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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

IMPERATIVE CARE, INC.,	)	Case Nos. IPR2025-01021
	)	IPR2025-01025
Petitioner,	)	IPR2025-01264
	)	
VS.	)	Patent Nos. 11,969,333
	)	11,974,910
INARI MEDICAL, INC.,	)	12,016,580
	)	
Patent Owner.	)	
	)	

VOLUME I

IN-PERSON VIDEOTAPED DEPOSITION OF
TROY L. THORNTON
WEDNESDAY, FEBRUARY 18, 2026

STENOGRAPHIC REPORTER: CHRISTA YAN, CSR NO. 14316, RPR

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ALSO PRESENT PERSONALLY:
PHILIP ASTOR, The Videographer

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E X H I B I T S

EXHIBIT	MARKED FOR IDENTIFICATION	PAGE
No Exhibits Marked.		

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BE IT REMEMBERED that on WEDNESDAY, the 18TH DAY OF FEBRUARY, 2026, at the hour of 9:06 a.m., of said day, at 333 Bush Street, 21st Floor, San Francisco, California 94104, before me, CHRISTA YAN, a Certified Shorthand Reporter, State of California, personally appeared TROY L. THORNTON, who was examined as a witness in said cause; that said transcript format was prepared in accordance with California Code of Regulations Section 2473.

--oOo--

5

1 THE VIDEOGRAPHER: Here begins Media Number 1 in the
2 videotaped deposition of Troy L. Thornton in the matter of
3 Imperative Care, Inc., versus Inari Medical, Inc., PTAB in
4 the United States Patent and Trademark Office before the
5 Patent Trial and Appeal Board. Case Number IPR2025-01021,
6 01025 and 01264.
7 Today's date is February 18th, 2026. The time on
8 the video monitor is 9:06. The videographer today is
9 Philip Astor representing Planet Depos. This video
10 deposition is taking place at 333 Bush Street, San
11 Francisco, California.
12 Would counsel please voice identify themselves
13 and state whom they represent.
14 MR. HAMILTON: This is Joseph Hamilton from Perkins
15 Coie representing Patent Owner.
16 MR. BARNES: This is Brian Barnes of Knobbe Martens,
17 and I represent the Petitioner, Imperative Care.
18 THE VIDEOGRAPHER: The court reporter today is Christa
19 Yan representing Planet Depos. The witness will now be
20 sworn.
21 TROY L. THORNTON,
22 the Witness, called on behalf of Patent Owner, being duly
23 sworn to state the truth, the whole truth, and nothing but
24 the truth, testified on oath as follows:
25 EXAMINATION

6

1 BY MR. HAMILTON:
2 Q So just for clarification on the record, I
3 believe the court reporter -- excuse me, the videographer
4 identified case number and then listed three numbers.
5 That is three separate cases so those are different case
6 numbers.
7 Good morning, Mr. Thornton. Thank you for coming
8 in today. Do you understand you're under oath?
9 **A Yes.**
10 Q Is there any reason you can't give your full,
11 complete, and truthful testimony here today?
12 **A No.**
13 Q Are you on any medications or have any medical
14 conditions that might prevent you from giving your full,
15 complete, and truthful testimony here today?
16 **A No.**
17 Q So we've done this several times, haven't we?
18 **A Yes.**
19 Q In different cases.
20 I'm not going to go through all the instructions,
21 but I do want to comment on a couple of things. So if at
22 any time you don't understand a question, please ask for
23 clarification, definitions or explanations. If you don't,
24 we'll assume you understood the question; is that fair?
25 **A Yes.**

7

1 Q As you are aware, there's a court reporter taking
2 down everything we say. So I will try my best, if you
3 could also try your best, not to speak over each other.
4 **A Yes.**
5 Q And then when you give a response, please give an
6 audible response, not a nod but a yes, or a no; is that
7 fair?
8 **A Yes.**
9 Q If you need a break, feel free to ask. One thing
10 I would ask is that we don't take a break while a
11 question's pending. Is that okay with you?
12 **A Yes.**
13 Q Did you bring any documents with you here today?
14 **A No.**
15 Q I'm going to hand you a couple of exhibits.
16 We're going to start with Exhibit 1003.
17 THE STENOGRAPHIC REPORTER: And these were all
18 premarked, correct, Counsel?
19 MR. HAMILTON: That is correct.
20 MR. BARNES: And, Joe, just for the record, do we want
21 to -- I don't know any sort of notation you want to make
22 that this is Exhibit 1003 in the 580 IPR, just given that
23 today's deposition covers multiple cases to keep the
24 record clear.
25 MR. HAMILTON: Sure. So I'll say for the record,

8

1 we're going to go through several exhibits today. Unless
2 otherwise indicated, the exhibits are the exhibit numbers
3 as marked in IPR2025-01025. And if it's not, I will do my
4 best to clarify that.
5 BY MR. HAMILTON:
6 Q And if you have any questions or confusion about
7 what the exhibit is, Mr. Thornton, please feel free to
8 ask.
9 **A Okay.**
10 Q So this first exhibit is Exhibit 1003 from
11 IPR2025-01264. Do you recognize this Exhibit 1003?
12 **A Yes.**
13 Q Is this your declaration in the case number I
14 just identified?
15 **A Yes.**
16 Q Does that case involve U.S. Patent Number
17 12,016,580?
18 **A Yes.**
19 Q Can we, for simplicity, refer to this declaration
20 Exhibit 1003 here today not as Exhibit 1003 but as your
21 declaration with reference to the '580 patent?
22 **A Yes.**
23 Q Would you understand what that meant?
24 **A Yes.**
25 Q Are you aware of any mistakes or is there

9

1 anything you want to change in your declaration with
2 respect to the '580 patent?
3 **A There's nothing I'd like to change.**
4 Q Are you aware of any mistakes in your declaration
5 with respect to the '580 patent?
6 **A I recall seeing a couple of typos. I can't**
7 **remember if it was this patent or -- this declaration or**
8 **one of the other two that we're talking about.**
9 Q Did any of those typos affect the substance of
10 your declaration in the '580 patent?
11 **A No.**
12 Q I'm going to hand you another exhibit. This
13 exhibit is marked 1003 in IPR Number 1... give me a
14 minute. IPR2025-0 -- so looking at the exhibit, do you
15 see an IPR number listed on that exhibit?
16 **A Not on the front page.**
17 Q Do you recognize this exhibit?
18 **A Yes.**
19 Q Is this your declaration in the IPR involving
20 U.S. Patent 11,969,333?
21 **A Yes.**
22 Q And I'm going to represent to you that this is
23 your declaration in IPR2025-01021. Do you have any reason
24 to doubt that this is your declaration in that IPR number?
25 **A No. But the IPR number's not shown on the front**

10

1 **page so I'm not... I have no reason to doubt it. But...**
2 Q Do you recall doing a declaration with respect
3 to -- well, let me withdraw that question.
4 Today, for simplicity, I'm going to refer to this
5 exhibit as your declaration with respect to the '333
6 patent; is that fair?
7 **A Yes.**
8 Q Are there any mistakes or is there anything you
9 want to change in this declaration with respect to the
10 '333 patent?
11 **A There may have been a typo as I said before. I**
12 **don't remember which, which declaration the typos were in.**
13 **But it doesn't affect anything -- doesn't affect my**
14 **opinions or I don't need to change anything in here.**
15 Q Did those typos affect the substance of your
16 opinions in this declaration with respect to the '333
17 patent?
18 **A No.**
19 Q I'm going to hand you another exhibit. This
20 exhibit is marked as Exhibit 1003 in IPR2025-01025. Do
21 you recognize this exhibit?
22 **A Yes.**
23 Q Is this your declaration with respect to U.S.
24 Patent Number 11,974,910?
25 **A Yes.**

11

1 Q So like the other two, while this is the actual
2 Exhibit 1003 in IPR2025-01025, I'm going to refer to this
3 exhibit as your declaration with respect to the '910
4 patent, will you understand that I'm referring to this
5 exhibit?
6 **A Yes.**
7 Q Are there any mistakes or is there anything you'd
8 like to change in your declaration with respect to the
9 '910 patent?
10 **A There may have been typos, but there's nothing I**
11 **would want to change in this declaration.**
12 Q And do any of those typos, do you recall, change
13 the substance of your declaration with respect to the '910
14 patent?
15 **A No.**
16 Q Could you state your full name for the record?
17 **A Troy Layne Thornton, it's L-a-y-n-e.**
18 Q Did you do any preparation for your deposition
19 here today?
20 **A Yes.**
21 Q What did you do?
22 MR. BARNES: Mr. Thornton, I'll just caution you not
23 to reveal the substance of any communications with
24 counsel. But you can otherwise answer.
25 THE WITNESS: I reviewed a number of documents on my

12

1 own. I met with counsel yesterday.
2 BY MR. HAMILTON:
3 Q Other than reviewing documents and meeting with
4 counsel yesterday, did you do anything else to prepare for
5 your deposition here today?
6 MR. BARNES: Same instruction.
7 THE WITNESS: No.
8 BY MR. HAMILTON:
9 Q When you say counsel, who did you meet with?
10 **A Brian Barnes yesterday. There was a phone**
11 **conference with Brian and Josh. What's Josh's last name?**
12 Q Stowell, would that sound right?
13 **A Stowell, S-t-o-w-e-l-l, I believe. Several days**
14 **ago.**
15 Q Oh, so other than your meeting yesterday, you met
16 with -- you had a teleconference with Josh Stowell in
17 preparation for your deposition here today?
18 **A Josh and Brian on a phone call a few days ago.**
19 Q Yesterday, did you meet in person with anybody?
20 **A I met with Brian yesterday in person.**
21 Q Was anybody else present either in person or
22 electronically in that meeting yesterday?
23 **A No.**
24 Q And then the previous meeting a few days ago,
25 pardon me, I think you said teleconference, other than

13

1 that teleconference with both Brian and Josh and your
2 meeting in person with Brian yesterday, did you do any
3 other preparation for your deposition here today?
4 **A Reviewed documents on my own.**
5 Q Anything else?
6 **A No.**
7 Q What documents did you review?
8 MR. BARNES: Objection.
9 To the extent that you reviewed any documents at
10 the instruction of counsel, I instruct you not to answer.
11 If you can otherwise answer the question, you can.
12 THE WITNESS: I reviewed these three declarations and
13 several of the references that these declarations refer
14 to.
15 BY MR. HAMILTON:
16 Q Other than the three declarations and several
17 references that the declarations refer to, did you review
18 any other documents?
19 MR. BARNES: Same instruction.
20 THE WITNESS: So documents provided by counsel, I
21 should not refer -- I should not mention? Counsel?
22 BY MR. HAMILTON:
23 Q Let me first ask you -- I don't want to step on
24 any kind of privilege issue so let me just first ask you,
25 did any documents that counsel asked you to review refresh

14

1 your recollection of any issues in any of these three
2 IPRs?
3 MR. BARNES: Objection; assumes facts not in evidence.
4 THE WITNESS: I'm not sure.
5 BY MR. HAMILTON:
6 Q So let's start with did you review any documents
7 at the instruction of counsel?
8 MR. BARNES: Objection.
9 You can answer this yes or no. But otherwise, I
10 instruct you not to answer.
11 THE WITNESS: Yes.
12 BY MR. HAMILTON:
13 Q Do you recall what those documents were?
14 MR. BARNES: Same instruction. You can answer this
15 yes or no.
16 THE WITNESS: Yes.
17 BY MR. HAMILTON:
18 Q Did any of those documents refresh your
19 recollection of any issue with respect to your three
20 declarations or these three IPRs?
21 **A I'm not sure.**
22 Q So for the three declarations in front of you, at
23 the start of each, there's a table of exhibits after the
24 table of contents. Did you review any documents that are
25 not listed in any of those tables of exhibits?

