaw, would you mind introducing yourself to our audience?

Sure. Um, my name is Lewis Hinshaw and I am a radiologist as mentioned at the university of Wisconsin in Madison. I'm trained in abdominal imaging and intervention.

And at our institution, um, we do a lot of interventional procedures in the abdominal imagining section. So, Um. One of my biggest research and, uh, kind of clinical focuses is utilizing ablation in a setting of an intervention oncology.

And we built a program here over many, many years, me and my colleagues. Fred Lee was the original pioneer and I joined him in the early 2000s and we've been doing work in this kind of area for 20 plus years, trying to advance the technology as well as the clinical practice of ablation, as while as other minimally invasive procedures.

Trying to just improve how we take care of patients, what we can do for patients. Obviously there's some advantages to the minimly invasive procedure from a recovery standpoint that can be very important for oncology patients for their quality of life.

and things like that. So we've been doing that work for many years. And probably what I say to people is I spent way too much of my adult life thinking about the physics and clinical application of ablation procedures.

But for better or for worse, that's what i've done for 20 plus years and really excited about being able to apply it and kind of advance its utilization.

I think it has so much potential and it's just continuing to advance. New techniques, new modalities that are coming out and and new ways of managing these patients.

How He Entered Radiology and Interventional Work

So there's always technical advances as well, which is an exciting thing to be a part of. Oh, yeah. Well, that rewind just a little bit. How did you get into this?

I mean, think about it's really interesting. You're doing things that. are cutting edge and make a tremendous difference to oncology patients and you're working with peers, you know, it's really an exciting area of research, but I'm interested how the young Lewis Hinshaw got into, how did you decide to become a radiologist and get into this field?

It's a really interesting path. Yeah. So when I was in college, I wasn't athlete. And, um, and so, Um, uh, already knew I wanted to be a physician. Uh, that had been kind of ingrained in me since I, was, a younger, so I knew wanting to a position and I convinced I would give me an orthopedic surgeon because that's kind, of what athletes

do when they go to medical school.

Um. Unfortunately, when, rotated on the orthopaedic surgery, it wasn, what I had hoped. and, then I quickly realized, It wasn t for me. And I was kind of left a little bit rudderless.

I wasn't sure what I would do. I had always been kind of fascinated by technology and technical things. And so I decided to try radiology and I actually initially rotated on diagnostic radiologist.

I really enjoyed that, but it's a little bit of a difficult specialty to sell as a medical student because you're just sitting behind somebody watching them do stuff.

It's not very exciting or interesting to do that sometimes. But then I went through interventional radiology and that was where kind of the passion, the fire was lit because I really enjoyed not only the people involved but also the procedures and the fact that we could do these incredible procedures with minimal impact on patients.

And so it really just affected me and it was something that just kind like immediately I knew this is what I wanted to do. So I want into radiologist And I grew in my love of diagnostic radiology over time.

I knew I didn't want to give that up. And so I decided not to become an interventional radiologist, a pure intervention radiologists, but to be common abdominal imager, which allowed me to do both, diagnostic work as well as procedural work.

As far as how I got involved with ablation, I really, you know, something that impacted patients, not only on the diagnostic side with biopsies and things like that, but also on a therapeutic side.

I really wanted to be part of treating patients. In abdominal imaging and intervention anyhow, those options are a little bit limited, one of them happens to ablation.

And Fred Lee took me under his wing and mentored me as I developed my career. And we spent a lot of time and effort building a really successful ablation program here at University of Wisconsin.

It's been an incredibly rewarding thing and I'm super glad that that's the path that I took, but I certainly didn't foresee that when I was coming through college or even medical school.

It was just kind of the occurrence of how things unfolded in my life and fortuitously so. Well, that's neat. A lot of people have kind a circuitous path where you try to find where your fit and then you look at opportunities and I'm sure you would have been a great orthopedic surgeon or any of those things, when you find the right match of of And then like you say, a little fire gets lit and, and here you are, like, you said, 20 plus years later doing it.

