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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

IMPERATIVE CARE, INC.,
Petitioner,

v.

INARI MEDICAL, INC.,
Patent Owner.

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Case IPR2025-01021

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VIDEOTAPED DEPOSITION OF AQUILLA S. TURK, III, D.O.

Wednesday, February 25, 2026
8:10 a.m. - 10:50 a.m.

81801 Overseas Highway
Islamorada, Florida

Stenographically Reported By
Pamela J. Pelino, RPR, FPR, CLR
Notary Public, State of Florida
PLANET DEPOS

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AQUILLA S. TURK, III, D.O. DIRECT CROSS REDIRECT
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NO EXHIBITS MARKED

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PROCEEDINGS

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Deposition taken before Pamela J. Pelino, Registered Professional Court Reporter and Notary Public in and for the State of Florida at Large, in the above cause.

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THE VIDEOGRAPHER: Here begins Media Number 1 in the videotaped deposition of Dr. Aquilla Turk, III in the matter of Imperative Care, Inc., versus Inari Medical, Inc., in the court of the U.S. Patent and Trademark Office, case number IPR2005-01021.

Today's date is February 25th, 2026. The time on the video monitor is 8:10 a.m.

The videographer today is Frantz Clervil, representing Planet Depos. This videotaped deposition is being held at 80801 Overseas Highway, Islamorada, Florida 33036.

Would counsel please voice identify themselves and state whom they represent.

MR. MILLER: James Miller on behalf of

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Inari Medical.
MR. STOWELL: Joshua Stowell of Knobbe Martens on behalf of the petitioner, Imperative Care, and the witness.
THE VIDEOGRAPHER: The court reporter today is Pamela Pelino representing Planet Depo. The witness will now be sworn in.
Thereupon,
ANQUILLA SCOTT TURK, III,
having been first duly sworn or affirmed, responded and was examined and testified as follows:
THE WITNESS: I do.
COURT REPORTER: Thank you.
DIRECT EXAMINATION
BY MR. MILLER:
Q. Good morning, Doctor.
**A. Good morning.**
Q. Would you please state your full name for the record.
**A. Aquilla Scott Turk, III.**
Q. I'm also a third.
What is your current address?

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**A. 1617 Marsh Harbor Lane, Mount Pleasant, South Carolina 29464.**
Q. You've been deposed; right?
**A. Yes.**
Q. So you probably know some of the ground rules, but I'm going to go over a few things so the record is clear today and we're on the same page.
Does that sound good?
**A. Yes.**
Q. You understand that you're under oath?
**A. Yes.**
Q. Do you understand that at the conclusion of this deposition you're going to be given a transcript and so you'll have an opportunity to correct any errors in the testimony you provided today?
**A. Yes.**
Q. If you have any substantive changes that you make, they may be commented upon and may affect your credibility.
Do you understand that?
**A. Yes.**

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Q. If at anytime there is something you don't understand or you don't hear me, I ask that you request clarification at the time.
Does that sound good?
**A. Okay.**
MR. MILLER: Can we go off the record?
THE VIDEOGRAPHER: Going off the record. The time now is 8:12 a.m.
(Discussion held off the record.)
THE VIDEOGRAPHER: Going back on the record. The time now is 8:14 a.m.
BY MR. MILLER:
Q. And that was a good example of there may be interruptions during our deposition. I would ask that -- I will try to reask my question, but I would ask that we finish the line of questioning before we take a break.
Does that sound fair?
**A. Yes.**
Q. To make things easier for the court reporter today, let's avoid speaking at the same time. I'll try to wait for you to finish an answer

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before I ask my next question. I ask that you do the same when I am asking a question.
Does that sound fair?
**A. Yes.**
Q. I also ask that you give an audible response to my questions so that the court reporter may write down your response.
Does that sound good?
**A. Yes.**
Q. Is there any reason you can't give your full and complete and truthful testimony today?
**A. No.**
Q. And I know that you have your foot, but are you on any medications or any -- do you have any other health conditions that might prevent you from giving full and complete testimony today?
**A. No.**
Q. And again, if at any time you need a break, as I mentioned before, we'll try to finish whatever question is pending before we take a break. But I understand if you really need to take a break for your foot, we can just cut it off.

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**A. Sure.**
Q. Not your foot, the question.
**A. Foot would be better, might be a better choice.**
Q. Did you bring any documents with you today?
**A. No.**
Q. Did you do preparation for your deposition today?
**A. Yes.**
Q. What did you do to prepare for today's deposition?
**A. They -- Josh sent me a binder that had my last -- my last deposition. I spent about 30 minutes review -- brisking through that. And then we met yesterday for about an hour, hour and a half.**
Q. And you said your last deposition.
Was that the deposition you provided in connection with the district court litigation?
**A. I think so. I've only done one, so...**
Q. Okay. Do you recall what other documents were in the binder besides the deposition

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transcript?
**A. There -- whatever articles or whatever you call them, exhibits, whatever that -- were associated with it. They seem to mostly be old articles on aspiration, that I -- most of the ones that I published, and a summary of, I guess, my deposition.**
Q. So besides reviewing the deposition materials in the district court litigation and meeting with Josh for about an hour, did you do anything else to prepare?
**A. No.**
Q. How long would you say you spent preparing for today's deposition in total?
**A. So as I said a minute ago, I spent probably 20 minutes or so just briefing through those documents just to see what they were. I didn't review them in detail. And then yesterday we met for a little over an hour.**
Q. And only Josh was at that meeting?
**A. Well, my wife was running around the house as well, but...**

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THE VIDEOGRAPHER: Counsel, we need to go off the record.
The time now is 8:18 a.m. We are now going off the record.
(Discussion held off the record.)
THE VIDEOGRAPHER: We are back on the video record. The time now is 8:19 a.m.
BY MR. MILLER:
Q. Sorry about that.
Other than meeting with your attorney and reviewing documents, did you do any other preparation for today's deposition?
**A. No.**
Q. Do you bill your time for this matter?
**A. No.**
Q. How many hours in total do you think you've spent working on or assisting with the IPRs in the Imperative Medical IPRs against Inari?
**A. No idea. But not many.**
Q. Would you say less than 40?
**A. Oh, yeah, by a lot.**
Q. You've provided declarations in several

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IPRs that Imperative has filed against Inari patents; correct?
**A. If you say so.**
**I don't know what IPR is, but I've given my opinions on matters about thrombectomy and things that I know. Things about patents I have no idea. I don't give judgments about that. So however those get translated into is what you have.**
Q. We'll probably be talking about IPRs a little bit here. They're inter partes reviews. That's what Imperative has filed against Inari. I'm going to be using some numbers throughout. For instance, I may refer to IPR2025-01021, and I will probably collectively call them "the IPRs," but it will refer to a certain -- a couple numbers. I will go ahead and say them for the record and maybe we can just come to an agreement that when I say "the IPRs," you know I'm referring to those three.
Does that sound fair?
**A. Sure.**
Q. Okay. So you've offered declarations in IPR2025-01021, IPR2025-01025, IPR2025-01264.

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Does that sound fair?
**A. If -- if the document says it is, then I did.**
Q. And I'll put -- I'll put one of those declarations in front of you shortly.
**A. Sure.**
Q. But I'm going to collectively refer to those three IPRs as just the IPRs going forward. Save the court reporter her fingers.
**A. Sure.**
Q. Other than counsel in this matter, have you discussed your testimony, declaration or any other aspects with anyone else?
**A. No.**
Q. So you have not discussed your involvement with the IPRs with anyone at Imperative?
**A. No.**
Q. You're employed at Imperative; correct?
**A. Yes.**
Q. What is your current role?
**A. Chief medical officer.**
Q. What do you do in that role?

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**A. A lot of things. You know, I was one of the founders of Imperative Care as well. But we've helped them set strategies as far as devices for the pipeline, for future iterations and use in, you know, years to come.**
**I review medical safety issues. So if there's any issues of a device malfunction or issue in a case or something, we're not clear if there is an issue with a device in a case and that's why there is an event, I'll review those.**
**Looking at risk stratification for devices that are in the -- in the works. You know, a lot of regulatory documents, setting strategy for regulatory approval for devices. It kind of runs the full gamut.**
Q. Were you involved in the decision-making to file the IPRs against Inari?
**A. No.**
Q. Do you hold any other roles at Imperative?
**A. No.**
Q. Do you hold any roles in any other

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companies?
**A. No.**
Q. How much are you compensated as the chief medical officer of Imperative?
**A. $250,000 a year.**
Q. Do you own equity in Imperative?
**A. Yes.**
Q. How much?
**A. A lot.**
Q. Do you receive equity on a yearly basis?
**A. No. My equity was purchased when we founded the company ten years ago and in it's very early stages.**
Q. Do you know roughly what percentage of the company you own?
**A. I don't know what it is currently, but at the -- at one point, I think it was around a percent and a half.**
Q. Okay. I'd like to keep talking about your background a little bit more, but kind of pivot from Imperative to more your kind of technical expertise.