15

1 MR. BARNES: Object to the form.
2 THE WITNESS: Yes.
3 BY MR. HAMILTON:
4 Q And what documents did you review that are not
5 listed in those tables of exhibits?
6 MR. BARNES: Objection.
7 To the extent you reviewed any documents at the
8 instruction of counsel, I instruct you not to answer. If
9 you can otherwise answer the question, you may.
10 THE WITNESS: I reviewed documents that were provided
11 by counsel that are not on this list.
12 BY MR. HAMILTON:
13 Q Did you -- for those documents, do you know what
14 those documents are as you sit here today?
15 **A Yes.**
16 Q Did you rely on any of those documents in coming
17 to any of your opinions in any of the three declarations?
18 **A No.**
19 Q Let's take the table of exhibits in the
20 declaration with respect to the '910 patent. Do you have
21 that in front of you?
22 **A Yes.**
23 Q How many exhibits are listed there?
24 **A It goes from 1001 to 1053 so there's probably**
25 **about 53.**

16

1 Q Did you read every one of those exhibits?
2 **A Not recently.**
3 Q Have you ever read every one of those exhibits?
4 **A No.**
5 Q So would it be fair to say that for at least the
6 exhibits that you did not read listed in the table of
7 exhibits of your declaration with respect to the '910
8 patent, you did not rely on those exhibits in coming to
9 your opinions in this case -- in these three cases?
10 MR. BARNES: Object to the form.
11 THE WITNESS: Can you repeat the question?
12 BY MR. HAMILTON:
13 Q If you haven't read one of the exhibits listed
14 there, is it fair to say you haven't relied on that
15 exhibit in reaching your opinion in the declaration with
16 respect to the '910 patent?
17 **A Yes.**
18 MR. BARNES: Object to the form.
19 BY MR. HAMILTON:
20 Q Are you able to identify which exhibits you have
21 not read in the list of exhibits in your declaration with
22 respect to the '910 patent?
23 **A Yes.**
24 Q Which exhibits have you not read?
25 **A Going backwards, 1052 interview summary, I don't**

17

1 **believe I've read that. I don't believe I've read 1051.**
2 **I don't recall reading 1051 anyway. 1048, Imperative's**
3 **notice of motion, I have not read that. 1047, I have not**
4 **read that. I don't recall 1046, the ZIV, Z-I-V, patent.**
5 **I don't recall if I've read that. I haven't seen it**
6 **recently. 1044, case management and scheduling order, I**
7 **have not seen that.**
8 **1043, Inari's notice of motion, et cetera, I have**
9 **not seen that. 1042, Inari's supplemental infringement**
10 **contentions, I have not seen that. 1028, letter from**
11 **Inari to Imperative, I don't believe I've seen that.**
12 **There may be others, but that seems to be the**
13 **obvious ones that I have not reviewed.**
14 Q So I don't want to make it difficult for you, and
15 I don't want to make it a memory test. Would it be fair
16 to say that if you referenced an exhibit in your
17 declaration, you relied on that exhibit in rendering your
18 opinions with respect to the subject matter of the
19 particular declaration?
20 **A Yes, if it's referenced in this declaration.**
21 Q And would it be fair to say conversely if you
22 didn't reference an exhibit, you did not rely on that
23 reference in rendering your opinions in the declaration
24 for each particular matter?
25 MR. BARNES: Object to the form.

18

1 THE WITNESS: Well, I certainly also relied on my
2 experience and knowledge of the field of, you know,
3 cardiovascular procedures.
4 BY MR. HAMILTON:
5 Q So other than your experience and knowledge of
6 the field of cardiovascular procedures and the exhibits
7 that are cited in any one of your declarations, is it fair
8 to say that if the exhibit is not cited in your
9 declaration, you didn't rely on that exhibit in forming
10 your opinions in this matter -- in these matters? Excuse
11 me.
12 **A That's probably true.**
13 Q Other than -- wait, let me withdraw that
14 question -- that start of the question.
15 Did you rely on conversations or communications
16 with any individual in forming your opinions in any of the
17 three IPRs at issue today?
18 MR. BARNES: Objection.
19 To the extent you had conversations with counsel,
20 I instruct you not to reveal the substance of those
21 conversations. If you can otherwise answer the question,
22 you may.
23 THE WITNESS: I certainly worked with counsel to put
24 together these declarations.
25

19

1 BY MR. HAMILTON:
2 Q So other than counsel, and by counsel you're
3 referring to counsel for the petitioner, Imperative Care;
4 is that right?
5 **A Yes.**
6 Q Did you speak with any other counsel with respect
7 to these declarations?
8 **A No.**
9 Q So other than for counsel for petitioner,
10 Imperative Care, did you speak with or communicate with
11 any other individual in preparing your declarations in
12 these three IPRs?
13 **A No.**
14 Q If you could... withdraw that.
15 I'm going to hand you a document identified as
16 U.S. Patent 11,974,910.
17 THE STENOGRAPHIC REPORTER: Is this being marked,
18 Counsel?
19 MR. HAMILTON: No.
20 BY MR. HAMILTON:
21 Q So this document, do you see an exhibit number on
22 that document?
23 **A It's Imperative Care Exhibit 1001.**
24 Q Do you understand this to be the '910 patent that
25 is the subject of your declaration with respect to the

20

1 '910 patent?
2 **A Yes.**
3 Q And I'm going to state for the record, this
4 Exhibit 1001 is the Exhibit 1001 from IPR2025-0125.
5 To avoid confusion between, there will be
6 multiple Exhibit 1001s, I'm going to refer to this
7 document as the '910 patent. Will you understand that I'm
8 referring to this Exhibit 1001 that's in front of you?
9 **A Yes.**
10 Q I'm going to hand you another Exhibit 1001. And
11 I'm going to represent to you that this is Exhibit 1001
12 from IPR2025-01021.
13 Do you recognize this document?
14 **A Yes.**
15 Q Is this U.S. Patent 11,969,333?
16 **A Yes.**
17 Q Is this the '333 patent that is the subject of
18 your declaration with respect to the '333 patent that we
19 discussed earlier?
20 **A Yes.**
21 Q So to avoid confusion, today I'm going to refer
22 to this document as the '333 patent. Will you understand
23 that I'm referring to this Exhibit 1001 from
24 IPR2025-01021?
25 **A Yes. Though the IPR number is not shown on my**

21

1 **declaration, so I'm not confirming that that's the correct**
2 **IPR number.**
3 Q So you're not sure if it's the correct IPR
4 number, but you are sure this is the '333 patent that is
5 the subject of your declaration with respect to the '333
6 patent that you looked at earlier today?
7 **A Yes.**
8 Q Let's do one more of those. So now, I've got --
9 I've handed you what's identified as U.S. 12,016,580. Do
10 you recognize this document?
11 **A Yes.**
12 Q Is this the '580 patent that is the subject of
13 your declaration with respect to the '580 patent?
14 **A Yes.**
15 Q So to avoid confusion, with respect to the
16 exhibit numbers, today I'm going to refer to this patent
17 as the '580 patent. Is that fair?
18 **A Yes.**
19 Q And when I do that, you'll understand that I'm
20 referring to this Exhibit 1001 from IPR2025-01026 --
21 excuse me, 01264?
22 **A Yes.**
23 Q If you could put back in front of you the '910
24 patent. I'm going to ask you a few questions about this
25 patent. Do you understand what the field of the invention

22

1 is for the '910 patent?
2 **A Yes.**
3 Q And what is the field of the invention?
4 **A As I state in the '910 declaration, on page 8,**
5 **the references are from the same field as the '910 patent.**
6 **That is, devices for aspirating unwanted material from a**
7 **patient.**
8 Q What does that mean, aspirating unwanted material
9 from a patient?
10 **A Aspirating means providing a vacuum, and this**
11 **patent talks about the unwanted material being blood clots**
12 **or emboli that are in the vasculature.**
13 Q Is there a difference between a blood clot and an
14 emboli?
15 **A Not that I'm aware of.**
16 Q Have you also heard the term thrombi?
17 **A Yes.**
18 Q Is there a difference between a thrombi and a
19 blood clot and an emboli?
20 MR. BARNES: Object to the form.
21 THE WITNESS: Not that I'm aware of.
22 BY MR. HAMILTON:
23 Q If you could look at the '910 patent, page 49.
24 You can see at about line 20, Column 1 the title,
25 Technical Field. Do you see that?

23

1 **A Yes.**
2 Q Do you see the first sentence, under technical
3 field?
4 **A Yes.**
5 Q Would you agree that that's a reasonable
6 description of the technical field of the '910 patent?
7 **A Yes.**
8 Q And is that the same in substance to your
9 statement on page 8 of your declaration with respect to
10 the '910 patent devices for aspirating unwanted material
11 from a patient?
12 **A I think they're quite similar, yes.**
13 Q And when you say unwanted material on page 8 of
14 your declaration with respect to the '910 patent, the
15 unwanted material that is addressed in the '910 patent is
16 emboli and thrombi, correct?
17 MR. BARNES: Object to the form.
18 THE WITNESS: Yes. In general, removing blood clots,
19 emboli, thrombus from within the blood vessel of a
20 patient.
21 BY MR. HAMILTON:
22 Q Does the field of the invention of the '910
23 patent include removing anything else besides emboli,
24 thrombi, or blood clots?
25 **A I don't recall them discussing removing anything**

24

1 **else, certainly not the focus of these patents.**
2 Q And so what I want to understand is in -- on
3 page 8 of your declaration with respect to the '910
4 patent, you say, Unwanted material. And did you mean
5 unwanted material to include anything other than a blood
6 clot, thrombi, or emboli?
7 **A Certainly, the focus of these patents are around**
8 **blood clots, thrombus, emboli. I have witnessed examples**
9 **of other things being removed from patients, specifically,**
10 **air embolus. And they used aspiration to remove an air**
11 **embolus from a coronary artery. But the focus of these**
12 **patents is removing thrombus and blood clots from**
13 **patients.**
14 Q Is an air embolus an emboli as that term is used
15 in the '910 patent the sentence we just discussed,
16 Column 1, line 25?
17 **A I don't recall the patent talking about air**
18 **emboli. They're primarily talking about blood clots that**
19 **form emboli.**
20 Q So is it fair to say that the field of the
21 invention of the '910 patent is directed to removing blood
22 clots, let's leave it at that, blood clots?
23 MR. BARNES: Object to the form.
24 THE WITNESS: Blood clots, thrombus, emboli, there's
25 multiple terms. I mean, that does seem to be the focus of

25

1 these patents.
2 BY MR. HAMILTON:
3 Q And when you say emboli and thrombus, you mean
4 one of those formed from a blood clot; is that right?
5 **A Yes, these are formed from blood products.**
6 Q Is there a difference between a blood clot and a
7 thrombus?
8 **A Not that I'm aware of.**
9 Q Is there a difference between a blood clot and
10 embolus?
11 **A I think embolus has a broader meaning that could**
12 **be an air embolus. It could be a piece of the plastic**
13 **that broke off of a device and embolized in the patient.**
14 Q And when the term embolus or emboli is used in
15 the '910 patent, it's referring to the emboli formed from
16 a blood clot and not an air or a piece of plastic; is that
17 correct?
18 **A The patent is certainly focused on blood clots**
19 **and blood products.**
20 Q What do you mean by focused?
21 **A That's what they discuss.**
22 Q They don't discuss treating an air emboli, do
23 they, an air embolus, do they?
24 **A I don't believe so.**
25 Q Or a piece of plastic in the vasculature,

26

1 correct?
2 **A Correct.**
3 Q So we were just discussing the field of the
4 invention for the '910 patent. What I want to understand
5 is, is there any difference between the field of the
6 invention of the '910 patent and the '333 patent?
7 **A I believe that in my three declarations, we used**
8 **the same sentence that the field is devices for aspirating**
9 **unwanted material from a patient.**
10 Q So then is it fair to say that the field of the
11 invention of the '910 patent and the field of the
12 invention of the '333 patent are the same?
13 **A I believe so.**
14 Q And then same question with respect to the '580
15 patent. Is there any difference between the field of the
16 invention of the '580 patent and the '910 patent?
17 **A Once again, on page 8 of the '580 declaration,**
18 **the same terms of devices for aspirating unwanted material**
19 **from a patient references are also pertinent to the**
20 **problem the inventor was focused on, removing clots,**
21 **emboli, thrombi from a patient's blood vessel.**
22 Q So is there any difference between the field of
23 the invention of the '580 patent and the '910 patent?
24 **A No.**
25 Q So today, I'm going to ask you a series of

27

1 questions about various terms and principles. And I'm
2 going to focus on the '910 patent as I do that. As you
3 sit here today, do you have any understanding of the
4 different use of any term or scientific principle with
5 respect to the field of the invention of the '910 patent
6 and the use of those terms in the '580 patent or '333
7 patent?
8 MR. BARNES: Object to the form.
9 THE WITNESS: Can you repeat the question?
10 BY MR. HAMILTON:
11 Q So if a term is used in the '910 patent, and that
12 same term is used in the '580 patent, is it fair to say
13 that a person of skill in the art would understand that
14 term to have the same meaning?
15 **A Not necessarily. I think each patent stands on**
16 **its own. And the specifications may be different among**
17 **the three patents at issue here.**
18 Q So let's address that first. So the '910 patent
19 and the '333 patent, do you have an understanding of
20 whether those specifications are the same or different?
21 MR. BARNES: Object to the form.
22 THE WITNESS: Yeah, the figures do seem the same
23 between the '910 and the '333 patents. So I will assume
24 that the rest of the specification is the same until you
25 get to the claims.