Well, think back when you first started doing, uh, abdominal radiology, some of the interventions you did, especially on the therapeutic side, compare that time until now.

Evolution of Ablation Technology Over 20 Years

What, what, things have developed over that 20 year period, as far as the interventional, well, the, therapeutic approach to abdominal cancers or other abdominal things that can be ablated.

Sure. Yeah, that could be a really long answer if you want it to be. When I first came into the field, it was really in its infancy to some degree. I mean, the very initial work was started in the late 80s and early 90s.

And so it really just becoming organized and starting to develop the technologies and think about how we could, you know, kind of apply these techniques to patients.

And so, in the mid 90s, early to mid-90s was the first time there was a kind-of a meeting of people who were interested in ablation at RSNA. There were probably like 15 or 20 people there.

I wasn't there, but Fred Lee was. and I was still in training at that point. But that was kind the beginning of developing this as a true clinical tool.

And so when I got involved, there was still very limited tools available. There was cryoablation, which had been around for a while and is the utilization of cold and destroyed tumors.

And it's still around. Interestingly, the technology that we use today is not that different than it was when we initially got involve 20 years ago. That really hasn't been much kind of advancement in the setting of cryoblation.

But on the heat based ablation side of things, it was really just RF ablation, radio frequency abation. And that's an electrical based technique that really ultimately comes from the bovie.

So, you know, John McGahan was one of the original person in the States that realized you could, soup up a bovey, kind of increase the amount of energy applied.

and create in a zone of tissue coagulative necrosis around the applicator. And so that technology then got kind of advanced And when I first got started, we had these single needle systems that could create ablation zones, but they're relatively small and they were heavily influenced by things like tissue cooling from perfusion or respiration or things.

And there were a lot of other limitations that I could get into, but we realized pretty quickly that there's only so much you can do with this system.

And then Fred and others at University of Wisconsin actually were involved with one of those advancements that really at least made RF ablation, I think a viable clinical tool, which is the utilization of multiple electrodes for a single treatment.

And it was something called a switching controller, which allowed us to create significantly larger ablation zones that advanced our work quite a bit.

And so that was kind of when I was getting involved. My early work was the single applicators and the cluster electrode, they call it, um, Which was very invasive relatively.

and then, and Then we got these, the ability to use multiple electrodes and that really kind Of changed things, but it still had significant limitations.

And so we were looking around for ways to make things better. And one of the, you know, I mean, what I say is if you asked a physician, a physicist, What is the best way to induce heating in human tissues?

Radio frequency ablation would never even come into the conversation. It was just merely a choice of convenience because of The Bovee and because the way that developed.

Yeah, you're building on existing technology, so you didn't have to reinvent the wheel. But like you said, microwave technology I'm sure is more efficient.

Exactly. And so microwave was really kind of like the turning point, in my opinion, of what we can actually do with ablation. And so I was a big part of that kind of transition and that, you know, I, was involved with Fred and others in developing a company that was the first company they got FDA clearance for utilization here in the U S I'm sorry, actually it was second, but I think it has become the dominant system because I it is a, we really thought about it from both a clinician standpoint, what our challenges were as well as a engineering standpoint.

and a business standpoint. And we had all three of those involved in that development. I think we created a great system that allows us to treat tumors that were larger than what we could effectively treat before and safer.

There's been other developments over the years, including hydrodissection and tools to protect adjacent structures

that have really made a difference of what can do.

It's night and day what we can accomplish from when I first started when we were doing eight hour procedures to try to kill one four centimeter tumor to now we And with higher safety, because we've learned a lot of lessons over the years of what to do and what not to and how to predict those adjacent structures that we don't want to damage and things like that.

And so it's really just a whole seascape change of of, what it looks like. Then there's the new kid on the block, which is histotripsy. That's a new development over Uh, you know, well, that's actually not all that new.

If you look back at the history of histo sonics and histotripsy, but, um, it's been around for awhile, But initially they were trying to work in the prostate and they had a lot of technical challenges and things like that.