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**A. Sure.**
Q. Can you briefly describe your education?
**A. How far back?**
Q. Kind of probably college onward.
**A. Okay. Started college in Atlanta at a junior college and worked full-time most of the -- first couple of years.**
**Then went to the University of Florida when I finally decided I needed to get my life together. Did undergrad there.**
**Went to Southeastern University in Miami for medical school.**
**Started my residency at the Cleveland Clinic in Cleveland, Ohio. Did my first year there, then transferred to University of Wisconsin. Finished my residency there. Stayed there and did my fellowship. I was faculty and did my fellowship there.**
**Did one year of private practice in Dallas, Texas. It wasn't a good fit, so went back to Madison. Was likely there for about four years, and then my wife said that seasonal effective**

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**disorder is real and we needed to move back to where it's warm. So we took a job in Charleston, South Carolina. I was at USC for 11 -- almost 11 years.**

**And then the last eight years or so, I've been at Prisma Health in Greenville, South Carolina, which is where I'm at currently.**

Q. What is your current specialty?

**A. Neurovascular surgery.**

Q. Has that always been what you've worked in or have you worked in other areas?

**A. Yes, I've always done -- in the very beginning of my career, I did -- I did -- my specialty has always been neuroradiology and neurovascular surgery or interventional radiology. There's different terms people use for it. But in the beginning, I did neurovascular surgery and neuroradiology, meaning reading the films.**

(Reporter clarification.)

THE WITNESS: So neuroradiology is reading MRIs and CTs of the head and spine. Neurovascular surgery is doing procedures on

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the blood vessels of the brain and spine. In my first four or five years I also did interventional radiology, which is the body, you know, meaning, you know, the visceral organs as well.

BY MR. MILLER:

Q. Uh-huh.

So focusing on the neurovascular surgery side of things, what does that generally entail? Like at a high level, what are you working -- trying to solve?

**A. Yes, I mean, the -- the easiest way to explain that in lay terms is we're basically plumbers --**

Q. Uh-huh.

**A. -- for the brain and the spine.**

**And people typically have strokes, meaning a bleeding stroke, which think about it as leaking. So an aneurysm that bursts or a vascular malformation that bursts. So we go in and stop the bleeding and repair whatever the cause was.**

**The other type of stroke is one we more**

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**hear about where an arm or leg doesn't work right, and that's called an ischemic stroke. And that's from a blockage. And we go in and open that blood vessel up and hopefully restore blood flow before any permanent damage is done.**

Q. And so the ischemic stroke, is that fair to describe as being caused by like a clot? And I'm not a doctor, so a clot or an embolism?

**A. Yes.**

Q. Do you use specialized devices to treat the or to clear out the clots or embolisms in neurovascular surgeries?

**A. Yes.**

Q. What kind of devices?

**A. We typically use aspiration catheters. So it's a catheter that's designed to go into the blood vessels in the brain and remove the clot.**

Q. How many years have you been practicing neurovascular surgeries would you say?

**A. Almost 25.**

Q. How much training and practice do you think someone needs to be able to successfully treat

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cerebral embolisms or to clear a clot from the brain?

MR. STOWELL: Objection. Vague.

THE WITNESS: I think they need specialized training in it.

BY MR. MILLER:

Q. Such as going to like medical school, fellowship?

**A. I mean, residency and fellowship, yeah. Fellowship on top of residency for sure.**

**I may have said that backwards.**

**Fellowship on top of residency.**

Q. Would training -- would that medical training involve the training with using the particular devices you're describing, the vacuum catheters, aspiration catheters?

**A. Yes.**

**And that's just one way. I mean, there are other tools as well that are available and widely used, such as stent retrievers.**

(Reporter clarifies.)

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BY MR. MILLER:
Q. Are neurovascular surgeries to remove blockage generally considered complex surgeries?
**A. Yes.**
Q. How risky are they?
MR. STOWELL: Okay. Vague.
THE WITNESS: I think, overall, the risk in skilled hands is low. And what I mean by low is the chance of a complication or a significant event is -- you know, it's probably in the 2 to 3 percent range.
BY MR. MILLER:
Q. But in unskilled hands, it could result in serious injury or death?
**A. Yes.**
Q. Do you consider yourself an expert in neurovascular surgery?
**A. Yes.**
Q. Do you consider yourself an expert in using aspiration catheters in neurovascular surgeries?
**A. Yes.**

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Q. Do you consider medical training or surgical training and experience to be needed -- to be necessary in being an expert in using aspiration catheters in neurovascular surgeries?
MR. STOWELL: Objection. Vague.
THE WITNESS: I mean, in today's world, yes. Because, you know, we had to learn -- I mean, you know, the thing is this whole field and this whole technique and strategy has evolved in my lifetime. So we had to figure it out and learn it.
But now that that's done, future generations have to -- they'll -- you know, there is no longer that need or that gap in the field that has to be figured out. So, yes, it's important that people learn from current operators and evolve, obviously.
BY MR. MILLER:
Q. There are other types of clots or embolisms that can occur in the body besides in the brain; right?
MR. STOWELL: Objection. Vague.

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THE WITNESS: Well, yes.
BY MR. MILLER:
Q. I think some of them are called, and I might butcher this, venous thromboembolisms; is that right?
**A. Yes.**
Q. And I think for short, those are VTEs.
**A. That just means it occurs on the venous side. That can occur in the brain, it can occur in the periphery, it can occur all over.**
Q. VTE would include clots like deep vein thrombosis or pulmonary embolisms; right?
**A. Yes.**
Q. Do you have experience in treating deep vein thrombosis or pulmonary embolisms?
**A. No.**
Q. Are you familiar with techniques to treat them?
**A. Yes.**
Q. What is your familiarity with that?
**A. I mean, obviously, I've read about it a fair bit. I've watched procedures. You know, my**

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**colleagues that are next door to me basically at work, they do the -- they do the peripheral thrombectomies, so to speak. And we specialize in the neurothrombectomies, whether they be venous or arterial.**
Q. Would you consider yourself an expert in treating deep vein thrombosis or pulmonary embolisms?
**A. No.**
Q. Do you know the field of invention of the patents at issue in the IPRs that Imperative has filed against Inari patents?
**A. No.**
Q. And just for some education going forward in our conversation, what is an emboli?
**A. It's a blood clot that travels downstream and blocks off a blood vessel.**
Q. How about a thrombi?
**A. A thrombus is a blockage lodged in a blood vessel.**
Q. So that one doesn't move downstream, it's just stuck?

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**A. Right.**
Q. And is there any difference between the two in where they are located within the body, or can they be located anywhere?
**A. They can be anywhere.**
Q. Which one causes an ischemic stroke?
**A. A cerebral.**
Q. A cerebral emboli or thrombi or both?
**A. When it goes to the brain, that's when it causes a stroke, when it blocks off a blood vessel in the brain.**
Q. So when you're trying to treat clots in the brain, how does the vacuum aspiration catheter actually remove it? Can you describe that a little bit?
**A. I'm trying to think about what you're asking me here. The way -- the way I think about it, the way I see it is there's a -- when you -- when someone has a stroke, typically it's a blood clot from the heart related to an irregular heartbeat and the person develops blood that is sitting in a place. And blood, when it doesn't move**

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**in the right ways, it tends to clot itself because it thinks something is wrong.**
**So when you build that blood clot, the majority of blood flow goes to the brain. So the blood clot is going to travel where blood flow is the greatest, so it travels to one of the blood vessels in the brain. It could also go to anywhere else in the body. And basically that blood clot is going to travel and stop.**
**Let me -- the blood vessels in the brain are like branches in a tree. It starts with one large trunk and then from there it slowly branches and tapers and gets smaller and smaller. When that blood clot reaches a point at which the branch is smaller than it, it lodges and stops there. And if it's a larger blood clot, it stops more proximal. If it's a smaller blood clot, it stops more distal. The more proximal it is, the larger amount of the brain that it affects and the bigger the stroke, meaning the more symptoms somebody will have.**
**And basically when it comes to aspiration thrombectomy, the whole goal is you try to get a**

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**catheter that is roughly the size of that blood clot, hopefully just a hair smaller. It travels through the blood vessel and you take it to where the blood clot is. You turn on aspiration. You see -- if you bought a vacuum cleaner, you always see where they put tennis balls or something like that, and they show how it can lift a tennis ball or pull it over through suction because it has so much, you know, whatever.**
**To in my mind, it's similar to that where the catheter applies a vacuum to that blood clot and either sucks it through or holds on to it with greater force than the blood vessel that it's lodged into has a hold of it. And then you either pull it out or it sucks through and then you've reopened that blood vessel.**
Q. So when a surgeon is trying to vacuum up the blood clot for lack of better terms, does the surgeon build up pressure to apply max pressure to the clot all at once or is it kind of incremental?
**A. Typically -- typically you do not turn on aspiration on any vacuum until you are engaged with**

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**the clot. And the -- you know, the main reason for that -- well, it's -- one, it's what we've always done; and number two, you know, typically the catheters that we're using are similar in size to the blood vessel that we're going into or just slightly smaller.**
**And if you turn on the vacuum, the easiest way to think about it is you are traveling down a tube, and that tube is essentially a blind end. In other words, there are brunches off of it at some point. And where that clot is towards where the catheter is, if you have aspiration going, the vessel between those two points is going to collapse and, therefore, you can't traverse it. So you don't want to have any aspiration force going until you're engaged with the clot.**
Q. And then when you're engaged with the clot, do you go to maximum vacuum all at once or maximum pressure or do you --
**A. Yes, we go all at once.**
Q. And why do you do that versus increasing incrementally?