28

1 BY MR. HAMILTON:
2 Q Are you aware of any term in the '333 patent that
3 has a different meaning from the same term than the '910
4 patent?
5 **A I'm not aware of any.**
6 Q Are you aware of any term in the '580 patent that
7 has a different meaning than the '910 patent?
8 MR. BARNES: Object to the form.
9 THE WITNESS: Well, specifications, just looking at
10 the first couple of images, it is different in the '580
11 patent. So there could be different terms as they are
12 defined and explained in each patent.
13 BY MR. HAMILTON:
14 Q Are you aware of any term that is different --
15 that is used differently between the '910 patent and the
16 '333 -- excuse me, the '580 patent?
17 **A I haven't considered that.**
18 Q When you say you haven't considered it, you mean
19 you didn't address that in your declarations?
20 **A I don't believe I did.**
21 Q Have you identified in your declarations any term
22 that has a different meaning in the '580 patent from the
23 '333 or '910 patents?
24 **A I haven't identified any term, but I haven't not**
25 **identified any -- I have not identified any term and I**

29

1 **have not not identified any term that would be different.**
2 **I haven't looked for any differences among the patents.**
3 Q So with respect to the terminology used in your
4 '910 declaration -- declaration with respect to the '910
5 patent, your declaration with respect to the '333 patent
6 and your declaration with respect to the '580 patent, you
7 have treated all the terminology as interchangeable
8 between the three; is that correct?
9 MR. BARNES: Objection; misstates testimony.
10 THE WITNESS: I would have used terminology within the
11 specific patent that I was writing the declaration for.
12 BY MR. HAMILTON:
13 Q And that terminology would be from the field of
14 the invention of each specific patent, correct?
15 **A Would have been from each -- each of the three**
16 **patents. Yes.**
17 Q And as we just went through, the field of the
18 invention for each of the three patents is the same,
19 right?
20 **A Yes. I considered them the same field of**
21 **invention.**
22 Q If you look at the '910 patent, do you have that
23 in front of you?
24 **A Yes.**
25 Q And then turn to page 66. You look at line 54 on

30

1 Column 35. Do you see the term pulmonary embolism?
2 **A Yes.**
3 Q What is the meaning of the term pulmonary
4 embolism as used in the '910 patent?
5 **A It's a blood clot or thrombus located within the**
6 **pulmonary vasculature.**
7 THE STENOGRAPHIC REPORTER: I'm sorry, located within
8 the what?
9 THE WITNESS: Pulmonary vasculature.
10 THE STENOGRAPHIC REPORTER: Thank you.
11 BY MR. HAMILTON:
12 Q And you said a blood clot or thrombus. Is there
13 a difference between a blood clot or thrombus?
14 MR. BARNES: Objection; asked and answered.
15 THE WITNESS: Not that I'm aware of.
16 BY MR. HAMILTON:
17 Q And what is the pulmonary vasculature?
18 **A The blood vessels that provide blood in and out**
19 **of the lungs.**
20 Q If you look at the line just before that
21 identification of pulmonary embolism, you see the phrase,
22 Treating clot material. Do you see that?
23 **A Can you say that again?**
24 Q If you look at line, I believe 52, do you see the
25 phrase, Treating clot material?

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1 **A Yeah, the first claim says a clot treatment**
2 **system for treating clot material.**
3 Q And --
4 **A Comprising the pulmonary embolism in the**
5 **vasculature of a patient, comprising, et cetera.**
6 Q And what's meant by clot material in that phrase?
7 **A The pulmonary embolism.**
8 Q Would that be the blood clot that we referenced
9 earlier?
10 MR. BARNES: Object to the form.
11 THE WITNESS: Yeah, it's thrombus or blood clot that's
12 causing a pulmonary embolism.
13 BY MR. HAMILTON:
14 Q And what does that mean, treating?
15 **A Well, Claim 1 is discussing an aspiration system.**
16 **So in Claim 1, I believe it's relating to aspirating or**
17 **removing, providing suction to remove the clot material.**
18 Q If you move over to Column 36, line 9. Do you
19 see the phrase, Size of 16 French?
20 **A Yes.**
21 Q Do you understand what that phrase means?
22 **A Yes.**
23 Q And what does that mean?
24 **A That the second catheter has a size of 16 French**
25 **or greater.**

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1 Q And what is a size of 16 French?
2 **A Generally, with catheters it relates to the**
3 **outside diameter of the catheter shaft.**
4 Q And when you say generally, is there instances
5 where it relates to something other than the outside
6 diameter?
7 **A Company sometimes refer to different products'**
8 **French size as the ID or the OD. Introducer sheets are**
9 **sometimes referred to, I believe, are labeled based on the**
10 **ID so that the physician knows what size of catheter could**
11 **fit within it.**
12 THE STENOGRAPHIC REPORTER: You said ID and OD?
13 THE WITNESS: Yes. Inside diameter and outside
14 diameter.
15 THE STENOGRAPHIC REPORTER: Thank you.
16 And you said introducer?
17 THE WITNESS: I think so. Can you read that back?
18 (Record read.)
19 THE WITNESS: Yeah, introducer sheets, yes.
20 BY MR. HAMILTON:
21 Q So 16 French in Column 36, line 9, do you
22 understand does that refer to the internal diameter or
23 outside diameter?
24 **A I think in terms of this patent, they don't**
25 **specify whether it's inside or outside. So I'm not sure**

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1 **with respect to this patent.**
2 Q Does 16 French refer to a -- can that be
3 converted into a dimension of diameter in millimeters?
4 **A Yes.**
5 Q And how would you make that conversion?
6 **A Divide by three to get millimeters.**
7 Q And to be clear, if you divide the French by
8 mill -- excuse me, by three, you get the diameter in
9 millimeters; is that correct?
10 **A Yes, diameter in millimeters.**
11 Q Is that well-understood in the field of the '910
12 patent?
13 **A In the field of medical devices, yes.**
14 Q Do you understand what the term deep venous
15 thrombosis means?
16 **A Yes.**
17 Q And what does that term mean?
18 **A A blood clot in the peripheral vasculature,**
19 **usually the deep veins in the leg.**
20 Q And is a deep venous thrombosis commonly referred
21 to as DVT?
22 **A Yes.**
23 Q If I refer to DVT, will you understand that I'm
24 referring to deep venous thrombosis today?
25 **A Yes.**

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1 Q And then similarly with pulmonary embolism, is
2 that often referred to as PE?
3 **A Yes.**
4 Q If I refer to PE today, will you understand that
5 I'm referring to pulmonary embolism?
6 **A Yes.**
7 Q Are you familiar with the term cerebral embolism?
8 **A Yes.**
9 Q What does that term mean?
10 **A A blood clot within the cerebral vasculature.**
11 Q What about coronary embolism, are you familiar
12 with that term?
13 **A Yes.**
14 Q What does that term mean?
15 **A Blood clot or thrombus within the coronary**
16 **arteries of the heart.**
17 Q So we just discussed cerebral embolism, coronary
18 embolism, pulmonary embolism, and deep vein thrombosis.
19 Do you know why deep vein thrombosis is referred to as a
20 thrombosis as opposed to an embolus or an embolism?
21 **A I don't.**
22 Q For those four things we just referred to,
23 cerebral embolism, coronary embolism, pulmonary embolism,
24 and deep vein thrombosis, those all relate to a blood clot
25 in a specific part of the vasculature, correct?

35

1 **A Yes.**
2 Q Is there a difference between the blood clot in
3 each part of the vasculature?
4 MR. BARNES: Object to the form.
5 THE WITNESS: I'm not aware of differences. I think
6 blood clots and -- can form in almost anywhere within the
7 vasculature.
8 BY MR. HAMILTON:
9 Q Would the blood clots in those four instances all
10 be the same size?
11 **A The size in diameter of a blood clot would relate**
12 **to the size of the vessel that it's occluding. Size**
13 **related to the length could be different in different --**
14 **same or different in any of those instances.**
15 Q Would a person of skill in the art generally
16 consider a -- the blood clot in a pulmonary embolism to be
17 larger than the blood clot in the cerebral vasculature?
18 **A Well, certainly the most dangerous pulmonary**
19 **embolisms are the ones that are more proximal, closer to**
20 **the heart that are in the largest vessels. The vessels,**
21 **of course, get smaller as they go deeper into the lungs.**
22 **So there could be smaller vessels deep in the lungs that**
23 **may be similar sized to more proximal cerebral embolisms.**
24 **But there could be -- there could be similar**
25 **sizes. In general, pulmonary embolisms would be**

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1 **considered to be larger, in larger vessels than the more**
2 **typical neurovascular embolisms.**
3 Q When you say the most dangerous pulmonary
4 embolisms, what do you mean by that?
5 **A The ones that are more proximal that would block**
6 **more of the blood flow into the lungs are certainly the**
7 **most critical to treat, most quickly.**
8 Q And so conversely, is it fair to say that --
9 withdraw the question.
10 MR. BARNES: Joe, we've been going a little over an
11 hour. So whenever you've got a good place for a break.
12 MR. HAMILTON: Okay. Just a couple quick questions,
13 and we can take a break.
14 THE WITNESS: Yeah, I'm fine.
15 BY MR. HAMILTON:
16 Q So then is it fair to say that the most dangerous
17 pulmonary embolisms are the larger pulmonary embolisms?
18 **A I think it's fair to say that the -- well, let me**
19 **back up. I'm not a clinician. I think it's fair to say**
20 **that embolisms that are in the larger vessels are**
21 **generally considered more critical. Whether that's in the**
22 **larger part of the pulmonary tree, the larger part of the**
23 **coronary vasculature, or the larger part of the**
24 **neurovasculature, those are generally going to block more**
25 **blood flow and be considered more critical.**

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1 Q And would you say that that is the same for
2 cerebral embolisms, the larger cerebral embolisms are more
3 dangerous?
4 **A It's my understanding is if it's in a larger**
5 **vessel, which is the more proximal vessel, those would be**
6 **considered more dangerous. Those can result in more**
7 **serious stroke than if it's a small embolus in a more**
8 **distal part of the vascular bed.**
9 MR. HAMILTON: All right. Why don't we take a
10 five-minute break.
11 MR. BARNES: Yeah.
12 THE VIDEOGRAPHER: We are going off the record at
13 1018.
14 (Recess taken.)
15 THE VIDEOGRAPHER: We are back on the record at 1029.
16 BY MR. HAMILTON:
17 Q If you could turn to your declaration with
18 respect to the '910 patent, page 12, paragraph 35. Does
19 paragraph 35 show the perspective of a person of ordinary
20 skill in the art from which your testimony in your
21 declaration is made?
22 MR. BARNES: Object to the form.
23 THE WITNESS: Yes. This is what I provided as the
24 person of ordinary skill in the art.
25

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1 BY MR. HAMILTON:
2 Q And is this person of ordinary skill in the art
3 the definition you applied throughout your declaration
4 with respect to the '910 patent?
5 **A Yes.**
6 Q While we're here, I just want you to look up at
7 paragraph 32. In paragraph 32, you set forth a date,
8 August 13, 2018. Do you see that?
9 **A Yes.**
10 Q Is that the relevant date for determining the
11 perspective of a person of ordinary skill in the art as
12 applied in your declaration?
13 **A When I look at the '910 patent, the dates I see**
14 **are a filing date, 2023. But these are based on**
15 **continuations from before. I'm not sure what those**
16 **dates -- if the 2018 date comes from those prior filings.**
17 Q And if it's helpful, if you want to turn to
18 page 49 of that '910 patent. In the first paragraph on
19 page 49, Column 1, you'll see at the end of that
20 paragraph, that date August...
21 **A 13, 2018.**
22 Q Is that why you applied the date of August 13,
23 2018, for your perspective of a person of ordinary skill
24 in the art?
25 **A Yes. Because that relates to the U.S.**