And then, uh, eventually realized they could do it in soft tissue. like liver and kidney and things like that. And now it's FDA cleared. It's a clinical system and use has been for about the last year and a half.

That's completely non-invasive in that there's no needles, there are no skin punctures or anything. There's still technical challenges to overcome with histotripsy, certainly, but the promise is incredible.

I'm really looking forward to seeing where that goes over the next decades as well. Well, on histiotripsy specifically, you know, that one's been in the literature.

People have talked about that more. The ones I've read mostly are liver-based tumors that can be identified. Is that something that you think you envision being able to use in other tissues of the body as well?

Yeah. So the original trial was Hope for Liver trial, and that was obviously based in a liver, And that's where they got their FDA clearance. Um, all, you know, FDA approved work right now is in the liver, but there is a current currently ongoing, a hope for kidney trial where they're doing hystotripsy in kidney.

And realistically, uh, You know as well, as long as you can access a body area with ultrasound. There's no reason you couldn't use histotripsy in that space.

Again, there's a lot of technical considerations, transducer design and things like that, that will have to be taken into account. But I can think, especially superficial areas like breast and thyroid and other organs that are relatively easy accessible with ultrasound.

with their appropriate design, there's no reason you couldn't utilize them in those spaces as well. And so I think in 20 years from now, we'll be probably talking about it being used in multiple organs, multiple tissues.

It's just the initial work has been all in liver. Yeah, well, it makes sense. Liver is dense. I wondered about lung lesions, you know, the lungs are so aerated.

And I wonder how sound waves, I guess it would depend on where in the lung and how deep in their lungs it was, but that'll, that will depend. Do you think there's any hope for lung tissue being treated with that?

I never say never. I've learned that in my career. But I'm dubious. Like I say, it's really based upon where you can access with ultrasound and get enough ultrasound energy to cause the cavitation event necessary for the tissue destruction.

And so it is a combination of things. Just because you visualize it doesn't necessarily mean you treat it. and vice versa. So there are definitely going to be limitations.

Obviously, bone is another one where ultrasound energy is difficult to kind of get into those spaces. And so I think those lung and bone are the primary kind or aerated structures in bone, are going be kind the limitations that hystotripsy has a hard time with.

But there are techniques that you can do. You can collapse the lung, you create pleural effusions to improve your sonographic window. There are ways you could, in theory, increase your access there.

The question will become whether or not it's worth doing those kind of interventions to allow you to do it or no.

Histotripsy and Its Future Applications

My guess is other techniques and other procedures will be Kind of more advantageous in those spaces, but we'll see what it looks like in 20, 30 years.

Like I say, in the 20 years I've been involved, I seen it evolve in so many ways that I don't want to try to predict what the next 20 look like. I'm not Nostradamus or even close, so not going to.

Yeah, no doubt. none of us should try to out-guess the future. There are a lot of up-and-coming technologies as it pertains specifically to solitary fibrous tumor.

Like I said at the beginning, you've been involved in some of the work on those tumors. Solitary fibrous tumor, as I understand it, the advantage is it's not a terribly fast-growing tumor for most people.

And so if you can ablate it whenever you get something that's large enough to abate through some technology, there's a big advantage, or surgically resect it if can remove them.

depends how many metastases a person has. But what are your thoughts on solitary fibrous tumor? Like do most people ablate with radio frequency or microwave or histiotripsy?

What's been your experience on that? Sure. Yeah, so I mean, solitary fibers tumor is in some ways a chronic disease, right? I It's one of those cancers or oncologic processes that tends to be relatively indolent, tends span many years.

And so if you can control metastases as they occur, you create significant survival advantages for patients. And so there's other kind of similar examples.

Neuroendocrine tumors of all kinds are often more indolent, but can cause symptoms and can certainly be problematic. And any oncologic process that is likely to expand across multiple years can potentially be served with minimally-implaced invasive procedures that can maintain quality of life, but yet control the disease.

And so, you know, both neuroendocrine tumors and solitary fibrous tumors, and other similar processes, I think are excellent targets for ablation and similar technologies.