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**A. I mean, the way I kind of think about it is it's kind of like punching. If you -- if you hit somebody with full force, you know, it's going to have a bigger impact than a slow engagement, so to speak. And that's kind of what we've -- again, that's the way we've always done it.**

Q. Are you familiar with the training or techniques used in treating deep vein thrombosis and pulmonary embolisms?

**A. To some degree, yes.**

Q. What's your familiarity with the techniques used to treat those?

**A. In what regard are you asking? I'm not clear what you're --**

Q. Do they also use aspiration catheters in the treatment of --

**A. Yes.**

(Reporter clarifies.)

BY MR. MILLER:

Q. -- of DVT and PE.

**A. DVT, PEs.**

Q. Would you consider someone an expert on

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aspiration catheters for the use of treating VTEs if they had no medical training or experience in the medical field?

MR. STOWELL: Objection. Vague.

THE WITNESS: Can you repeat that question again?

BY MR. MILLER:

Q. Yeah, and maybe I'll rephrase it and make it clearer.

Would you consider someone an expert on aspiration catheters for the use in treating DVT and PE if they had no medical training?

MR. STOWELL: Same objection.

THE WITNESS: It's possible. I mean, you know, engineers that develop the catheters and create these devices that have no medical training. So I mean, there are certainly a lot of experts in different facets of the industry.

BY MR. MILLER:

Q. And so you would consider an engineer having experience with designing catheters to be an expert in -- an expert on vacuum or aspiration

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catheters for treating DVT and PE?

**A. They would be an expert on catheter design and construction.**

Q. But not their use in patients?

**A. But not their use in patience.**

Q. And because earlier you said you don't know the field of invention of the patents at issue here, you wouldn't know whether that same engineer would be an expert with respect to the field of invention of the patents; correct?

**A. Correct.**

Q. Do you know what a person of ordinary skill is? Do you know the term?

**A. I don't know the term, but I mean, I can infer what it would imply. An average operator would be my guess, but yes.**

Q. Do you know whether you've provided an opinion in your declaration in these IPRs as to who a person of ordinary skill is?

**A. I don't know.**

Q. All right.

All right. I'm going to hand you one of

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the declarations you've submitted.

MR. MILLER: So the exhibits are already premarked as Imperative Care's Exhibit 1022.

BY MR. MILLER:

Q. Do you see on the front page, Dr. Turk, that it says, in the middle of the page, case IPR2025-01021?

**A. Yes.**

Q. Do you understand that this -- actually, do you recognize the document I just put in front of you?

**A. No, but...**

Q. Do you see that the title of the document is "Expert Declaration of Aquilla S. Turk, III, D.O. in Support of Petitions for Inter Partes"?

**A. Yes.**

Q. Taking a look at the last page of the document, do you recognize that signature?

**A. Yes.**

Q. Is that yours?

**A. Yes.**

Q. Do you understand this to be the

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declaration that you submitted in IPR2025-01021?
**A. Yes.**
Q. And as I mentioned earlier, you submitted declarations in two other IPRs, -01025 and -01264.
Do you recall that?
**A. If you say so.**
Q. Do you know if there are any substantive differences between your declarations in the three IPRs?
**A. I don't. But I'm usually pretty consistent, so I would doubt it.**
Q. When you were preparing this declaration, did you review the patents at issue in the IPRs?
**A. I don't know, but I seriously doubt it. I don't typically review patents, it's not my -- my area of strength.**
Q. Do you know whether you reviewed U.S. Patent Number 11,969,333?
**A. I'm sure I did not.**
Q. Do you know whether you reviewed U.S. Patent Number 12,016,580?
**A. Again, I seriously doubt it.**

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Q. Same answer for U.S. Patent 11,974,910?
**A. Yes.**
Q. Is it fair to say since you didn't read the patents, you didn't analyze or read the claims of those patents?
**A. Correct.**
Q. Your declaration doesn't provide an opinion regarding what is set forth in the patents; right?
MR. STOWELL: Objection. Vague.
THE WITNESS: I'm not sure what "set forth in the patent" means.
BY MR. MILLER:
Q. Let me rephrase.
Your declaration doesn't provide an opinion regarding what you believe the patents to encompass; correct?
**A. Correct.**
Q. And while your declaration might discuss some techniques for treating certain types of clots and maybe your disagreement with Inari's characterization of certain techniques or devices,

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you didn't actually analyze or apply prior art to the claims of the patents; right?
**A. Correct.**
Q. So to be clear, you didn't render an opinion regarding the patentability of the patents; correct?
**A. Correct.**
**Makes me think of Star Trek. Dammit, Jim, I'm just a doctor.**
Q. It's a good reference.
Can we go to the second page of the document of your declarations. It's titled Table of Exhibits.
**A. Okay.**
Q. Do you see that it goes on for like four pages?
Taking a look at this table, do you know what documents you did review in preparing your declaration?
**A. No.**
Q. Is it fair to say that even if a document is listed on this, you didn't necessarily read it?

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**A. Yes.**
Q. So if we go further into your declaration -- actually, maybe you can look at the first page. And you can feel free to skim through the document if you would like.
Your declaration does not provide a legal standards section; correct?
**A. If you say so. I don't know what a legal standards declaration is.**
Q. So your -- your declaration doesn't describe what standards of the law you applied in reaching your opinions as set forth in your declaration; correct?
**A. I don't think so.**
Q. Were you informed of what legal standards you should be adhering to in providing your opinions?
**A. No, I don't -- I think it was just -- as far as I know, I don't know that there are legal standards that I get arrested if I say this or don't say that. As far as I know, I'm just giving my expert opinion on strokes, thrombectomies,**

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**aspiration, those topics.**
Q. Your declaration -- actually, strike that.
You do not discuss -- are you familiar with the term "obviousness"?
MR. STOWELL: Objection. Vague.
THE WITNESS: I mean, I know what obvious is. But...
BY MR. MILLER:
Q. With respect to patent law?
**A. No.**
Q. Are you familiar with the term "anticipation" with respect to patent law?
**A. No.**
Q. Is it fair to say that your declaration doesn't address obviousness or anticipation?
MR. STOWELL: Objection. Vague.
THE WITNESS: I do not know the answer to that. I mean, it -- I would assume a lawyer could make my document appear in some way, whatever term it is you want to be. But that's...

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BY MR. MILLER:
Q. You stated earlier that you didn't render an opinion regarding the patentability of the patents; is that fair to say?
**A. Correct.**
Q. So if we take a look at Section 4 of your declaration that's on page 12, you see it's titled "Catheters develop -- Catheter Developers Routinely Adapt Catheters For Use in Other Parts of the Vasculature."
Do you see that?
**A. Okay.**
Q. What does this section describe?
MR. STOWELL: Objection. Vague. Document speaks for itself.
THE WITNESS: I mean, I can take the time to read it all. But at least reading the beginning of it, what it seems to me to be talking about is -- relates a little bit to what we were talking about earlier with the evolution of techniques and methods and tools to treat strokes, you know, evolved over the

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years and during my lifetime.
What I mean by that is, you know, when I started doing this in the early 2000s, we typically would take devices used in cardiology and for cardiovascular surgeries and apply them to -- to our areas because the blood vessel sizes were similar. So the catheters, whether they be stents, whether they be balloons, whether they be catheters, whether they be any tool were similar sized, so we could apply them for our uses if we could get them there.
And that's kind of what this is saying, is that catheters originally used in the heart were then applied to other parts of the body. And that's still kind of typically done today because the cardiac -- the cardiovascular world is, you know, several years ahead technology-wise than the neuro spaces, than the peripheral spaces. So we often have to -- or we often can apply tools or techniques from that over to our areas.