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1 **provisional patent shown there on page 49.**
2 Q And then if you could keep that in front of you,
3 the '910 declaration -- the declaration with respect to
4 the '910 patent, and also pull up the declaration with
5 respect to the '580 patent, page 12, paragraph 35.
6 Is this the same definition -- did you apply the
7 same definition from the '910, the declaration with
8 respect to the '910 patent for a person of ordinary skill
9 in the art with respect to the '580 patent?
10 **A Yeah, we use the same definition in both of these**
11 **declarations.**
12 Q And then if you just turn to the previous -- or
13 two pages earlier -- no. I'm sorry. Just the previous
14 page, paragraph 32.
15 MR. BARNES: Are we in the '580?
16 MR. HAMILTON: Thank you for that clarification,
17 Brian.
18 BY MR. HAMILTON:
19 Q In the declaration with respect to the '580
20 patent. Do you see a date set forth in that paragraph 32?
21 **A Yes.**
22 Q And what's that date?
23 **A As of January 26, 2018.**
24 Q And that date is different from the date applied
25 in the declaration with respect to the '910 patent,

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1 correct?
2 **A Yes. Well, I'm not sure. That date, January 26,**
3 **2018, relates to a continuation that's noted on page 31 of**
4 **the '580 patent.**
5 Q So between your declaration, with respect to the
6 '910 patent, and your declaration with respect to the '580
7 patent, you applied the same definition of a person of
8 ordinary skill in the art, correct?
9 **A Yes.**
10 Q And then the relevant time frame between your
11 declaration in the '910 patent and your declaration in the
12 '580 patent with respect to the '580 patent is different
13 where the '580 patent is January 28, 2018 -- excuse me,
14 January 26, 2018, and for the '910 patent, it's August 13,
15 2018, correct?
16 MR. BARNES: Object to the form.
17 THE WITNESS: Yeah, those dates are different between
18 the two.
19 BY MR. HAMILTON:
20 Q About eight months, right?
21 **A I guess.**
22 Q Are you aware of any substantive difference in
23 the knowledge of a person of ordinary skill in the art
24 between August 13, 2018, and January 26, 2018?
25 **A Not that I'm aware of.**

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1 Q In rendering your declaration with respect to the
2 '910 patent and rendering your declaration with respect to
3 the '580 patent, did you assume the knowledge of a person
4 of ordinary skill in the art would be any different based
5 on those two dates?
6 MR. BARNES: Object to the form.
7 THE WITNESS: I assumed the dates that were specific
8 to each one.
9 BY MR. HAMILTON:
10 Q And based on the dates specific to each one, did
11 you assume that a person of ordinary skill in the art had
12 any knowledge that's different between the declaration
13 with respect to the '580 patent and the declaration with
14 respect to the '910 patent?
15 **A I don't recall if there were differences within**
16 **those eight months between the two declarations.**
17 Q So as you sit here today, you don't recall if
18 there's any difference between the knowledge of a person
19 of skill in the art in the '580 patent and then a
20 person -- and the knowledge of a person of ordinary skill
21 in the art with respect to the '910 patent based on the
22 different dates applied in your two different
23 declarations; is that correct?
24 **A I applied the dates that were in each of the**
25 **declarations.**

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1 Q And --
2 **A And knowledge of a person at that time.**
3 Q And by applying the dates of the two
4 declarations, did you conclude that the knowledge was
5 different between the two declarations?
6 MR. BARNES: Object to the form.
7 THE WITNESS: I considered those dates for each of the
8 declarations as the dates that were listed in the
9 declaration.
10 BY MR. HAMILTON:
11 Q And your consideration of the dates in the two
12 declarations, did that change the knowledge of the person
13 of ordinary skill in the art between the two declarations?
14 MR. BARNES: Object to the form. Objection; asked and
15 answered several times.
16 THE WITNESS: Yeah, I don't know if it did or didn't.
17 BY MR. HAMILTON:
18 Q All right. So let's focus on the declaration
19 with respect to the '910 patent, and you can turn back to
20 paragraph 36 -- 35, excuse me. Before I ask, first, did
21 you consult with any physician regarding methods of
22 treatment set forth in your declaration with respect to
23 the '910 patent?
24 **A I didn't speak with any physician in preparation**
25 **of this declaration.**

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1 Q When you say would have consulted, what did you
2 mean by consulted in paragraph 35 of your declaration with
3 respect to the '910 patent?
4 **A That as design engineers with 2 to 4 years'**
5 **experience or 30 years' experience, we frequently had**
6 **physician input. We desire physician input and consulted**
7 **with physicians regularly in setting design goals and in**
8 **developing cardiovascular products.**
9 Q And did you consult with any physician in
10 preparing your declaration with respect to the '910
11 patent?
12 **A No.**
13 Q Did you rely on any statement from any physician
14 in preparing your declaration with respect to the '910
15 patent?
16 MR. BARNES: Object to the form.
17 THE WITNESS: I don't believe so.
18 BY MR. HAMILTON:
19 Q In paragraph 35 of your declaration with respect
20 to the '910 patent, when you say consulted with a
21 physician, any physician or is that a specific type of
22 physician?
23 **A Well, in my experience, when I was working on**
24 **abdominal aortic aneurysm devices, we consulted --**
25 THE STENOGRAPHIC REPORTER: I'm sorry, you said

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1 abdominal what?
2 THE WITNESS: Aortic aneurysm devices. We consulted
3 with vascular physicians and interventional radiologists.
4 When working on devices for treating the mitral valve, we
5 consulted with cardiothoracic surgeons and interventional
6 cardiologists. So depending on the application, you would
7 consult with physicians who were expert and had experience
8 with those patients, those disease dates, those
9 treatments.
10 BY MR. HAMILTON:
11 Q So then would it be fair to say that by a
12 physician in your -- well, withdraw the question.
13 In that same paragraph, second line from the
14 bottom, it recites, Two to four years of catheter design
15 experience. Do you see that?
16 **A Yes.**
17 Q What did you mean by catheter design experience?
18 **A That the engineer would have at least two to**
19 **four years of, you know, experience designing catheters.**
20 Q And is that any type of catheter?
21 **A I didn't specify any specific sub-type of**
22 **catheter. Most catheters have a lot of similarities.**
23 **So... catheter design experience would be beneficial in**
24 **general for a person of skill in the art.**
25 Q Would a person of ordinary skill in the art with

45

1 respect to the '910 patent have to have design experience
2 with respect to catheters for treating blood clots,
3 thrombus, or emboli?
4 **A I don't believe so.**
5 Q Would the physician that is consulted in your
6 definition need to have experience treating blood clots,
7 thrombus, or emboli?
8 **A I would certainly think that would be a**
9 **significant benefit if the physician had experience**
10 **treating those types of conditions.**
11 Q So under your definition, would the physician
12 have to have experience treating blood clots, emboli, or
13 thrombus?
14 **A Well, I'm not providing the requirements for the**
15 **physician. I'm providing requirements for the person of**
16 **skill in the art with two to four years of catheter**
17 **experience who would then consult with the appropriate**
18 **physicians depending on the application for the device**
19 **that they're developing.**
20 Q And is the appropriate physician with respect to
21 the '910 patent, a physician with experience treating
22 blood clots in -- excuse me, blood clots, thrombus, or
23 emboli?
24 MR. BARNES: Objection; asked and answered.
25 THE WITNESS: I believe that would be the appropriate

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1 physician to consult with, someone with that type of
2 experience.
3 BY MR. HAMILTON:
4 Q So in designing a device to treat pulmonary
5 embolism, would the physician need to have experience
6 treating pulmonary embolism?
7 MR. BARNES: Object to the form.
8 THE WITNESS: Did you say with the physician? Can you
9 repeat the question? Sorry.
10 BY MR. HAMILTON:
11 Q So for designing a device to treat a pulmonary
12 embolism, would the physician that would be consulted need
13 to have experience treating a pulmonary embolism?
14 **A Well, as I said before, I'm not providing the**
15 **requirements for the physician. But I think the engineer**
16 **would certainly value the input from a physician who has**
17 **treated pulmonary embolisms if that's the focus of the**
18 **product that he's -- he or she is designing.**
19 Q So that engineer could consult a pediatrician
20 that has no experience with pulmonary embolisms in
21 designing a device to treat pulmonary embolism; is that
22 correct?
23 MR. BARNES: Objection; misstates testimony.
24 THE WITNESS: What I said was consulting with
25 physicians who have performed that type of procedure would

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1 be the likely candidate to use as a consultant when
2 designing a device for pulmonary embolisms.
3 BY MR. HAMILTON:
4 Q And it wouldn't just be the likely candidate.
5 That would be the type of physician that would be
6 consulted, correct?
7 **A Certainly, if I were the engineer with two to**
8 **four years' experience, I would like to get input from**
9 **physicians who have performed PE procedures or similar**
10 **procedures. Many of these are performed by the same**
11 **physician specialties depending -- regardless of where the**
12 **clot is in the body.**
13 Q Do you have any experience designing aspiration
14 catheters?
15 **A No. My experience has been designing**
16 **cardiovascular catheters that are arguably more complex**
17 **than single lumen aspiration catheters. All of the**
18 **catheters that I've developed as a younger engineer or**
19 **have managed development of as a project manager or a vice**
20 **president, those catheters were multi-lumen. They had**
21 **actuation mechanisms built within the catheters. They had**
22 **more complex features than what I would perceive a single**
23 **lumen aspiration catheter would require.**
24 Q Were any of the catheters with which you had
25 design experience intended to be used for aspiration?

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1 **A Well, certainly the catheters that I developed,**
2 **one of the earliest catheters I developed, a balloon**
3 **angioplasty catheter, was a multi-lumen catheter, and the**
4 **first step in preparing the balloon is to aspirate air**
5 **from the catheter system and balloon and fill that volume**
6 **with --**
7 THE STENOGRAPHIC REPORTER: I'm sorry, you said build
8 that volume or fill?
9 THE WITNESS: Fill that volume with ionic contrast,
10 saline solution. So there was an aspiration step during
11 preparing those devices for use. My more recent project
12 in developing the MitraClip system, the steerable guiding
13 catheter.
14 THE STENOGRAPHIC REPORTER: You said steerable
15 guiding?
16 THE WITNESS: Yes.
17 THE STENOGRAPHIC REPORTER: Thank you.
18 THE WITNESS: Once it is introduced into the left
19 atrium of the patient, as a dilator's being retracted, the
20 physician aspirates blood back into the guiding catheter.
21 So there was an aspiration step used during that procedure
22 that I've trained physicians on -- many physicians on how
23 to do the procedure. And I've observed hundreds of cases
24 where they're performing these aspiration steps.
25

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1 BY MR. HAMILTON:
2 Q So you identified an early instance where there
3 was an aspiration step. What -- where were you working
4 when you worked on a catheter for that aspiration step?
5 And I'm talking -- I'm excluding the MitraClip that you
6 referenced later.
7 **A It was Advanced Cardiovascular Systems, later**
8 **purchased by Guidant. I can't remember what I put in**
9 **the -- in my r sum , if it was Guidant or ACS. It's in**
10 **Exhibit 1004.**
11 Q If you look at your declaration with respect to
12 the '910 patent, page 3, paragraph 11, is this the work
13 you were just referring to?
14 **A Yes. Developing percutaneous transluminal**
15 **coronary angioplasty and profusion catheters.**
16 Q So then is it your testimony here today that with
17 respect to your work set forth in paragraph 11 of your
18 declaration, with respect to the '910 patent, that you
19 designed an aspiration catheter?
20 **A Your question was have I designed -- I'd have to**
21 **re-read your question. The catheters I designed were not**
22 **designed to aspirate emboli from a patient. But they had**
23 **steps of aspiration during the use of those devices.**
24 Q Have you ever designed a catheter to aspirate
25 emboli, blood clot, or a thrombus from a patient?