Because you're able to, like I say, if you have multiple liver tumors you can treat them all, as long as they're in safe locations and within the limitations of the technology to treat as far as size goes.

There's almost no chance in a normal liver that you're actually going to put the patient into liver failure or something like that. And so you can do these multiple repeat treatments to control that metastatic disease as it occurs and allow the patients to quickly recover, go back to their normal life.

and have a good quality of life, maintain their quality life while controlling the disease. The repeatability is hugely advantageous in that setting. You've had one of the patients I've treated on this podcast before and I treated over a hundred tumors in her and she's tolerated that all very well and that's after a significant liver resection as part of her initial treatment.

So you can control these tumors for years and years, and once again allow patients to have a really nice quality of life and easy recoveries, which is a huge difference maker for someone who has to repeat have repeated treatments over time and really can be very helpful.

So I think it's It's advantageous in a lot of different settings, but I think these kind of indolent diseases are one where, because you can usually identify the tumor small when we're able to easily treat them, and you do repeat treatments over time, ablation is definitely in the toolbox that people should be utilizing.

Well, and I think from my understanding, when we say cure cancer, a lot of the marketing to the public is we're going to do this to cure. Cancer cancer is really hundreds of different diseases and they all have kind of some shared features, but they're all different.

And I. Think until we really have a molecular based treatment that really stops the all future progression of cancer. It seems to me like most of the people with tumors, it's not necessarily that you cured it, but you made it you put it in remission or you stopped its progress enough so that the person could live a normal length life or a life that really was not heavily impacted by the tumor and they die, they may die with the cancer, but not because of the answer after a normal lifespan is the hope.

So this, you know, as a person who has this that gives me great hope to realize that there are some technologies that, like you said, could be repeated over time and you can slowly.

chip away as you find new lesions and, you know, get rid of them. And that's like some of the more aggressive tumors that are out there. You know people get very rapid metastatic disease and then it's hard to ablate it.

But these technologies are so impactful. So, awesome. Thank you for sharing that. Yeah, of course. And you know, since you mentioned it, you I mean, I see these headlines that say, oh, they found the silver bullet, the magic bullet that's going to cure cancer.

I always kind of just chuckle inside because that is just not going happen. There is no single magic bullets that are going cure your cancer because like you say their cancer is so complex and every cancer different in every person.

Actually, if you look at colon cancer as a As a group, there's no such thing as a colon cancer. They're all different. The all have different genetic mutations that result in different treatments being effective.

You know, and so oncology is actually becoming less complicated. I mean, sorry, more complicated, not less complicated as we learn more because the reality is, is that I think we're probably moving more towards personalized treatment for cancer rather than a single treatment or cancer.

And so, you know, I, think it's just so complex and so difficult and there's so much work to do that It's probably not going to happen before my career ends that we figure it out enough to treat almost everybody, but I'm hopeful.

Well, like you just shared a minute ago, over a 20-year career, you've seen tremendous changes in technology, the types of lesions that can be treated, and like 20 years from now, you hate to guess what can and can't be possible because there's a lot of things that can be done.

And it is exciting to see things being done on the molecular level understanding once you understand exactly what mutation is there, treatments, modalities that could be designed around targeting those lesions, and then the ablative technologies that you've described are awesome, way less invasive than, uh, than general surgery.

And it's, and like you mentioned, the histiotripsy is quite a unique one. Certainly made the headlines because it really not invasive or, you know, person has to go through a procedure, but they can be, as I understand it, back to their normal activities pretty quick after that.

Ablation for Solitary Fibrous Tumor and Other Indolent Cancers

Is that, is that generally what you expect after a histio tripsy? Yeah, exactly. So it's completely non-invasive from the standpoint. There's no needles, of course.

And then the safety profile has been incredible. We essentially have had almost no patients that have had

significant complications. The one complication that we've seen in liver is portal vein thrombus formation after the procedure, but that is always resolved with a short course of anticoagulation.