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BY MR. MILLER:
Q. In your role as a neurovascular surgeon or as the chief medical officer of Imperative, have you been involved in the actual designing of aspiration catheters?
MR. STOWELL: Objection. Vague.
THE WITNESS: I'm not sure how to answer that except that I basically for my entire career, whether it be Imperative Care or other companies that I have consulted for, I have routinely given -- or I should -- given feedback, worked extensively with various engineers to help them improve their devices. In other words, we often will work with engineers in various companies of -- this catheter needs more support in this area, needs more flexibility in this area in order to perform better.
Am I on a patent? No. Am I in there choosing the materials and choosing how to strategically make it a better device? No. But as far as performance and giving

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suggestions as to how to improve it, yes, I have helped in that way.

Not sure if that answers your question, but that's all I got.

BY MR. MILLER:

Q. So if we turn to paragraph 26, that first paragraph in Section 4 -- actually, before I ask that...

Do you know what prior art with respect to patent law is?

**A. I mean, I would assume it would be somebody describing or drawing out that design on a -- on a prior patent that somebody else -- than whatever it is you're using.**

Q. Are you aware of whether -- strike that.

Did you provide any opinion in Section 4 with respect to whether any of the articles or aspiration catheters you described are prior art to the patents at issue in this case?

MR. STOWELL: Objection. Vague.

Document speaks for itself.

THE WITNESS: I don't think I did.

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BY MR. MILLER:

Q. Okay. Let's look at paragraph 26.

**A. Patents aren't really -- it's not my area of expertise. So I seriously doubt I gave any opinions on patent to anything.**

Q. So looking at paragraph 26, you describe an article from the American Journal of Cardiology published in 1993.

Do you see that?

**A. Yes.**

Q. In there you state that they used an aspiration catheter to remove blood clots from the left main coronary -- coronary artery or the right coronary artery of five patients.

Do you see that?

**A. Yes.**

Q. And you conclude that "This basic aspiration procedure is not significantly different from the aspiration procedures used today to extract clots from the brain, legs and lungs."

Do you see that?

**A. Yes.**

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Q. In this paragraph, you don't describe the changes made to aspiration catheters from 1993 to today; correct?

**A. Correct.**

**So an aspiration catheter is an aspiration catheter. There is nothing novel or new or interesting about it. It's a dumb tube. Okay? The easiest way to think about it is a straw. Okay? There's nothing magical in its powers.**

**What's changed with aspiration catheters is construction methods and materials that allow them to track through certain anatomies or to more easily get to a destination through that anatomy.**

**But when it comes to performing an aspiration thrombectomy to remove the blood -- in other words, apply aspiration to remove the blood clot, it -- it's all the same. It's just a tube and what's changed and improved is the construction of it to allow it to navigate through the anatomies to get there.**

**But, you know, whether that's a very stiff crude tool from 1993 or whether it's a new**

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**slick new tool from 2040 that we'll make in the future, unless we develop a new way to apply that or a new way is come up with to construct these catheters, it's simply applying suction to the end. And does it work or does it not.**

Q. Is it fair to say there are various techniques or I guess more than one technique for ensuring, you know, no leakage of the valve?

MR. STOWELL: Objection. Vague. Lack of foundation.

THE WITNESS: I'm not sure what you're asking me. Leakage of what -- I mean...

BY MR. MILLER:

Q. So --

**A. There's not a valve. I mean, maybe -- maybe a certain system has a valve in it that could leak, sure.**

Q. Uh-huh.

**A. But as a -- for sure something like this, where you take a catheter and have a syringe, there's no valve there. So I'm not sure what you're asking me here in this question.**

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Q. There are multiple ways to create suction. So one way is a syringe; right?
**A. Sure.**
Q. What are some other ways you're familiar with to create the suction to aspirate the clot?
**A. Yeah, I mean, it's typically a syringe or it's a pump.**
Q. So looking at paragraph 27, you describe another system, the Penumbra?
**A. P-E-N-U-M-B-R-A.**
Q. And that was from the late 2000s?
**A. Yes.**
Q. And you describe it as using a guide catheter inserted through the patient's vasculature to a position near the clot.
Do you see that?
**A. Yes.**
Q. And you say you were an early adopter of the Penumbra System and you used it often?
**A. Yes.**
Q. Do you recall using that device?
**A. Yes.**

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Q. How is that device different than the device you described in 1993?
**A. The catheters are more -- are more purpose built. In other words, they -- they're designed to navigate through the tortuosity of the carotid siphon meaning the blood vessels in the skull base to be able to then access the blood vessels in the brain.**
Q. Neither in paragraph 26 or 7 do you describe what modifications would be needed to use those aspiration catheters for the treatment of DVT or PE; right?
**A. No.**
Q. Next in paragraph 28, you cite a 2014 article describing "ADAPT."
What is ADAPT?
**A. Adapt is basically the name we gave aspiration thrombectomy. And it stands for A Direct Aspiration First Pass Technique. And what that basically means is use aspiration as your first approach, meaning when you go up to open up the blood vessel, try aspiration first. If that doesn't work, then try other techniques such as a stent retrieve or a balloon or some other tool.**
**And we named it that because ten-plus years ago when we came up with it, this was -- nobody knew about it. Everybody was using stent retrievers or other tools that were around at that time.**
Q. We also like really cool acronyms.
**A. True.**
Q. And you described it as including "a very large, easily trackable, aspiration thrombectomy catheters that can now more easily and reliably navigate cerebrovasculature."
Do you see that?
**A. Yes.**
Q. And you say that "These new catheters allowed surgeons to traverse very tortuous blood vessels, such as those found in the brain, and reach more remote locations."
Do you see that?
**A. Yes.**
Q. In paragraph 28, you don't describe what modifications would be needed to those catheters to be used to treat DVT or PE; right?
MR. STOWELL: Objection. Lack of foundation.
THE WITNESS: Correct.
BY MR. MILLER:
Q. And so then in paragraph 29, you say that, "The advances were not restricted to neurovascular aspiration catheters, but extended to aspiration catheters for treating PE and DVT."
Do you see that?
**A. Yes.**
Q. And you say, "Medical device companies routinely adapt procedures and components initially developed for one medical procedure for another."
Do you see that?
**A. Yes.**
Q. You didn't provide any examples in that paragraph; correct?
**A. It does not appear so.**
Q. And you didn't describe the modifications needed to the aspiration catheters to treat PE and

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DVT; correct?
MR. STOWELL: Objection. Lack of foundation.
THE WITNESS: Correct. I think I did that somewhere else, though. I'm not sure where, but I do recall that we talked about that at some point. Because the examples for that would be Penumbra, taking their aspiration catheters for the brain and making them a little bit bigger and reinforcing in some areas and -- to make them applicable for PE or DVT or peripheral thrombectomy meaning legs, arms, that kind of thing. Mostly legs, but...
BY MR. MILLER:
Q. And I think you do describe that in paragraph 30, the very next paragraph. And I think on the next page, page 15, you state, "Once Penumbra developed an effective device for neurovascular applications, Penumbra upsized its device" --
**A. I knew you'd get to it.**
Q. -- "for use in the lungs and peripheral vasculature."

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**A. Yep.**
Q. You didn't describe -- you say they upsized. You didn't include any examples or cites to the exact modifications that were made; right?
**A. Correct.**
Q. In paragraph 31, you describe Imperative Care's own aspiration catheters; correct?
**A. Sorry, repeat that question.**
Q. So in paragraph 31, you begin referring to Imperative Care's own aspiration catheters; correct?
**A. Yes.**
Q. And you say that, "Imperative Care's neuro pump is also used with its products for peripheral vascular"; correct?
**A. Yes.**
Q. Are those neuro pumps able to be used without any modification for the use in peripheral vasculature?
**A. I -- I'm not positive, but I think so. And I mean, a pump is a pump. It's not doing anything magical. It's just simply applying vacuum**

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**aspiration force.**
Q. And then, actually, going back to paragraph 30 for a second, besides the upsizing of its device for use in the lungs and peripheral vasculature, you don't describe any other modifications needed to use the Penumbra device in treating PE and DVT, do you?
**A. No, but we just talked about that in that they -- you know, aside from size, which they'll optimize the size, it's also a matter of reinforcing in some areas so it gives better support and trackability through the vascular anatomy.**
Q. Do you describe that in this paragraph?
**A. Somewhere in there we did because we talked about how if the catheter can -- catheters that can track -- it's difficult to make catheters softer and more trackable. It's a lot easier to make them stiffer and more supportive.**
**So it is -- in general, if a -- if a device treats a stroke, it's easy to go the other way. The stroke is the hardest thrombectomy procedure, in my opinion, out there and requires the**

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**most sophisticated devices.**
**If you want to make it more supportive and stiffer, that's a relatively easy change to a device. And accessing and reaching a pulmonary embolus is much more straightforward than reaching a brain embolus, just anatomy-wise.**
Q. Besides making it bigger, more supportive and stiffer, are there any other modifications you've described in your declaration that someone would need to make to a neurovascular aspiration catheter to use to treat PE and DVT?
**A. I mean, I'm sure there are lots of things that could be done, but I don't think anything would necessarily have to be done. You know, an engineer may want to change the inner liner, they may want to change, you know, what type of plastic or extrusion they use in the catheter design to make it easier to manufacture. You know, there are all kinds of, you know, engineering things that can be done or need to be done, but nothing necessarily has to be done to apply from one area to another.**
**And again, that all goes -- boils down in**

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**my mind to the basic tenants of aspiration thrombectomy, which is, if you got a big clot, you need a big catheter. That's really what it comes down to.**

Q. Do you agree that neurovascular aspiration is the same field or discipline as the aspiration of clots for like PE and DVT?