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1 **A No. The catheters that I developed, though, I**
2 **would argue are more complex and have probably more design**
3 **requirements than the single lumen aspiration catheters**
4 **that are disclosed in these patents.**
5 Q Have you ever designed any device intended to be
6 used to aspirate a blood clot, thrombus, or emboli?
7 **A No.**
8 Q Have you ever designed any catheter intended to
9 be used to aspirate a blood clot, thrombus, or emboli?
10 **A I'll answer no again.**
11 Q Are you familiar with a device called AngioJet?
12 THE STENOGRAPHIC REPORTER: I'm sorry, angio what?
13 MR. HAMILTON: Jet.
14 THE WITNESS: We may have referenced an AngioJet --
15 the AngioJet device in one of these three declarations. I
16 would have to look in more detail to find out where we
17 referenced that.
18 BY MR. HAMILTON:
19 Q So other than if you referenced a device referred
20 to as AngioJet in one of the exhibits relied on in any of
21 your declarations with respect to the '910, '333, or '580
22 patent, do you have any other experience or knowledge of
23 the device AngioJet?
24 **A I certainly remember hearing about the device**
25 **many years ago.**

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1 Q Did you ever work on any projects related to the
2 device AngioJet?
3 **A No.**
4 Q Have you ever heard of a device referred to as
5 AngioVac?
6 **A Sounds familiar. We may have referenced it in**
7 **one of these three declarations.**
8 Q So other than reference to the device AngioVac in
9 one of these three declarations, do you have any other
10 experience or knowledge of the device AngioVac?
11 **A I believe I've heard of it before, I mean, some**
12 **years ago.**
13 Q Have you ever been involved in any procedure
14 involving the device AngioVac?
15 **A No.**
16 Q Do you have any design experience with respect to
17 the use of a device called AngioVac?
18 **A No.**
19 Q Have you heard of a device referred to as
20 Penumbra?
21 **A I'm certainly familiar with the company.**
22 Q What is the company Penumbra?
23 **A I believe they have a range of products to use**
24 **for neurovascular procedures whether it's aneurysms or**
25 **clot removal.**

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1 Q Are you familiar with any device from Penumbra
2 used for clot removal?
3 **A We may have referenced -- well, Exhibit 1 -- 1038**
4 **in '910 declaration, we reference a system from Penumbra.**
5 Q Other than the documents referenced in your
6 declarations with respect to the '910, '333, and '580
7 patents, do you have any experience with a device from
8 Penumbra for treating clots?
9 **A No.**
10 Q Are you familiar with the term vasospasm?
11 **A Yes.**
12 Q What does that term mean?
13 **A That's when the artery or vein, I'm going to say**
14 **collapses or... compresses usually due to manipulation of**
15 **a device. I'm most familiar with it from the coronary**
16 **angioplasty days where a guidewire catheter could cause**
17 **vasospasm within the coronary artery.**
18 Q Are you aware if vasospasm is a complication in
19 the treatment of blood clots?
20 **A I believe it is a potential complication.**
21 Q Are you aware of vasospasm as a complication in
22 the treatment of ischemic stroke?
23 **A Well, if the treatment involves placing catheters**
24 **and wires in the artery, in the neurovascular arteries,**
25 **then I think it is a potential complication.**

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1 Q Are you familiar with the term distal
2 embolization?
3 **A Yes.**
4 Q And what does that term mean?
5 **A Well, with respect to removing thrombus or emboli**
6 **from a patient, it's also possible to disrupt a portion of**
7 **that clot, and it moves downstream or distally.**
8 Q Is that a complication -- is distal embolism a
9 complication that could occur during the treatment of
10 ischemic stroke?
11 **A If the treatment involves placing wires or**
12 **catheters through or near the point of occlusion, then I**
13 **think it is a potential complication. If the treatment is**
14 **thrombolysis injecting drugs near the point of occlusion,**
15 **then probably not.**
16 Q If distal embolization occurred during the
17 treatment of ischemic stroke, what would be the
18 consequences to the patient?
19 **A Could be, you know, no consequences or no notable**
20 **complications. It could be additional ischemia in other**
21 **parts of the vascular bed.**
22 Q Could it kill a patient?
23 **A I don't know.**
24 Q Could it cause permanent brain damage in the
25 patient?

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1 **A I think distal emboli could have significant**
2 **consequences depending on where the clot lodges, how big**
3 **that vessel is, and what is the portion of the brain**
4 **that's being fed by that artery.**
5 Q When you say significant consequences, do you
6 mean that is a significant or severe risk to a patient,
7 distal embolism, in the treatment of ischemic stroke?
8 **A It certainly can be.**
9 Q I'm going to hand you what's been previously
10 marked as Exhibit 1006 in IPR2025-01025. Do you recognize
11 Exhibit 1006?
12 **A Yes.**
13 Q What is Exhibit 1006?
14 **A It's a Garrison patent application, U.S.**
15 **2015/0173782 A1.**
16 Q Do you understand what's disclosed -- withdraw
17 the question.
18 If I refer to Garrison in this deposition today
19 or tomorrow, I'm going to be referring to this
20 Exhibit 1006. Is that fair?
21 **A Yes.**
22 Q And if I'm referring to something else, I'll
23 refer to a different exhibit number. But if I say
24 Garrison, can we both assume we're referring to this
25 Exhibit 1006?

55

1 **A Yes.**
2 Q Are you familiar with what's disclosed in
3 Garrison?
4 **A Yes.**
5 Q If you could turn to page 54. Paragraph 134
6 midway through that paragraph, near the top of the second
7 column, there's a phrase, Maximum level of aspiration.
8 What does that phrase mean, maximum level of aspiration in
9 Garrison?
10 **A Paragraph 134 is describing an aspiration source**
11 **as a pump, a syringe, hospital suction or the like and**
12 **then in one example, where the syringe is pulled back to a**
13 **lock position and the valve is opened. So the stopcock is**
14 **opened.**
15 THE STENOGRAPHIC REPORTER: The stop what?
16 THE WITNESS: Stopcock, one word.
17 And the stopcock is opened, it says this would
18 enable the maximum level of aspiration in a rapid fashion
19 with one user.
20 BY MR. HAMILTON:
21 Q So what does that phrase maximum level of
22 aspiration mean?
23 **A I think it means what it says, that with whatever**
24 **stopcock or vacuum source is being used, that one could**
25 **create a vacuum with a closed system. So the stopcock is**

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1 **closed, create a vacuum, and once the stopcock is open,**
2 **then that level of vacuum would be transmitted to the**
3 **aspiration catheter.**
4 Q So level of aspiration means level of vacuum; is
5 that right?
6 MR. BARNES: Objection; mischaracterizes testimony.
7 THE WITNESS: I mean, the patent says it would enable
8 the maximum level of aspiration. I think you would
9 achieve the maximum level of aspiration by having the
10 maximum amount of vacuum that could be achieved with the
11 vacuum source that they're using in a given embodiment.
12 BY MR. HAMILTON:
13 Q So level of aspiration, does that mean the total
14 volume aspirated?
15 MR. BARNES: Object to the form.
16 THE WITNESS: Not necessarily. I think maximum level
17 of aspiration in this description is really about quickly
18 opening up the stopcock and allowing the vacuum to exert
19 its force on the fluid which is in the aspiration
20 catheter.
21 BY MR. HAMILTON:
22 Q What does aspiration mean?
23 **A Apply a vacuum, is my understanding.**
24 Q And level of aspiration would be the amount of
25 vacuum applied or something else?

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A I would interpret this sentence to mean the level of aspiration -- the maximum level of aspiration in a rapid fashion to be the amount of vacuum being applied to the aspiration catheter.

Q Now, when you say amount of vacuum, you mean the amount of negative pressure?

A Yes. Vacuum is negative pressure.

Q So to determine the level of aspiration, would a person of skill in the art measure the level of the negative pressure?

A I think that would be a fair thing to measure.

Q Is there anything else you could measure to determine the level of aspiration?

A I don't know.

Q In paragraph 134, what would set the limit for the maximum level of aspiration?

MR. BARNES: Object to the form.

THE WITNESS: Well, they discuss that the plunger of the syringe is pulled back. So if one pulled the plunger back partway, you would create less of a vacuum than if you pulled the plunger back all the way.

BY MR. HAMILTON:

Q So does that mean that the volume of the syringe would set the maximum level of aspiration?

A I think that is true.

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Q Would anything else limit the maximum level of aspiration?

A I'm not sure.

Q So as you sit here today, looking at paragraph 34 of the Garrison reference, are you aware of any other limit to the maximum level of aspiration beyond the volume of the syringe used, the maximum level of the volume of the syringe used?

MR. BARNES: Object to the form.

THE WITNESS: Well, if you're asking about the level of aspiration that could be transmitted to the tip of the catheter, certainly, small diameter tubings or connections in between would limit the effective vacuum that's applied to the volume of fluid inside the aspiration catheter.

BY MR. HAMILTON:

Q Do you believe maximum level of aspiration refers to something other than what is applied to the tip of the catheter?

A I think that would be the goal of a person of skill in the art, would be to apply the appropriate level of vacuum to the tip of the aspiration catheter.

Q So maximum level of aspiration as set forth in paragraph 34 means the level of aspiration at the tip of the catheter; is that correct?

MR. BARNES: Object to the form. And just for clarity on the record, I believe you're referencing paragraph 134?

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MR. HAMILTON: Yes, thank you.

THE WITNESS: Can you reask the question?

BY MR. HAMILTON:

Q So maximum level of aspiration as set forth in paragraph 134 means the level of aspiration at the tip of the catheter, correct?

A The patent doesn't really specify that in the section. I'm saying that a person of skill in the art that would probably be the goal of the design, would be to exert -- not sure if maximum is right. It may be possible to exert too much vacuum for the procedure in question.

But in this discussion, they're talking about a syringe and the maximum level of aspiration that a syringe could develop, and a person of skill in the art would relate that to the entire system and, specifically, probably the tip of the aspiration catheter.

Q So the maximum level of aspiration as that term is used in paragraph 134 is limited by the maximum volume of the syringe wand, correct?

MR. BARNES: Objection; asked and answered. Object to the form.

THE WITNESS: The vacuum that could be developed within the syringe is limited by the volume of the syringe, yes.

60

BY MR. HAMILTON:

Q And is it also limited by the diameter of the catheter?

A I certainly think it's harder to transmit a vacuum through a length of a system. The filter, the stopcock, the tubing, the catheter, if there are areas that are tiny in diameter, or significantly lower in diameter, then that vacuum isn't transmitted as well to the tip of the catheter.

Q So then the maximum level of aspiration is limited -- can be limited by the diameter of the catheter or the diameter of any point between the syringe and the tip of the catheter, correct?

MR. BARNES: Objection; asked and answered.

THE WITNESS: I think the maximum vacuum pressure that can be applied to the tip could be limited by a number of factors including those.

BY MR. HAMILTON:

Q And what are the other factors that could limit the amount of vacuum -- excuse me, the amount of aspiration applied to the tip?

THE STENOGRAPHIC REPORTER: You said to the tip or the tube?

MR. HAMILTON: Tip.

THE STENOGRAPHIC REPORTER: Thank you.