So realistically, we have almost had no significant complications, and we're doing a lot of work in the lab looking at the potential adverse effects on things like the ureter if you're working in the kidney or bowel if your working close to bowel and things that.

I think it's going to prove to be incredibly safe. From that standpoint, the recovery is going be very quick. Realistically, I think the work that remains to be done is making sure it's as efficacious as it possibly can be.

I there's still some challenges there with targeting and effectively applying the treatment, but I that's all very solvable and will be solved here in the near future.

They're working on For example, for targeting, rather than utilizing ultrasound for targetting, which can be a little challenging, utilizing cone beam CT, is going to make things a lot easier.

I think that's in work, in progress right now. There's a of improvements and iterations to be made there, but yeah, the patient experience, Recovery is very smooth and again, the safety profile is excellent.

Well, you mentioned the CT based treatment. When we irradiate lesions, do you work with that very much? I mean, we talked a lot about the heat and the microwave and that histiotripsy.

Do you get into the, I know our radiation oncologists do a a proton beam and other things to try to ablate things. Is that part of the work you've done?

It's not part my practice, but I certainly work closely with our radiation oncology team here in Wisconsin. Um, because there are things that, you know, I think in some ways, oftentimes it's, it''s complimentary because a lot of times what they have challenges with are relatively easy for us and vice versa.

And so, uh, when I, think of histotripsy in, some, ways I. Think about it as radiation that doesn't have the collateral damage on the way to the tumor.

What's that? non-ionizing radiation in some ways because you're just delivering a high energy beam. Yeah. So they've gotten so much better at kind of limiting collateral damage over the years with, you know, SBRT and, like you mentioned, electron beam, anyhow.

Um, so they've, they'd gotten much better at limiting collateral damage as they go in, but there still is collateral damaged with radiation. It doesn't matter.

Oh, proton beam. That's what I was trying to think of. Anyhow. Um. But there's still this collateral. Damage on the way in. You know, the tissues that the radiation traverses on, on way there are damaged in some way.

um, you know it just, uh, it's just they're gotten better. Limiting that damage over time. And so, You Know, techniques like hystotripsy where you really not depositing any adverse energy in those tissues and you're just targeting that energy on the tumor, that's kind of like the ultimate ablation modality.

Again, there are some technical limitations to what we can accomplish with that at this point and targeting can be challenging. Applying the energy is not always possible.

There's depth limitations. there's things that we're working on to try to improve it because again, I think ultimately it could be the best possible kind of combination of factors.

But radiation at this point is also a very effective treatment for a lot of patients in a lotta different locations. Locations that we can't possibly ablate, for example, in the central nervous system.

Radiation can be very affective, but there's no way I'm gonna do ablation in that space. And so there is a lots of things that they can still accomplish and very effectively.

Yeah, I think one of the things I've always said is that the best physicians are willing to admit when they shouldn't be the one treating the patient for whatever reason.

If their tools aren't the appropriate tools or their knowledge isn't appropriate knowledge for that patient, then you should be willing engage your colleagues and refer patients to others because, for example, in my world I do a lot of ablation but I don't do any intra-arterial treatments.

And there's definitely tumors in patients that I see that would be better treated with intra arterial therapies, hepatocellular carcinoma. There's a lot of overlap of what we can accomplish with ablation versus inter arterio therapies.

Then there are patients who are better served with each and you have to be willing to kind of put the patient in the hands of the right people to do the procedure.

and not just see every, just because you're a hammer, everything's a nail. So I think that's really critical to taking good care of patients and multidisciplinary care and utilizing the appropriate tool in the right patient is, I mean, that is the future and it really has to be in order for us to give the patients the best possible care.

No, that's, good insight on that histiotripsy.

Radiation, Multidisciplinary Care, and Patient Selection

So say, you know, we're most of the people that listen to this podcast are physicians and someone that not an oncologist may be listening saying, Hey, I haven't really heard about histiotrips before or I've read about it, but I didn't know anything about.