MR. STOWELL: Objection. Vague.

THE WITNESS: The same field. What -- what are you implying?

BY MR. MILLER:

Q. Do you consider it the same -- like the same practice, same medical practice?

**A. The tools are very similar, the concepts overlap. The basic tenants are the same. The doctors tend to be different. You know, for PE, DVT, they tend to be done by vascular surgeons, interventional radiologists, some cardiologists. Stroke, some interventional radiologists do those. And there are a handful of guys out there that do both. But stroke tends to be done by neuro doctors, not by heart doctors or vascular surgeons.**

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**So, I mean, the field, so to speak, is different, but the basic tenants, the basic concepts, I think, are very similar. There are certainly technique adaptations that may differ, which, again, to me, it's a mat -- you know, relates to different -- you know, you're taking the blood clot out, and you are doing a thrombectomy, you're using aspiration and all the things are the same. Your techniques may just differ a little bit based on the anatomy and what -- what it is you're dealing with.**

Q. What do you mean with respect to the adaptations may differ, I think you said, because it's different --

**A. Yeah, for instance, going -- going and applying aspiration to a clot to remove it, we're all doing that exact same thing. When it comes to how do you do it and how do you make it work best, that's what you need to figure out. That's the technique that the doctors have to figure out.**

**What we found for aspiration for the brain is that if you go in and put the catheter near**

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**the clot, it's going to suck the vessel down and you're not going to get the clot. If you put it into the clot, you'll get it almost every time.**

**In peripheral throm- -- in treating PE, what we found for siphoning is if we take our catheter and put it at the face of the clot, it will slowly get it out, but it takes a lot of work and effort. We found that if we bury it in the clot and do a step-wise aspiration, where we aspirate, stop, and pull it back a little bit, aspirate and stop, pull it back a little bit, and work our way backwards back through the clot, it gets it out very quickly and very effectively with minimal blood loss.**

**So, again, it's just how do you apply your tool using the exact same, again, just aspiration. But how do you apply that to that anatomy.**

Q. We've been going for a little over an hour. Why don't we take a five-, ten-minute break?

MR. STOWELL: Okay.

THE VIDEOGRAPHER: The time now is

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9:20 a.m. We are now off the record.

(A brief recess was taken.)

THE VIDEOGRAPHER: We are now back on the video record. The time now is 9:31 a.m.

Counsel, you may proceed.

BY MR. MILLER:

Q. In paragraph 33, you say treating blood clots in the brain is much more difficult than treating blood clots in the lungs and peripheral arteries for several reasons.

Do you see that?

**A. Yes.**

Q. And you go on in the next two paragraphs or several paragraphs to explain why.

**A. Yes.**

Q. Can -- you know, you can either look at those paragraphs or just tell me why is it more difficult to treat blood clots in the brain?

**A. Yeah, I mean -- no, I mean, I think -- I think -- I don't think I can lay it out any better than did I here, actually. I kind of like it.**

**Do you want me to read this off or --**

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Q. No, it's fine, we can walk through it. Then.
So you say in paragraph 34 that the catheter is used to extract cerebral blood -- blood clots typically traverse a longer distance than the catheters used in the peripheral arteries.
Do you see that?
**A. Yes.**
Q. And is the length the reason why it's more complicated?
**A. I mean, the longer you -- the longer catheters are, the more -- the less responsive they typically tend to be. So the closer you can be, the easier it is to typically control and for the catheters to perform and behave and navigate and whatever term you want to put on it.**
**And also for aspiration force as well, the shorter the distance, the better you are at aspirating.**
Q. Why are they less responsive, and what does that mean?
**A. I mean, it's kind of like a stick. You**

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**know, if you have a long stick, it's -- it's more difficult to control than a short stick. But the real -- the real -- the real challenges are the -- the tortuosity that we have to navigate through in the blood vessels in the brain, as well as the delicate nature of them since, you know, they are not -- you know, they're floating, so to speak, on the surface of the brain and you're having to navigate that. And the anatomy changes. You straighten out, curves, things like that.**
Q. Right.
So in paragraph 35 you state, "The catheters for treating cerebral occlusions must navigate blood vessels that are often more tortuous than the vessels encountered in the lungs and peripheral vasculature"; Right?
**A. Yes.**
Q. What is tortuosity?
**A. I mean, I guess what I would say is it has to do with the redundancy of the curve, the angle of the curves and curves of the blood vessels themselves. It's like -- what is that street in**

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**San Francisco? Lombard Street or something like that. You know, you get a lot of very acute and redundant turns that you have to navigate through.**
Q. And those acute angles are more pronounced in the brain?
**A. Yes.**
Q. And in paragraph 36 you state, "The cerebral arteries are more delicate than the peripheral vasculature because they lack a robust muscularis layer and must rely on the adventitial" --
**A. Adventitial.**
Q. "-- adventitial layer for their durability"; right?
**A. Yes.**
Q. Is that --
**A. What that -- what that means -- the implications or the importance of that is that the ability to damage or perforate or, you know, injure that blood vessel is much easier than arteries in other parts of the body.**
Q. Is it fair to say, then, with respect to

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cerebral arteries, the amount of pressure you're applying using the aspiration catheter is important -- is important to control?
**A. No. No, because you're not applying pressure to the vessel. You're applying that pressure to the clot. And that's -- but that's also why as the catheter size approaches the blood vessel size, there's not a lot of space around it with blood. But that's also why these blood vessels, if you're not in the clot and you apply aspiration, it just collapses the blood vessel.**
Q. And that would be bad?
**A. Well, I mean, it's not good. But you're not going to hurt the person from that.**
**What I'm saying by the delicate nature of the blood vessel is these catheters have to be pretty supple or else if they're -- or else they could perforate through the blood vessel and burst it, which would likely be a fatal event.**
**You know, the -- the aspiration, that's a whole different side of the equation. That's more -- that's you interacting with the blood clot**

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**to remove the blood clot.**
Q. Okay. And so folks sitting on the aspiration side of the equation, what are like -- what are -- what are factors you have to take into consideration when aspirating the blood clot with respect to, you know, the safety of the patient?
MR. STOWELL: Objection. Vague.
THE WITNESS: Yeah, I mean, it's -- with aspirating the clot, you're not going to hurt the patient by turning on aspiration. I could go -- I could take an aspiration catheter and put it in any blood vessel and turn on aspiration and it's not going to really do anything.
Where you -- what you need for doing a -- doing a stroke thrombectomy or using these catheters in the brain is you've got to have a catheter that's soft enough and supple enough to be able to navigate these curves and be able to safely traverse these blood vessels in the brain and apply aspiration without collapsing the catheter.

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Whereas in the periphery or in the lungs, you don't have nearly the curves and the tortuosity that you have to get through. And that's why we tend to -- you know, we've got a guide catheter that is in the base of the skull or something that is relatively stiff. And for sure you wouldn't use in the head because you would easily perforate or rupture or cause a problem.
So we tend to put in a stiff catheter for support to then be able to take these smaller catheters inside of it that can navigate through the tortuosity and get out to -- safely into the blood vessels in the brain.
BY MR. MILLER:
Q. So you perfectly predicted my next question.
So if someone were to use a stiffer, less flexible and larger catheter in the brain, it could cause serious harm?
**A. Yeah, yes, sir.**
**But that's why we -- and with basically**

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**every procedure we have done in the brain, we telescope, is what you call it. But we have a stiffer guide catheter here, and it may even be two or three sizes bigger than what we need for the surgery so we can have another softer catheter inside of that, so we can then take our devices through this other catheter to do whatever job we need to do.**
Q. And at the end of paragraph 36, you say, "A perforation or tear out of the cerebral vasculature would be devastating for the patient."
**A. Yes.**
Q. Could that include that?
**A. Yes. Hopefully it does. Because that's often preferred by people over the alternative, which is severely impaired.**
Q. Is it fair to say that your opinion in paragraph 37 is that given the complexity of neuro vasculature treatments using aspiration catheters, that treating PE and DVT is simpler and so it, in your view, makes sense to go from more complex to simple?