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1 THE WITNESS: Well, one thing I can think of is if
2 there were a clot or, you know, within the aspiration
3 catheter, that would limit the amount of vacuum that could
4 be created distal to that point.
5 BY MR. HAMILTON:
6 Q So assuming there's no clot material in the
7 system, what factors could limit the maximum amount of
8 aspiration applied to the tip of the catheter?
9 A I think the ones I listed earlier.
10 Q So one is the volume of the syringe, correct?
11 A Yes.
12 Q And another one is the diameter of the catheter,
13 correct?
14 A Yes.
15 Q Another one would be diameter at any point
16 between the syringe and the tip of the catheter, correct?
17 A Yes.
18 Q Would another one also be the length of the
19 catheter?
20 A Possibly.
21 Q Could the length of the catheter be a factor that
22 could limit the maximum amount of aspiration as that term
23 is used in paragraph 4 of the Garrison reference?
24 MR. BARNES: Objection; asked and answered.
25 THE WITNESS: For the length ranges that are used in

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1 the patient, I'm not sure if it has a significant effect
2 or not. Theoretically, if you had a mile-long tube versus
3 a foot-long tube, yes, length plays a factor in
4 transmitting pressure through that tube.
5 BY MR. HAMILTON:
6 Q So then is it your understanding that for the
7 dimensions necessary for a catheter -- excuse me, for the
8 length of a catheter used in treating a patient, the
9 length does not limit the maximum amount of aspiration?
10 MR. BARNES: Objection; mischaracterizes testimony.
11 THE WITNESS: Yeah, I'm not sure if it has a
12 significant effect or not.
13 BY MR. HAMILTON:
14 Q So as you sit here today, you don't know either
15 way; is that correct?
16 A I'm not sure if it has a significant effect or
17 not.
18 Q And was that your understanding in rendering your
19 opinions set forth in the declarations with respect to the
20 '910 patent, '580 patent, and '333 patent?
21 A I didn't really consider length of device in
22 those three declarations as I recall.
23 Q So other than the volume of the syringe, the
24 diameter of the catheter, or the diameter at any point
25 between the syringe and the tip of the catheter and the

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1 length of the catheter, are there any other factors that
2 might limit the maximum level of aspiration as that term
3 is used in paragraph 134?
4 MR. BARNES: Objection; asked and answered.
5 THE WITNESS: There may be others. Those are the ones
6 I can think about at this time.
7 BY MR. HAMILTON:
8 Q So as you sit here today, are you aware of any
9 other factors?
10 A Those are the ones I can think of at this time.
11 Q Looking back at paragraph 134 of the Garrison
12 reference, that same sentence that includes maximum level
13 of aspiration, do you see the phrase, With one user?
14 A Yes.
15 Q What does that mean with one user?
16 A That you don't need two users in order to operate
17 a syringe and turn a stopcock. That it could be done with
18 one user.
19 Q In the description at paragraph 134 of Garrison,
20 is the maximum level of aspiration applied only at the
21 instant the stopcock is opened or does that maximum level
22 of aspiration continue after the stopcock is opened?
23 MR. BARNES: Object to the form.
24 THE WITNESS: I'm not sure. There certainly is a
25 volume of blood within the catheter and the system that

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1 has to start moving. The momentum has to initiate. So
2 I'm not sure at what point the maximum level of aspiration
3 might occur.
4 BY MR. HAMILTON:
5 Q Are you aware of any disclosure in the Garrison
6 reference setting forth when the maximum level of
7 aspiration might occur?
8 A I think this paragraph, as I recall, it may be
9 the only place they talk about maximum level of
10 aspiration. So I think it would be in this paragraph.
11 Q And do you see anything in that paragraph
12 indicating when the maximum level of aspiration occurs?
13 A It just says when the user opens the connection
14 to the syringe, that enables the maximum level of
15 aspiration. So that's the only reference to time --
16 timing, I believe.
17 Q So does that mean the maximum level of aspiration
18 occurs at the instance the stopcock is opened?
19 A As I said before, if you're talking about the
20 aspiration level at the tip, there's a fluid in that fluid
21 column that would need to initiate moving. So... it may
22 take some slight amount of time to reach the tip before
23 the peak of the tip could be achieved. But certainly, the
24 peak aspiration is going to happen when the valve is open.
25 It doesn't get any higher than that. That peak

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1 **vacuum wouldn't get any greater than that time.**
2 Q Could it stay the same over a period of time?
3 MR. BARNES: Object to the form.
4 THE WITNESS: In this example with a syringe with a
5 fixed volume, the syringe will fill with the blood.
6 Therefore, the vacuum pressure will decrease over time.
7 BY MR. HAMILTON:
8 Q Could any of the items we previously discussed
9 that limit the maximum level of aspiration cause that
10 maximum level of aspiration to stay constant over time?
11 MR. BARNES: Object to the form.
12 THE WITNESS: I don't know. I haven't considered
13 that.
14 BY MR. HAMILTON:
15 Q Earlier, you said that it's possible to apply too
16 much vacuum. Do you recall that?
17 **A I said I'm not sure if it's possible. I believe**
18 **I said I'm not sure if it's possible to apply too much**
19 **vacuum.**
20 Q Do you believe it's possible to apply too much
21 vacuum in a particular system?
22 **A I don't know.**
23 Q Would it be a problem if too much vacuum was
24 applied in a particular system?
25 MR. BARNES: Object to the form.

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1 THE WITNESS: If it's --
2 Sorry.
3 MR. BARNES: Go ahead.
4 THE WITNESS: If it relates to the catheter and the
5 catheter design, there's probably an upper limit of vacuum
6 before the catheter might collapse on itself. With
7 respect to the vessel, I'm not sure.
8 BY MR. HAMILTON:
9 Q So other than the catheter collapsing on itself,
10 can you think of any other complication or issue caused by
11 too much vacuum?
12 **A I'm not sure. I haven't addressed that.**
13 Q So as you sit here today, you're not aware of any
14 other complication or issue that could be caused by too
15 much vacuum other than causing the catheter to collapse;
16 is that correct?
17 **A I'm not familiar with it, either way.**
18 Q How would a person of ordinary skill in the art
19 determine what level of vacuum would be too much vacuum?
20 **A Probably by consulting physicians who have**
21 **performed these procedures, also performing animal studies**
22 **would be two of the ways I could think of.**
23 Q Would the amount of vacuum that is too much
24 vacuum be different depending on the vasculature being
25 treated?

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1 **A I think it's possible that smaller vessels with**
2 **thinner walls may not tolerate as great a vacuum. But I**
3 **really don't have any specific knowledge of what those**
4 **levels might be and how different they may be.**
5 Q All right. I'm going to hand you what's been
6 previously marked as Exhibit 1005 in the IPR related to
7 the '910 patent.
8 Do you recognize Exhibit 1005?
9 **A Yes.**
10 Q What is Exhibit 1005?
11 **A It's the Aklog patent, A-k-l-o-g, U.S.**
12 **8,734,374 B2.**
13 Q So during the course of this deposition, I'll be
14 referring to Aklog, and when I do, I'm going to be
15 referring to this document. Is that all right with you?
16 **A Yes.**
17 Q And when I refer to Aklog, you'll understand that
18 I'm referring to this document Exhibit 1005 from the IPR
19 of the '910 patent?
20 **A Yes.**
21 Q Do you understand what's disclosed in Aklog?
22 **A Yes.**
23 Q If you look at Figure 2B of Aklog, do you see
24 Item 20?
25 **A Yes.**

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1 Q What is Item 20?
2 **A As I describe in Column 8, line 25, starting with**
3 **line 24, in one embodiment, distal end 11 of cannula 10**
4 **may be in the shape of a funnel 20. So Item 20 is a**
5 **cannula in the shape of a funnel at the distal end.**
6 Q And what's the purpose of funnel 20?
7 **A It says funnel 20 with its design may be placed**
8 **directly at a site of interest 23 to engage undesirable**
9 **material or spatially away from the site of interest to**
10 **capture the undesirable material. Purpose is to enable,**
11 **enhance capturing of the clot material.**
12 Q If you look at the sentence beginning on
13 Column 8, line 20, does that disclose an alternative
14 arrangement to a funnel?
15 **A I think line 20 is starting to -- it's just**
16 **describing the cannula 10 and it may be designed to have a**
17 **diameter that's larger, and they go on to show a funnel.**
18 Q So is the diameter -- if the diameter at one end
19 of a cannula is larger than at the other end, is that
20 essentially a funnel?
21 **A That's what they're describing here in figures --**
22 **Figure 2B and 2C.**
23 Q What about in figures -- in Figure 1. Does
24 Figure 1 show a distal end of the cannula that is larger
25 than the other end of the cannula? Let me rephrase that.

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1 Larger in diameter?
2 **A Figure 1 shows a very poor rendition of a**
3 **cannula 10. And cannula 10, they go on to say, May be**
4 **designed to have a diameter that's relatively larger than**
5 **that of the proximal end 13.**
6 Q And when you say they go on to say may be
7 designed to have a diameter, you mean the diameter of end
8 11 is relatively larger than the proximal end 13; is that
9 right?
10 **A Yeah, they're talking about the distal end of 11**
11 **of the cannula 10 is my understanding.**
12 Q If you look at Column 8, line 36, you see the
13 phrase, A vortex effect?
14 **A Yes.**
15 Q What is meant by a vortex effect?
16 **A I think they're describing a fluid vortex, which**
17 **is a rotational movement of the fluid.**
18 Q And what is the purpose of the vortex effect in
19 Aklog?
20 **A In Aklog, they state that the vortex effect may**
21 **be generated during suctioning to better direct the**
22 **undesirable material into the funnel.**
23 Q And how does the vortex effect better direct the
24 undesirable material into the funnel?
25 **A I'm not sure.**

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1 Q Is there any other consequence of the vortex
2 effect in Aklog?
3 **A That's the only effect I see them discussing, is**
4 **that line 42 in the presence of vortex flow, such a flow**
5 **can act to direct undesirable material toward the distal**
6 **end 11, to allow material to subsequently be pulled into**
7 **the distal end by suctioning.**
8 Q So does that mean the vortex effect allows a
9 greater level of aspiration than just the level of the
10 vacuum applied?
11 **A I don't know. They're really just talking about**
12 **when the -- when the -- in the case where the funnel is**
13 **spaced slightly away, that they are saying that the blood**
14 **nearby may be forming a vortex to help pull in the**
15 **material into the distal end.**
16 Q What do you mean by spaced slightly away?
17 **A As I say in line 30, it may be placed directly**
18 **out of site of interest, or spatially away from the site**
19 **of interest to capture undesirable material. In the**
20 **situation where it's spaced spatially away, that's when**
21 **they talk about the vortex effect. So I'm interpreting**
22 **that to mean it's helping to -- if the blood is really**
23 **circulating in a vortex between the clot and the device,**
24 **that it may help direct the clot material into the distal**
25 **end.**

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1 MR. BARNES: Joe, we've been going for about an hour
2 and a half, and I think lunch just got here. So I think a
3 good stopping point, take a lunch break.
4 MR. HAMILTON: Okay. Just a couple more minutes.
5 BY MR. HAMILTON:
6 Q Is that okay with you, Mr. Thornton?
7 **A Yeah, I'm fine.**
8 Q If you could take a look at Column 12, line 9.
9 Do you see the sentence beginning with, Pump 15?
10 **A Yes.**
11 Q Does that, starting from pump 15 through the end
12 of the paragraph, disclose examples of pumps that could be
13 used in Aklog?
14 **A Yeah, this says, Pump 15, as it should be**
15 **appreciated, may be any commercially available pump,**
16 **including those for medical applications and those capable**
17 **of pumping fluid such as blood. Examples of such a pump**
18 **include a kinetic pump such as a centrifugal pump and an**
19 **active displacement pump such as a roller head pump.**
20 **And there may be other areas where they talk**
21 **about pumps in here also. I'd have to take a closer look**
22 **at the patent.**
23 Q What would a person of ordinary skill in the art
24 understand pump to mean as used in Aklog?
25 **A Well, as it says in Column 11, line 62, was**

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1 **system one, may also be provided with a pump 15 designed**
2 **to generate negative pressure. So basically, it's a**
3 **vacuum pump. And Column 12, line 15, it goes on to state**
4 **that an alternative -- an alternate embodiment of**
5 **independent vacuum device not shown may be provided for**
6 **generating the necessary suction force at the site of**
7 **interest.**
8 **While a pump 15 may act to generate the necessary**
9 **driving force for reinfusion purposes, such an embodiment**
10 **pump 15 may be in fluid communication with the filter**
11 **device while the vacuum device may be in fluid**
12 **communication with the suction cannula.**
13 Q Why would the pump 15 be in fluid communication
14 with the filter device in Aklog?
15 **A So as it says in Column 12, line 19, In such an**
16 **embodiment, pump 15 may be in fluid communication with**
17 **filter device 14, while the vacuum device may be in fluid**
18 **communication with a suction cannula that's in the**
19 **patient. It goes on to say it can act intermittently or**
20 **continuously.**
21 Q What's the purpose of pump 15 being in fluid
22 communication with filter device 14 in Aklog?
23 MR. BARNES: Objection; asked and answered.
24 THE WITNESS: Well, pump 15 is the reinfusion -- is
25 for reinfusion of blood through the reinfusion cannula.