It. so now I have got a patient that needs to do it. One of. The questions is how this got FDA approval. Uh, like you say within the last 18 months, how broadly available is histio tripsy in the United States or elsewhere in.

Um, so I'm not kind of aware of like the most recent numbers, but, um, I would say there's probably somewhere between 30 and 40 centers in the U S that are, that have histotripsy systems, and growing rapidly.

Um. And, uh, of those centers, most of them are kind academic, kind well-known centers. I do know that you can call Histisonics, the company, and they can tell you what their installation base is and where it's available currently.

It's actually kind of interesting because it is a technology that has been put into multiple different specialty hands. Certainly radiologists have taken a lead, but also surgeons are doing this procedure.

at some institutions and radiation oncologists, not surprisingly. are getting involved at some institutions. So it's one of those procedures that people are excited about and wanna be a part of.

And so people have started to utilize it. I would say the hardest part the whole procedure is the ultrasound component of it, and so wherever you end up going, hopefully the people who are at least expert in ultrasound, because that's the skill set that I think is most important to success at this point.

That's exciting. Well, what comes next for Dr. Lewis Hinshaw? You've got a lot of stuff going on. Sounds like you've done amazing stuff over the last 20 years, working with a team and a group of colleagues that are forward thinking.

Yeah. What comes for you? Yeah, that's a great question that I struggle with every day. I'm kind of in that mid-career, you know, kind I think a continued development of new tools, like I say, we've got a very active tumor ablation lab here at Wisconsin that does both bench-level work as well as animal work and patient level work, trying to advance and improve what we're doing.

I think there's so much work to be done with histotripsy. There's still so many work yet to do with microwave ablation and potential other systems that might be better.

Because there will always be a need for multiple tools, because not every tool is going to fit every patient. So I believe all that work is fascinating to me.

fully engaged in trying to advance our field and trying improve that. I think that there's a lot of other things going on that I don't have the time to get engaged in, but I'm fascinated by on the kind of molecular imaging and molecular therapy side of things.

I look forward to following that and how that unfolds. And I think that I still am very actively engaged and day-to-day patient care. That's what really drives me is kind getting involved with the care of these patients and taking care them, making sure that they get the best care possible and trying to trying to help them out in what is a very difficult time in their lives and potentially life-threatening, right?

And so I still get a lot of joy and purpose out of going in. treating patients and providing them a treatment that they may not be able to access at other locations or at a level, a similar level of expertise.

So I see continuing my clinical work, continuing to try to push our field and make it better and just continue my career. Well, you know, it's one of the reasons I think being a physician is still the coolest job in the world.

You know you get to study this really interesting stuff and have a base of knowledge that's, I mean like I love to just totally nerd out on it. I Think it is fascinating.

It's really Interesting. But then you can take that knowledge and you apply it and it makes somebody's I make a huge difference in their life. Its not just theoretical at that point.

And I've been a doctor for enough years that I have seen thousands of patients but over the last couple of years, I've had to walk that walk of being a doctor and a patient, you know, simultaneous, very often I'm doing a treatment in the morning.

And then I am seeing patients all day and then, back and forth and back, and I'll tell you like, It's always, I've always known how important it was to be a good doctor, but everything hinges on those moments.

Like the interaction with my oncology team and the people who are doing this research. It suddenly becomes everything, you know, everything about my family and everything.

My future kind of, and my families future kinda depends on how that stuff goes and just pray that things will go well and that you'll be. treated by someone that actually cares.

I can tell you've got a lot of passion for what you're doing. And certainly you have made an influence on not just the people that darken your doorway, but you can pass this technology that can have a profound impact worldwide eventually.

Hopefully that histiotripsy will take off and be a benefit to thousands of people throughout the world with various types of tumors. Yeah, I'm sure it's given you a whole different perspective.

I haven't been on that side of the things yet, but I will be one day and we all will. But I certainly have relatives and close family members that have.

Availability of Histotripsy and Dr. Hinshaw's Current Work

Just like everything else, when you put yourself in other's shoes, that's when realize the impact that you have and start to think really hard about what you want that impact to look like.