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MR. STOWELL: Objection. Vague. Document speaks for itself.
THE WITNESS: I am not sure what you're asking me.
BY MR. MILLER:
Q. It was a bad question.
So you say -- in the middle of the paragraph, 37, you say "Given all of these challenges, it's not surprising that surgeons could readily transfer the cerebral technology to simpler applications, like the lungs and peripheral vasculature."
Do you see that?
**A. Uh-huh. So what I mean by that is that, number 1, when it comes to stroke, time is of the essence, which for -- for DVT, it's not of the essence, necessarily. In other words, every minute doesn't count. For PE, only the most extreme cases -- I mean, there are cases where patients are trying to die on your table with PE as well, but every stroke case, every minute matters on every patient.**

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**So -- so I think that, you know, if you're going to have a successful tool and/or technique it has to be something that is very efficient and very fast because of the time implications.**

**In addition, as we've mentioned before earlier, the ability to navigate into the cerebral vessels takes the most sophistication of the catheter on the design level. And what I mean by that is it's -- it's -- from my -- in talking to a lot of engineers, it's much easier to take a -- to make a catheter more supportive and more stiffer and make it bigger. It's usually harder to make it more navigable and more softer and flexible and smaller.**

**So because of that it's easier to go backwards than to go forwards. Meaning -- and what I mean by backward and forward is to go stroke, to going into the peripheral and pulmonary spaces.**

Q. So in paragraph 37, although that is your conclusion, and with respect to the other paragraphs of Section 4, you don't explain the modifications that would be needed to make the prior art asserted

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in this IPR read on the claims of the patents at issue; right?

**A. Right. I'm not going to give you the secret sauce.**

Q. So you're just speaking in this section more general --

**A. In generalities, yes. Yes, I'm not a patent expert.**

Q. So if we turn to Section 5 on paragraph -- on page 18 of your declaration, it's titled "Blood clots vary as do the catheters used to treat them."

Do you see that?

**A. Yes.**

Q. And this first paragraph has some disagreement over description or distinction between clots. You say regardless -- at the end of it you conclude, "Regardless of clot type, aspiration thrombectomy involves aspirating the clot into the catheter."

Do you see that?

**A. Uh-huh.**

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Q. Is your view that it doesn't really matter what the type of clot is, it's going to be the same technologies to get rid of it?

**A. I mean, there are different types of clots. There are clots that are very organized, there are clots that are very unorganized, and aspiration does a good job on all clot types is how I would say it. And there are some histologic studies that have been done that have shown -- that have shown that, you know, in the neuro space for sure.**

**But, I guess, I mean, I'm not sure I answered your question, but...**

**But there are different clot compositions and aspiration works very well on all clot compositions.**

Q. So in paragraph 39 you go on to state that you don't agree with the position that cerebral -- or aspiration catheters used for cerebral vasculature are much smaller than aspiration catheters used for lungs and peripheral vasculature. But I thought we were just talking

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about how if you don't use a smaller catheter, you can, like, cause perforation in the cerebral vasculature.

So I'm just trying to understand the distinction you're drawing in this paragraph.

**A. Yeah, I mean, is it -- again, to me, it's basic tenants of aspiration. In general, the larger the blood clot or the blood clot burden, the larger the catheter size that you want to use.**

**When you look at -- when you look at catheter sizes that are out there, there's definitely overlap between what we use in the brain and what's used in the lungs and the periphery. You know, we -- typically, the largest one we will use in the head and neck are 8 French and in the -- in the periphery arterial-wise, they tend to be similar in the 5 to 8 French or so. In the venous space, they tend to go bigger because, again, the tubes, so to speak, the vessels are bigger.**

**And on that note, you know, if we have venous thrombosis in the brain, we will oftentimes use the peripheral system from Penumbra in that area**

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**because the size is bigger.**
**So, again, to me, it's really more about vessel size matching more so in that regard. But, again, in general, the brain blood vessels are on the smaller end compared to other areas, so it's really more about size.**
Q. Turning back just for a moment to the table of exhibits on -- look on the first page.
Did you, in preparing your declaration, read Exhibit Numbers 1005, 1006, or 1012?
**A. No.**
Q. In your experience -- actually, strike that.
I don't know if I asked this direct question earlier. Have you actually aspirated a PE or DVT before?
**A. No.**
Q. Have you been in the room for one of those procedures?
**A. Yes.**
Q. How many times would you say?
**A. I mean, I've been around, watched, you know, eight or nine at least. I'm not frequently in the room. I'm usually more in the control room, but it's right -- you know, still me to you away (indicating).**
Q. In those instances where you were involved in the procedure one way or another, did you know what type of aspiration catheter they were using?
**A. Yes.**
Q. Do you recall what types those were or what brands?
**A. I mean, I've seen them use Penumbra, I've seen them use Inari, I've seen them use Imperative. And then there's another, I think it was Pounce, or something like that.**
(Reporter clarifies.)
THE WITNESS: P-O-U-N-C-E. Some other startup, something or another. And I may be wrong on that name.
BY MR. MILLER:
Q. Is it your view or is it your opinion that the only substantial differences between aspiration catheters in the past and present is the material changes that they've made and the sizes and shapes of them?
**A. I mean, the only -- the only novel thing out -- the only novel change that's really occurred has been the new Imperative Care catheters. When I say "new," I mean the Imperative Care catheters in that we now have a beveled tip. So in other words, instead of the catheter being a tube, think of it like a straw with a regular end. We have a beveled, we have an angled tip on ours.**
**So think of it like when you order a drink with like Boba, if you have ever seen those, the straw has like a bevel at the end to get those little pieces in better. We felt like the angle on the tip gives us an advantage in getting the clot out over a conventional just bare end.**
**That's really the only change that I've seen or difference in any other catheters that are commercially available, of all of the catheters that are out there commercially available.**
(Reporter clarifies.)
BY MR. MILLER:
Q. So if we look -- sorry if I'm going out of order in your declaration.
So if we go to Section 3 now, the title of the section is "The procedure for aspirating blood clots from the brain is not 'significantly different' from aspirating clots from the lungs or legs."
Do you see that?
**A. Uh-huh. Yes.**
Q. Sitting here today, do you still believe it to be true?
**A. Yes.**
Q. Actually, I should ask that in general.
Do you have any changes or corrections that you believe need to be made to your declaration?
**A. No.**
Q. So you, in these paragraphs, describe a little bit of the procedure, the general procedure of, you know, accessing the patient's blood vessels and reaching the clot. And I wanted to ask a

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question on paragraph 22.
And you say "Once the aspiration catheter is near the clot, the physician will initiate aspiration; i.e., suction. In some simpler systems aspiration occurs by withdrawing the plunger on the syringe attached to the container to collect the aspirated material."
Do you see that?
**A. Yes.**
Q. Are you aware of, you know, the differences in the containers or the plunger or the syringes, you know, between different devices? Are you aware of the mechanical differences in those devices?
MR. STOWELL: Objection. Compound.
THE WITNESS: The mechanical differences in those devices. I mean, some companies use a pump and some companies use a syringe. Do I know the mechanical properties of each one? No. But do I know the basic tenants of how to use a syringe and how to use a pump? Yes.
You know, and I know the advantages and I

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understand the advantages and disadvantages of each system. So I'm not sure what exactly you're asking me in that context.
BY MR. MILLER:
Q. Do you know if you need a different syringe or pump for cardiovascular clots versus PE and DVT?
**A. The -- I mean, there's not -- I mean, the only thing a syringe does is apply a certain amount of force. So I mean -- sorry, a certain volume of force. In other words, how much -- you know, if you don't have the blood clot or if you pull it through, how much blood you will get into it.**
**So there's not anything special about a syringe that makes one for this or one for that as far as application-wise.**
Q. And we might have talked about this a little bit earlier, but I wanted to ask it maybe in a different context.
So when actually creating the aspiration or, you know, withdrawing the plunger on a syringe for example, when you've reached the blood clot, is

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it correct that you just, you know, pull the plunger all the way back, or is it kind of like a slow -- I'm trying to understand how it actually happens.
Is it a slow pull? Is it full pull?
**A. Yeah, almost everybody uses a locking syringe. So you use a syringe where you -- you typically will -- what people typically will do is use a syringe hooked to a stop cock hooked to a catheter. And you take your syringe and pull it all the way back and you lock it. Otherwise, you're standing there trying to hold your syringe with it fully -- fully back and you're trying to do other things.**
**So you typically pull it back, lock it, set it there. And your catheter is either at the clot or near the clot. And then when you're ready to apply aspiration to the clot, then you turn the aspiration stop cock on or open it, whatever term you want to use it, and that allows the aspiration clot force to be applied to the catheter.**
**Again, the catheter is just simply a tool, a simple hose. That's all it is.**