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1 So it has to pull the blood from the -- through the filter
2 device before pumping it back into the patient.
3 MR. HAMILTON: Why don't we break for lunch.
4 THE VIDEOGRAPHER: We are going off the record at
5 1205.
6 (Recess taken.)
7 THE VIDEOGRAPHER: We are back on the record at 1246.
8 BY MR. HAMILTON:
9 Q Mr. Thornton, do you understand you're still
10 under oath?
11 **A Yes.**
12 Q Did you communicate in any way with anyone
13 regarding the substance of your testimony here today
14 during the break?
15 **A No.**
16 Q Did you did you communicate with anybody in any
17 way regarding any aspect of any of the three IPRs during
18 the break?
19 **A No.**
20 Q Did you review any documents during the break?
21 **A No.**
22 Q Do you recall our discussion in the morning
23 regarding the maximum level of aspiration?
24 **A Yes.**
25 Q Have you ever heard of the term aspiration rate?

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1 **A No.**
2 Q Do you know what aspiration rate means?
3 **A Probably the rate of fluid movement. So flow**
4 **rate is most likely what they're referring to.**
5 Q Could the maximum level of aspiration be
6 referring to the maximum level of the flow rate?
7 MR. BARNES: Object to the form.
8 THE WITNESS: This discussion was relating to
9 Garrison; is that right?
10 BY MR. HAMILTON:
11 Q That is correct.
12 **A I think paragraph 134 in Garrison is pretty clear**
13 **that they are opening the stopcock after a vacuum has been**
14 **created in the syringe, and they say it would enable**
15 **maximum level of aspiration in rapid fashion. So to me,**
16 **that's not a flow rate discussion. It's a vacuum pressure**
17 **discussion.**
18 Q So level of aspiration in that phrase in
19 paragraph 154 means a maximum negative pressure, right?
20 MR. BARNES: Object to the form.
21 THE WITNESS: I mean, that's what we discussed before.
22 I think it's referring to the maximum level of aspiration
23 that could be achieved with... once the stopcock is
24 opened.
25

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1 BY MR. HAMILTON:
2 Q Does the term aspiration mean negative pressure?
3 **A In general, the term aspiration means applying a**
4 **vacuum which is negative pressure.**
5 Q So aspiration means applying a negative pressure,
6 but it does not mean negative pressure, does it?
7 **A Well, the way you use the term, I believe, is a**
8 **verb. Providing aspiration or aspirating is a verb so**
9 **you're applying a negative pressure.**
10 Q How do you use the term aspiration?
11 **A As whatever the -- however the purpose is needed.**
12 **It's used as an adjective, as an aspiration device for**
13 **instance in the same paragraph, used as an aspiration**
14 **source. Talks about an aspiration syringe. So the term**
15 **aspiration is used in different ways.**
16 Q How is it used in paragraph 134 of the Garrison
17 reference?
18 **A Well, in several different ways, I just read.**
19 Q So the term aspiration means several different
20 things in that one paragraph of 134 of Garrison; is that
21 right?
22 MR. BARNES: Objection; mischaracterizes testimony.
23 THE WITNESS: It's used as an adjective, I guess, when
24 used before the word device or syringe. It's used as --
25 before the word pump. And the first sentence talked about

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1 the active source of aspiration. So it's used in
2 different ways in that paragraph.
3 BY MR. HAMILTON:
4 Q What does an aspiration device do?
5 **A In general, aspiration device would create a**
6 **vacuum.**
7 Q That's it?
8 **A In general, that's what an aspiration device**
9 **would do in my opinion.**
10 Q So any device that creates a vacuum is an
11 aspiration device, is that your testimony?
12 MR. BARNES: Objection; mischaracterizes testimony.
13 THE WITNESS: In this patent they use it to talk about
14 the aspiration system, the aspiration catheter, the
15 aspiration pump, the aspiration syringe. So it's used in
16 those terms. That's how I'm using it.
17 BY MR. HAMILTON:
18 Q Doesn't an aspiration device remove something or
19 suck fluid or some other thing via the pressure, isn't
20 that the purpose of an aspiration device, to aspirate?
21 MR. BARNES: Object to the form.
22 THE WITNESS: Certainly the purpose of the aspiration
23 catheter placed in a patient.
24 THE STENOGRAPHIC REPORTER: I'm sorry, certainly the
25 what?

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1 THE WITNESS: The purpose of an aspiration catheter
2 that's placed in a patient or an aspiration system, that,
3 for instance, in Garrison includes an aspiration source,
4 check valve, filter, et cetera.
5 BY MR. HAMILTON:
6 Q And what do those components do?
7 **A They're designed to work together to aspirate**
8 **unwanted material from a patient's vasculature.**
9 Q And when you say aspirate unwanted material, you
10 mean remove unwanted material?
11 **A That's the goal, to remove unwanted material,**
12 **thrombus, emboli from the patient.**
13 Q So the term aspirate doesn't just mean apply
14 pressure, it means to remove something, doesn't it?
15 **A Not in my experience. As I mentioned before, the**
16 **doctor would aspirate blood back into the MitraClip sheath**
17 **when removing the dilator. So he's not removing an**
18 **unwanted material. He's preventing air from getting in.**
19 Q By removing a fluid, correct?
20 **A Yeah, in that example, he's removing blood from**
21 **the sheath, and then he actually returns it back to the**
22 **patient once the -- he's sure the sheath is empty of all**
23 **air. Excuse me.**
24 Q So doesn't aspiration imply the flow of
25 something, some sort of flow rate?

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1 **A Well, in my experience that I just described, we**
2 **wouldn't think about the flow rate. He was aspirating to**
3 **pull blood back into the sheath to assure there's no air**
4 **getting into the sheath. So didn't think about the flow**
5 **rate at all in that case.**
6 Q But there was a flow rate, wasn't there, in that
7 case?
8 **A Sure.**
9 Q You didn't care what the flow rate was in that
10 instance, did you?
11 MR. BARNES: Objection; argumentative.
12 THE WITNESS: Sure, if one wanted, you could measure
13 the flow rate that the syringe was filling.
14 BY MR. HAMILTON:
15 Q Does flow rate matter in aspirating a blood clot,
16 embolism, or thrombi?
17 **A It may. I'm not sure.**
18 Q So as you sit here today, you don't know whether
19 the flow rate of aspiration during the aspiration of a
20 thrombus, embolus, or blood clot matters?
21 **A I'm not sure if it's a significant contributor as**
22 **compared to the vacuum that's applied at the tip of the**
23 **catheter.**
24 Q Does the vacuum apply to the tip of the catheter
25 change the flow rate?

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1 **A I don't know.**
2 Q Would a higher vacuum have a higher flow rate?
3 **A In general, yes. If everything else is equal, a**
4 **stronger vacuum would generate a higher flow rate.**
5 Q And would a lower vacuum generate a lower flow
6 rate?
7 **A Yes.**
8 Q Are there instances where a higher vacuum would
9 not generate a higher flow rate in a system where all
10 things are equal?
11 MR. BARNES: Object to the form.
12 THE WITNESS: Can you repeat the question, please?
13 BY MR. HAMILTON:
14 Q So in a single system and the only modification
15 is adjusting the vacuum to be higher, is it possible that
16 the flow rate does not increase in that system?
17 MR. BARNES: Object to the form.
18 THE WITNESS: If the flow rate -- if the vacuum is
19 higher, the flow rate should increase. If there's, you
20 know, occlusion at the tip, for instance, if everything
21 else is equal, a higher vacuum would result in greater
22 flow rate.
23 BY MR. HAMILTON:
24 Q And is that your understanding of the devices
25 disclosed in Garrison, that you could always increase the

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1 flow rate by increasing the level of vacuum?
2 MR. BARNES: Objection; mischaracterizes testimony.
3 THE WITNESS: I don't know about always. But the
4 examples that they're talking about in this paragraph are
5 talking about a syringe, generating a vacuum with a
6 syringe. So if there's no occlusions at the tip, a higher
7 vacuum should generate a higher flow rate of fluid.
8 BY MR. HAMILTON:
9 Q Are you aware of any reason a person of ordinary
10 skill in the art would not -- would want to set an upper
11 limit on the vacuum applied to the treatment of ischemic
12 stroke as disclosed in Garrison?
13 MR. BARNES: Object to the form.
14 THE WITNESS: Any reason why one would not set an
15 upper limit, was that the question?
16 BY MR. HAMILTON:
17 Q Would want to set an upper limit?
18 THE STENOGRAPHIC REPORTER: Are you saying send or
19 set?
20 MR. HAMILTON: Set.
21 THE STENOGRAPHIC REPORTER: Thank you.
22 THE WITNESS: Well, as I mentioned before, the
23 catheter system itself may have an upper limit above which
24 it may collapse or deform, kink. And there may be reasons
25 in the vasculature also to have an upper limit. I'm not

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1 sure if that's true or not.
2 BY MR. HAMILTON:
3 Q In this description in paragraph 134 of Garrison,
4 is blood aspirated?
5 **A Yes.**
6 Q And when that blood is aspirated, where would it
7 end up?
8 **A Well, it would fill the tubing/filter, would fill**
9 **the system and the syringe that's being -- the syringe**
10 **that was withdrawn or syringe that was used.**
11 Q Would that blood be static in the syringe?
12 **A Well, it's not moving. It's in the syringe. If**
13 **the syringe is not -- if the plunger is static, then the**
14 **blood would be stationary within the syringe.**
15 Q If you could look at Garrison paragraph 129. If
16 you look at the first sentence, the phrase, Aspiration
17 rates appears. What does aspiration rates mean in that
18 sentence?
19 **A This paragraph's talking about bench testing that**
20 **they performed using glycerin to simulate blood, and they**
21 **are measuring the flow rate, aspiration rate, of CCs per**
22 **minute or second after the stopcock is opened. Those are**
23 **shown in table -- tables in Figure 56 and 57.**
24 **So they're measuring a flow rate at milliliters**
25 **per minute.**

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1 Q So in that paragraph aspiration rates means flow
2 rate, correct?
3 **A Yes. They're equating aspiration rate and flow**
4 **rate.**
5 Q And is this testing aspiration rates for
6 different catheters?
7 **A Yes.**
8 Q If you look down towards the bottom of that
9 paragraph, the sentence beginning with, The overall
10 average extraction rate. What does, Was roughly linear
11 mean in that sentence?
12 **A As I say, it indicates a constant vacuum level**
13 **using this method.**
14 Q And what does that mean, a constant vacuum level?
15 **A Well, roughly, linear. I don't have the graph in**
16 **front of me, but they claim it was roughly linear over the**
17 **20 CCs of volume. They did the testing at 30 CCs of**
18 **volume. So the first 20 CCs apparently were roughly**
19 **linear indicating a constant vacuum level using this**
20 **method.**
21 Q So what does a constant vacuum level mean?
22 **A That the amount of vacuum applied was relatively**
23 **constant for the first 20 CCs of the test.**
24 Q So does that mean the level of vacuum was the
25 same across the first 20 CCs of the test?

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1 **A Well, there's only equating the fact that it's**
2 **roughly linear over the first 20 CCs as being a constant**
3 **vacuum.**
4 Q So does that mean over the first 20 CCs a
5 constant vacuum was applied?
6 **A That's what they're saying. That the results**
7 **indicated a constant vacuum level during, using this**
8 **method, which was linear over the first 20 CCs.**
9 Q And where would that constant vacuum level be
10 found, at the tip of the catheter or in the syringe?
11 MR. BARNES: Object to the form.
12 THE WITNESS: Well, in this test, they're not
13 measuring the pressure at this tip of the syringe.
14 They're, I believe, just looking at the amount of fluid
15 filling the syringe and the time it takes to get to --
16 well, in this case, 20 CCs is what they're discussing.
17 BY MR. HAMILTON:
18 Q So is the constant vacuum level in the syringe or
19 at the tip of the catheter attached to the syringe?
20 **A Yeah, they don't say.**
21 Q Do you have any understanding, reading that
22 paragraph, where the constant vacuum level is located?
23 MR. BARNES: Object to the form.
24 THE WITNESS: Yeah, based on the test method, I'm not
25 sure.