And so I do think that being a doctor is incredibly rewarding. We get to impact people in a very positive way in very difficult times in their lives. You know, it doesn't always go as planned, but as long as you enter it with best of intentions, you can, kind of feel that purpose of having impacted patients in a positive way.

And yeah, there's nothing else I would want to be doing. There are challenges in our worlds, of course, both on the financial side and kind of the political side, but at the same time, it's still the most rewarding thing I can imagine doing.

Yeah, well, and the challenges are real and a lot of our peers and colleagues have really kind of had a little trouble with it. And I think every doctor has times where you experience frustration, burnout, anger, you know, all those kinds of things because you want the system to be so good for the patients.

are disappointing, but when it all boils down to what you're actually doing, what do you actually do most of the time? Well, I'm either working on something that's going to help people or I am helping somebody.

That's the most rewarding work in the world is to helps somebody, so anyway, thank you for what your doing. I love it. It's fascinating and like I say, for me personally, it brings hope to me to see like, look, there's all these technologies and I've spoken to some other researchers that are working on this cancer and others, and it's very interesting to kind of see what's out there.

It's nice to know there's a team of people that is driven, educated and are developing cures, not just for solitary fibrous tumor, but for all the other types of cancer that's are out.

I hope there is a day that comes forward where we have a reasonable solution for most cancers. Maybe it doesn't mean you But you put it into a state where it's no longer something that's going to shorten your life that we're not there yet, but we keep hoping.

Yep. We're getting there. It's, uh, you know, I, remember, even, when I first started my career, colon cancer, if you had metastatic colon, cancer the five year survival was almost zero.

Um, and, um, it just steadily improved and it has become more, more and more feasible to treat people over the course of, you know, even decades with metastatic disease that before would have been essentially fatal within a couple of years.

So I think, in 20 years, the change has been phenomenal and I can only imagine what it looks like again in twenty years from now. A lot of really smart driven people are working on a lot different ways of addressing this.

And, you know, there's so many new things in the market now, car teeth therapy is just a good example of personalized care for cancer. There's a whole lot more of that coming, I'm sure.

So I think the future is very promising for the field of oncology and advancing rapidly. Yeah. Well, where can people follow your work? I mean, this is exciting stuff and it's sometimes I'm sure it is tedious piece by piece to put it all together, but you know, you publish it and you put out and share it.

If people are reading this and are saying, boy, I have got to read more about Dr. Hinshaw's work. Where do they go? Where would you direct them? Yeah, pubmed is a great resource.

Most of all my publications are listed there, of course. If you want to look me up personally, radiology.wist.edu is our website, and we have information about all of our practitioners here and their publications and such.

I'm not one to be on social media, so I don't have any kind of social-media accounts other than the basic LinkedIn and stuff, which I unfortunately only check in like once a year.

So I'm not the best on that, but it's definitely, the information is out there and any Google scholar or PubMed search of my name and ablation will come, will bring you to a lot of the work that we've done.

Excellent. Well, thank you for taking the time to share this. Thank you. For what you do. I mean, it, what do you impacts lots of people and gives people like me a lot of hope.

And I really appreciate what. You're doing. Thanks for tuning in to the Doctors Making a Difference podcast. And thank you for what you do to help your patients and your community.

Your work truly helps so many people. We produce this content to have the tools you need to stay in medicine and to highlight the amazing work being done by physicians around the world.

Please note that while I am a physician and many of the guests on this program are also physicians or other professionals, the discussions on the podcast do not represent my employer or any professional organizations to which I belong.

This podcast is for your information and entertainment only, and should not be taken as professional advice. You should seek appropriate professional advise pertaining to your own situation.

Please check out more of our content on our website, doctorsmakingadifference.com. Also, please follow, like, or subscribe on your podcast player or YouTube channel, and give us a five-star rating.

It really helps to spread the message. Finally, if you'd like to be a guest on the podcast, Or if we'd to nominate someone else to the guest, Please visit the website or email admin at doctors making a difference dot com.

See you next time.