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Q. So we talked a little bit earlier about kind of what makes someone an expert or, you know, what qualifications they would need.
But I didn't ask, just generally, what's your view of -- you know, who would you consider a qualified expert in using aspiration catheters to treat, say, PE and DVT?
**A. I mean --**
MR. STOWELL: Objection. Vague.
Go ahead.
THE WITNESS: Sorry.
I think it's about having the right training. In other words, they're trained to do the procedures on -- you know, that we're talking about. And -- and that they -- they actually have the case volume and the experience in doing these cases. As far as the specific number to assign to that, you know, I don't know that I have that. But I mean, they -- they -- should definitely be something that they do -- they do this for a living and they've got a reasonable amount of experience

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under their belt, meaning many years of doing it and at a high frequency.
BY MR. MILLER:
Q. When -- between when you submitted your declaration and the district court litigation, and when you submitted your declaration in the IPRs, did you do any additional work on the declaration?
**A. No.**
Q. Did your attorneys talk to you about your declaration before they submitted it in the IPRs?
MR. STOWELL: Objection, vague.
THE WITNESS: I have no idea. You'd have to ask him (indicating). We don't regularly talk, I'll put it that way. And the only thing when we communicate, it's only through this.
BY MR. MILLER:
Q. Did you draft the entirety of your declaration?
**A. I didn't draft any of it.**
Q. Did your attorneys draft it?
**A. I don't know if the court reporter drafted it, I don't know if they did it. I...**

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Q. Do you know who Mr. Thornton is?
**A. No.**
Q. It's fair to say that you didn't consult with a Mr. Thornton in preparing your opinions in this case?
**A. I -- I'm -- I'm not sure who Mr. Thornton is.**
Q. I'll go back to your declaration for just a minute.
Oh, you've mentioned a couple times this Penumbra device. You previously worked for the company that -- are you okay?
**A. Yeah, just a little achy. But...**
Q. You previously worked or consulted with Penumbra; correct?
**A. Uh-huh. I've worked with and consulted with every medical device company in my field, I think, at one point or another.**
Q. So we -- we talked about the ADAPT technique earlier.
Is it true that you helped develop that technique?

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**A. Yes.**
Q. Was that -- when you worked on that effort, did you work with catheter engineers or was it just doctors?
**A. Yes, I mean, it was -- it was more we came up with how -- we basically came up with how to do aspiration. And, you know, if you -- if you go back to -- if you go back to that time period, you know, late -- you know, early 2010s, you know, at that time Penumbra had a system, it was called the Penumbra system. But it was an aspiration catheter. But it had a little -- it had a little wire, they called it a separator at the end, and it basically approximated the size of the opening of the distal catheter.**
**And their theory was that we would suck a clot into the end of the catheter and you would take the separator and break up the clot and you would ingest the clot in that way.**
**And what it basically effectively did is it took a big clot and made a clot -- when a blood vessel is in the head, the middle cerebral artery,**

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**say, or any of the blood vessels in the head, when it branches, that first side of the blood vessel is called an M1. And then when it branches, the next branch level is called an M2. And then when it branches again and it's getting smaller, it's called an M3.**
**So effectively what we did is we took an M1 blood clot and made it an M2 blood clot, and then an M2 blood clot an M3 blood clot. So we'd kind of have to size our way down and go smaller and smaller. So we basically fragmented these clots in smaller and smaller pieces. And that's how their system worked initially.**
**And then a year or two later, we started getting these devices called stent retrievers. They were in Europe first, and they had been using them years and years and years. We didn't have them, but they worked a lot better than what we were doing.**
**So, and then they eventually found that if they combined an aspiration catheter with a stent retriever, even better. So we got those in, like, 2012 is my guess, my recollection. And we did a**

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**handful of cases, probably 30 or so cases, with that technique combined. And then we happened up on aspiration alone, and it was like, wow, this kind of actually works, like.**

**So I did a handful of cases and then I called all my friends and said, hey, you got to try this. So they, you know, eventually said, okay, we'll give it a shot. And they're like, oh, wow, hey, okay, it kind of works much of the time. But it's just so fast and easy as a start, and then if it doesn't work, then we can add the stent retriever to it.**

**So that's kind of how we progressed into aspiration at the time. And I was the one who started it, I was the one who organized and got my friends to do it and then wrote the initial papers on it and eventually did a randomized trial on it.**

Q. And when you were developing this technique, did you try different aspiration catheters, or it just doesn't matter what kind you used?

**A. Nobody else had has -- well, at that**

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**time, there was no aspiration catheter. Nobody else made one. And there were no catheters that were soft enough to get to that level or that location in the anatomy.**

Q. I'm trying to open something which might make it faster than trying to find paper.

Have you ever heard of the company Silk Road Medical?

**A. Yes, I consulted for them as well.**

Q. Do you know Michi Garrison?

(Reporter clarifies.)

THE WITNESS: No.

BY MR. MILLER:

Q. How about Tony Chow?

**A. Yes.**

Q. How do you know Tony?

**A. I had the joy of having dinner with him once, and, again, I consulted for Silk Road for a bit. So I've been in a meeting or two with him.**

Q. Do you know what timeframe you consulted with him?

**A. I would guess probably 2016, 2017-ish,**

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**something -- it was when they -- it was when they were Silk Road. They still had neuro in their area. I'm sorry, they still had Silk -- they still -- the informed -- they hadn't spun out Route 92 yet, and it was all part of Silk Road.**

Q. Were you familiar with any of the devices that they designed?

**A. I didn't have significant insight into their -- into their tools, other than I knew that, you know, clearly they obviously wanted a direct corotid access.**

**And my involvement with them was -- you know, they had numerous people that were very pro, yes, you should develop a stroke system, you should come do this. And I was a -- I was a nay sayer saying nobody is going to do a corotid access system and try to use corotid -- we don't need that, you know. And they had some people that I think were not -- well, you know, but...**

**But anyhow, they were debating whether to develop a stroke system with -- through corotid access.**

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Q. And why wouldn't you do a corotid access?

**A. Because I think people with reasonable catheter skills don't need it. Some of the people that were advising them were not very skilled operators in my opinion. And, yes, some of those guys probably do have access issues; in other words, ability to access the vessels off of the aortic arch to be able to do a stroke procedure. You know, I don't have those issues maybe one time in a year, maybe at the most. And I think most reasonable operators are around that number. And that just to me doesn't justify doing a corotid access as a main technique.**

Q. Do you know the company Angiodynamics?

**A. Yes.**

Q. How do you know them?

**A. They make devices that we occasionally use.**

Q. Do you know a Leshawn McClog?

**A. No.**

Q. How about a Michael Glennon?

**A. I -- I don't know anybody at the company.**

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**I mean, I've never consulted with them. They make catheters that we stock and...**

Q. Have you ever used one of their devices?

**A. I mean, I've used some of their catheters, that are diagnostic catheters, but...**

Q. What is the difference between a diagnostic catheter and one you would use for aspiration?

**A. Oh, yeah, so a diagnostic catheter is like a 20-dollar catheter that you use to go up and take pictures with. And they come in different shapes, the tip. So you -- based on the tip shape, we tend to use certain ones more than others.**

Q. Do you know a David Schaffer?

**A. No. I know a Michael Schaffer.**

Q. How familiar are you with the design process of aspiration catheters?

MR. STOWELL: Objection. Vague.

THE WITNESS: I guess the way I would say it is I think I'm pretty -- I think I have a pretty good idea of it for a doctor, but I certainly don't know the level of it as an

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engineer.

BY MR. MILLER:

Q. I mean, you've said a couple times that the -- in your view, these are dumb tubes?

**A. Uh-huh.**

Q. Is that a "yes"?

**A. Yes.**

Q. And I assume --

**A. Well, let me back up. I want to clarify that in that they're dumb tubes insofar as how they perform aspiration; in other words, it's a mechanism to transmit an aspiration force from the hub to the tip. That's all it is. They're very sophisticated tools, some more than others, obviously, in -- in construction and design to be able to navigate and perform in the selected anatomies.**

Q. You again predicted where I was going with my questions.

**A. Okay.**

Q. Imperative obviously employs design engineers --

**A. Yes.**

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Q. -- right?

And there's at least some level of engineering design that goes into developing aspiration catheters; correct?

**A. Yes.**

Q. And I assume there -- there are also engineering -- or some level of engineering design that goes into developing the pumps or the connections to the pumps and the catheters; correct?

**A. Yeah, I mean, I -- yes.**

**But I think that's a much more straightforward -- the pump -- the pump itself I think is a very straightforward entity and process compared to the catheters.**

Q. What are all -- I know that we've talked about them in maybe different areas of this deposition but -- are you okay?

**A. Yeah, I'm just trying to -- foot goes numb here and there and then you got to figure out if there's not enough blood or much blood. I'm good.**

Q. Don't get a clot.

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**A. No, that's a different set of symptoms.**

Q. What are, in your view, the different design choices that go into engineering a catheter. Like, at a high level, what are the engineering design choices or categories?

**A. Yes, to me, when they're designing a catheter, they've got to -- they obviously have to -- the engineers will figure out the right materials; in other words, what types of plastics or what liners do they need, what -- you know, what reinforcement methods are they going to use for the catheter design. You know, there's things like -- you know, in today's world you can have laser cut hypo tubes, you can have a brain design, you know, you can have all different types of catheter construction materials. And that's something the engineers are going to figure out, what they feel is the best way to do that.**

**Where we typically involve on the physician side is helping them understand, okay, we want the catheter to get to this position, and here's the anatomy we have to navigate through and**

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**where are the -- you know, what lengths do we transition from being super soft to soft but a little bit of support to very supportive, and where do those transitions occur and how do they make those transitions happen.**

Q. So to -- to properly design one of these catheters, these engineers need to talk to physicians --

**A. Yes.**

Q. -- or consult with them; right?

**A. Yeah. And then once you actually make the catheter, you have to take it out and use it on some people. And then you typically have to iterate it after that as well, to, you know, tweak something here or there. Maybe we need a little more support here and a little less support here and a little more flexibility here. And then you have a product that will be a commercial success.**

Q. So generally, for instance, at Imperative, your design engineers would consult with physicians or you before making some substantial modifications to the device?

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**A. Well, I mean, that's part of it. So if you look at Imperative Care, the big difference at Imperative Care is we have four physicians that we all -- we're the early people with aspiration. And we founded this ten years ago before aspiration was really a thing. And now that it's a thing, Imperative is well positioned because we've got so -- we've always been a believer in it, and we didn't, you know, start it three years ago, we started it ten years ago. And we've iterated and developed our way that way, and we did it by specifically doctors working with engineers to develop these products specifically for stroke thrombectomy.**

**And once we did that, we said, oh, hey, we can apply this to peripheral and, you know, and PE and DVT and all that other stuff just like Penumbra did. We took a page out of their playbook to do it.**

Q. Yeah, and I guess my question was more specific or I guess more general.

A design engineer making a catheter

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wouldn't make a substantive change to it without consulting a doctor; right?

MR. STOWELL: Objection. Vague.

THE WITNESS: I'm sure a lot of them would. But I wouldn't think it would -- I wouldn't think it would end well. Or I wouldn't think it would be a success -- I mean, in my opinion, the successful endeavors that are out there start with an engineer developing something. You put it to use. You find where does it excel, where does it not excel, and what changes can we make to improve it. And then they go back and make those changes, come back and try it, and, hey, that's great or now it's you need to do this even more.

And that's how you -- and I say that because we did that with Imperative. Our zoom catheters are -- you know, some of them are the most frequently used out there commercially, but it's because we had to iterate. You know, we had engineers that worked with doctors early on, and then we refined it as it was used.

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And then you look at companies like Medtronic, Stryker and they had gone through five or six iterations of aspiration catheters, but they don't -- they don't iterate and do it in the way that I just mentioned.

MR. MILLER: And it's Stryker, S-T-R-Y-K-E-R.

THE WITNESS: Yes.

BY MR. MILLER:

Q. Who are Imperative's primary competitors?

**A. Anybody that makes aspiration catheters. Anybody that treats ischemic stroke, I should say. Anybody that treats PE, DVT.**

**Want specific names? Medtronic, Stryker, MicroVention Terumo --**

(Reporter clarifies.)

THE WITNESS: T-E-R-U-M-O.

Johnson & Johnson and its various names of -- Cerenovus or whatever they call themselves these days. Penumbra. You know, which -- you know, all the frequent acquisitions, they're all combining now, but,

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yeah.
BY MR. MILLER:
Q. Is it fair to say that Imperative stands to gain if the patents here are found unpatentable and not used against Imperative?
**A. I mean, I guess it's all in your perspective. I mean, we don't have a very big peripheral vascular business at the moment, so I don't think we gain anything. But we certainly wouldn't -- won't build it if we don't have a solid foundation to build on. I'd say we probably have a lot to lose, but, you know, or -- or opportunity, however you want to say it.**
MR. MILLER: Can we take a ten-minute break?
MR. STOWELL: Sure.
MR. MILLER: Thanks.
THE VIDEOGRAPHER: The time now is 10:30 a.m. We are now off the record.
(A brief recess was taken.)
THE VIDEOGRAPHER: Back on the video record. The time now is 10:43 a.m.

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Counsel, you may proceed.
BY MR. MILLER:
Q. So I know we've looked at this table of exhibits --
**A. Yep.**
Q. -- so many times. And I'm sorry to make you look at it one more time.
**A. No problem.**
Q. So I've asked you about a few specific things on here, including the patents and a few of these other exhibit numbers. And I just wanted to walk through a few of them just to confirm one way or another that you haven't read them.
So we talked about Exhibit 1005 and Exhibit 1006. Have you read any of between Exhibit 1007 and Exhibit 1020?
MR. STOWELL: Just for the record, the documents aren't in front of Dr. Turk, so he's operating based on recollection.
THE WITNESS: Yeah, I mean, not that I'm aware of.

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BY MR. MILLER:
Q. Dr. Turk, do you consider yourself an expert in treating PE and DVT?
**A. No.**
Q. Do you consider yourself an expert in mechanical thrombectomy?
**A. Yes.**
Q. Do you consider yourself an expert in mechanical thrombectomy for any type of clot or only with respect to neurovascular clots?
**A. I think I -- I don't know the way to answer that. I think I have a lot of expertise when it comes to the understanding of fundamentals and the principals of aspiration thrombectomy. I think when it comes to stroke thrombectomy, I'm -- I think I have a tremendous amount of expertise in that both conceptually and, you know, a very busy practice and a lot of experience in case volume.**
**I'll leave it at that.**
Q. But you haven't -- strike it.
During the breaks today, have you discussed the substance of your testimony with

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anyone?
**A. No. We've talked about insurance. Homeowner's insurance, that is.**
Q. With respect to other types of -- so you stated that you have tremendous amounts of experience with stroke thrombectomy.
You don't have the same level of experience with PE and DVT thrombectomy; correct?
**A. Correct.**
**I've done 50 to 100 -- personally 50 to 100 stroke thrombectomy cases a year for 15, 20 years, so...**
MR. MILLER: I believe we've already made this objection on the record before the board, but we'll make it again here.
Respondent objects to Dr. Turk's testimony including his declarations for lack of relevance to the patents and that his testimony is unreliable for not having considered the prior art or the patents themselves. Just putting that on the record.
MR. STOWELL: We disagree.

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MR. MILLER: I have no further questions pending redirect.
MR. STOWELL: I do not have any questions for Dr. Turk.
There was one detail that came up during the deposition today that may be subject to confidentiality, and that is Dr. Turk's compensation as chief medical officer. I'm working on getting confirmation from the client as to whether that is confidential information.
James, if we could agree to keep the rough confidential and only disclose it to outside attorneys' eyes only for now, I will email you within the next day or so to let you know whether I need to mark that small section of the transcript confidential.
MR. MILLER: Totally fine.
MR. STOWELL: Great. With that, I have no further comments.
THE WITNESS: Awesome.
THE VIDEOGRAPHER: The time now is 10:50 and this marks the end of the deposition of

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Dr. Aquilla Turk, III. Thank you, everyone.
(Deposition concluded at 10:50 a.m.)
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CERTIFICATE OF OATH
STATE OF FLORIDA
COUNTY OF PALM BEACH

I, the undersigned authority, certify that AQUILLA S. TURK, III personally appeared before me and was duly sworn.

Dated this 26th day of February, 2026.



Pamela J. Pelino, RPR, FPR, CLR
Notary Public - State of Florida
Commission No.: HH 275669
Commission Expires: June 13, 2026

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CERTIFICATE
STATE OF FLORIDA
COUNTY OF PALM BEACH

I, Pamela J. Pelino, Registered Professional Court Reporter and Notary Public in and for the State of Florida at Large, do hereby certify that the aforementioned witness was by me first duly sworn to testify the whole truth; that I was authorized to and did report said deposition in stenotype; and that the foregoing pages are a true and correct transcription of my shorthand notes of said deposition.
I further certify that said deposition was taken at the time and place hereinabove set forth and that the taking of said deposition was commenced and completed as hereinabove set out.

I further certify that I am not attorney or counsel of any of the parties, nor am I a relative or employee of any attorney or counsel of party connected with the action, nor am I financially interested in the action.

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Dated this 26th day of February, 2026.



Pamela J. Pelino, RPR, FPR, CLR

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