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1 BY MR. HAMILTON:
2 Q If one had a 30 CC syringe and a vacuum was
3 formed in that syringe as described in this test method in
4 paragraph 129, would the vacuum level decrease as the
5 syringe filled with liquid?
6 MR. BARNES: Object to the form. Incomplete
7 hypothetical.
8 THE WITNESS: Yeah, as their data showed, after 20 CCs
9 it wasn't linear anymore, which would indicate that the
10 amount of vacuum isn't as great as the syringe fills.
11 BY MR. HAMILTON:
12 Q Does that say after 20 CCs it wasn't linear?
13 **A It says it was linear over the 20 CC volume.**
14 Q Is there any data beyond the 20 CC volume?
15 **A They didn't provide it.**
16 Q So you don't know what's happening in those last
17 10 CCs, do you?
18 MR. BARNES: Object to the form. Mischaracterizes
19 testimony.
20 THE WITNESS: I think it's clear that they reported
21 the linear, when it was roughly linear up to about 20 CCs,
22 because after that, it wouldn't be linear.
23 BY MR. HAMILTON:
24 Q If you read the previous sentence, it says, A
25 timer was started when the stopcock was opened. And the

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1 time was noted at 5 CCs, 10 CCs, 15 CCs and 20 CCs. Does
2 that indicate that any other data was taken?
3 **A Yeah, sorry, I didn't see that. It looks like**
4 **they stopped counting at 20 CCs or at least that's what**
5 **they reported for this patent.**
6 Q If you look back at paragraph 127, do you see a
7 description of a benefit in aspiration ability in the
8 catheter configurations disclosed in Garrison?
9 **A I see line -- oh, they don't have line numbers**
10 **here. In 127, a third of a way down, I see the sentence**
11 **that starts with, This benefit. Can you ask the question**
12 **again?**
13 Q What does benefit in aspiration ability mean?
14 **A As I say, this benefit of more rapid and more**
15 **effective removal of thrombotic occlusion, the next**
16 **sentence says is derived at least from shorter, and in**
17 **some cases, larger inner lumen diameter aspiration**
18 **catheter designs.**
19 Q And then turning back to paragraph 129, is this
20 test a comparison of the catheter designs of Garrison with
21 prior art catheter designs?
22 **A I think in this specific 129 paragraph, they are**
23 **referring to the results in Tables 56 and 57, which are**
24 **specific to a device called a Navien, N-a-v-i-e-n, 058,**
25 **the Penumbra 5MAX ACE, and Garrison's transcarotid distal**

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1 **catheter 0.058 inch ID. And lower table comparing the**
2 **Navien 072 to the transcarotid distal catheter, Garrison**
3 **0.071 ID.**
4 Q And do those Tables 56 and 57 show that the
5 catheters disclosed in Garrison have higher aspiration
6 rates than the two prior art catheters you just mentioned?
7 MR. BARNES: Object to the form. Mischaracterizes
8 testimony.
9 THE WITNESS: On the first table of Garrison 058
10 catheter compared to the Penumbra... so let me back up.
11 Can you reask the question?
12 BY MR. HAMILTON:
13 Q Sure.
14 So do Tables 56 and 57 show that the catheters
15 disclosed in Garrison have higher aspiration rates than
16 the two prior art catheters you just mentioned?
17 MR. BARNES: Object to the form. Mischaracterizes
18 testimony.
19 THE WITNESS: The flow rate that they're showing for
20 the Garrison device in Table 56, Figure 56 is 59 percent
21 improvement over the Navien 058. On the next table,
22 Garrison's 071 catheter is 25 percent improvement over the
23 Navien 072, and for instance, in paragraph 128, the
24 Navien 072, they have a length of 105 centimeters, which
25 is significantly longer than the Garrison device, the

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1 transcarotid 071 catheter.
2 So even though the IDs may be similar, it's a
3 significantly longer device, which is probably the main
4 reason that it has an improved flow rate over Navien 072.
5 BY MR. HAMILTON:
6 Q So just to be clear, you said it's a
7 significantly longer device which is probably the main
8 reason that it has improved flow rate over the Navien 072,
9 you mean Garrison catheter is shorter so it has an
10 improved flow rate over the Navien, correct?
11 **A The Garrison catheter is significantly shorter.**
12 Q And that shorter catheter means an improved flow
13 rate, correct?
14 **A There may be other differences in the design,**
15 **materials, et cetera, but in their test on Figure 57,**
16 **they're showing a 23 percent improvement in flow rate.**
17 Q So the purpose of the test for Figures 56 and 57
18 as described at 129 is to show a comparison of prior art
19 catheters in the catheters disclosed in Garrison and
20 specifically the improvement in flow rate between
21 Garrison's catheters and the prior art catheters, correct?
22 **A I'm not sure what the term prior art means in**
23 **this case. But it's comparing to the Navien catheter and**
24 **the Penumbra, two different Navien catheters and one**
25 **Penumbra catheter. These are catheters made by other**

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1 **companies.**
2 Q And made before Garrison's disclosure, correct?
3 **A Yeah, in paragraph 128, they specify that, for**
4 **example, one catheter currently used for clot aspiration**
5 **is the Navien 058 or the Navien 072. So these must have**
6 **been currently on the market.**
7 Q If you look at paragraph 127, about midway down,
8 the sentence beginning, As shown by this equation, flow
9 rate drops.
10 **A Yes.**
11 Q The sentence continues, By increases in length
12 and drops proportionally by decreases in -- excuse me,
13 back up. I'm going to read that whole sentence. As shown
14 by this equation, flow rate drops by increases in length
15 and drops proportionately by decreases in radius to the
16 fourth power. Do you understand what that means?
17 **A Yeah. They're relating to Poiseuille law,**
18 **Poiseuille's law, P-o-i-s-e-u-i-l-l-e. That's a physics**
19 **term that relates flow rate to diameter and length and the**
20 **properties of the fluid and the pressure differential**
21 **through a pipe or a tube.**
22 Q And the flow rate drop due to a change in length
23 is proportional according to that equation linearly,
24 correct?
25 **A Yes.**

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1 Q And then decreases based on a change in
2 radiance -- excuse me -- radius is much greater. That as
3 set forth there to the fourth power, correct?
4 **A That's true.**
5 Q All right. You can set Garrison aside.
6 I'm going to go back to Aklog. And just to be
7 clear for the record, this is Exhibit 1005 in the IPR
8 related to the '910 patent. Do you have Aklog?
9 **A Yes.**
10 Q If you could take a look at Column 15, line 54
11 down to line 57. And what I want to understand is line 54
12 refers to a third blood vessel 704. And then line 54
13 refers to the third blood vessel 703. Is the third blood
14 vessel 704 and 703 two different blood vessels or does
15 that look like a typo?
16 **A Yeah, so there in -- this whole section starting**
17 **with line 17 or so, it references Figure 7. So my**
18 **understanding is that the first blood vessel that they're**
19 **discussing is for the insertion site of the suction**
20 **cannula that would be insertion site -- first blood vessel**
21 **701, so that's -- would appear to be a femoral vein in**
22 **this case.**
23 **The second blood vessel they mention or heart**
24 **chamber can be the main PA, branch PAs, inferior vena**
25 **cava, et cetera, or deep veins in the legs. It says the**

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1 **target vessel is the second blood vessel they mention.**
2 **Line 54 discusses the third blood vessel 704. And that's**
3 **where they would, if desired, reinfuse -- insert a**
4 **reinfusion cannula 75. So those are the -- that's how I**
5 **understand the first, second, and third blood vessels.**
6 Q So in that line 54, it refers to a third blood
7 vessel 704, and then in line 57, the third blood vessel
8 703. Is that supposed to be a different vessel or is that
9 703 a typo, and it should be 704?
10 **A Yeah, that looks like a typo to me. In line 57,**
11 **703 should be 704.**
12 Q And you said 701 depicted in Figure 7 is a
13 femoral vein; is that right?
14 **A Well, it could be any, any artery in that area,**
15 **any vein or artery in that area as the patent talks about.**
16 **Any blood vessel that can be accessed percutaneously or by**
17 **surgical dissection such as a femoral vein, femoral artery**
18 **or jugular vein. I think this specific example is showing**
19 **a pulmonary embolism in the main pulmonary trunk, in which**
20 **case it would be accessed through the venous system,**
21 **probably the femoral vein. Could be the iliac vein, but**
22 **that requires a surgical cutdown.**
23 Q And then third blood vessel 704, can you tell
24 what blood vessel that is?
25 **A Well, they say it could be any large vein, such**

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1 **as a femoral vein, jugular vein. Based on the image, I**
2 **would presume that it's also a femoral vein access to**
3 **return -- for the return cannula.**
4 Q And would that be a different femoral vein from
5 701?
6 **A In Figure 7, it's certainly the left side of the**
7 **patient. Whereas the 701 first access site was the right**
8 **side of the patient.**
9 Q And what is 703 shown in Figure 7?
10 **A They describe that as, for instance, in a second**
11 **vessel or heart chamber 703, where the undesirable**
12 **material would be residing.**
13 Q So can you tell what 703 is in Figure 7?
14 **A Well, I think the arrow is not pointing to the**
15 **area of the clot. Which would be in the main PA. It's**
16 **pointing more to the right atrium, right ventricle**
17 **locations, but in the specification, it makes it clear**
18 **that the cannula's advanced toward a site of interest,**
19 **702, for instance, a second vessel or a heart chamber 703**
20 **where the undesirable material may be residing.**
21 Q And is the Item 703 pointing to a heart chamber?
22 **A Seems to be pointing kind of between the right**
23 **atrium and right ventricle.**
24 Q If you look at the -- it looks like a blowup 706
25 or near Item Number 706. Do you see the two curved lines

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1 that touch the catheter?
2 **A Yes.**
3 Q Do you understand what those two curved lines
4 are?
5 **A I think they represent in the pulmonary valve**
6 **leaflets.**
7 THE STENOGRAPHIC REPORTER: I'm sorry, pulmonary
8 valve, what was that?
9 THE WITNESS: Pulmonary valve leaflets.
10 THE STENOGRAPHIC REPORTER: Thank you.
11 BY MR. HAMILTON:
12 Q Do you understand what a vegetative growth is?
13 **A I've heard the term.**
14 Q What is a vegetative growth in the context of
15 Aklog?
16 **A I've heard the term referred to as tissue that's**
17 **attached to a wall of the -- well, any of the chambers of**
18 **the heart.**
19 Q Would you consider that tissue that's attached to
20 the wall of any of the chambers of the heart a pulmonary
21 embolism?
22 THE WITNESS: I'm sorry, pulmonary, what was that?
23 MR. HAMILTON: Embolism.
24 THE STENOGRAPHIC REPORTER: Thank you.
25 THE WITNESS: No. That would be -- within the

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1 chambers of the heart is what I'm most familiar with that
2 term being used. Pulmonary embolism would occur in the
3 vasculature within the lungs, within the pulmonary tree.
4 BY MR. HAMILTON:
5 Q If you look at Column 19, line 11. Through the
6 end of that sentence, does that sentence indicate that
7 Figure 7 is depicting a vegetative material?
8 **A Well, I think this whole section starting at**
9 **paragraph 71 is really talking about vegetative growth**
10 **that can occur within the heart and the fact that they --**
11 **these would also be considered undesirable materials that**
12 **might have to be removed.**
13 Q So you said paragraph 71. What are you referring
14 to there?
15 **A They're discussing vegetative growths and where**
16 **they might occur in the heart. And -- sorry. Column 18,**
17 **starting with line 49, that's where they start talking**
18 **about vegetative growths, and in the following paragraphs,**
19 **they're basically saying where these can occur and that**
20 **they can -- parts of them could dislodge and cause an**
21 **embolus, which would likely -- which would like to be**
22 **removed.**
23 **And I read this to say that, for instance, in**
24 **Column 19, starting with line 17, that the suction cannula**
25 **may be placed, you know, near the vegetative growth in**

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1 **order to try to capture and remove it.**
2 Q And that's what's depicted in Figure 7 as set
3 forth in Column 19, line 11 through 16?
4 **A I don't believe so. I believe they're not**
5 **showing example of vegetative growth. So it would be**
6 **within the heart chambers. The blowup on Figure 7 is**
7 **notated as 706. The location of that certainly is within**
8 **the pulmonary vasculature.**
9 **Can you remind me what page was the description**
10 **of Figure 7?**
11 Q Column 19, line 11.
12 **A Yeah. So in Column 16, the Item 706 is just**
13 **called, Undesirable material 706. I am just saying for**
14 **this specific example that they're showing, that that clot**
15 **appears to be in the main pulmonary artery and branching**
16 **into two other portions of the pulmonary vasculature.**
17 Q So you're referencing undesirable material 706;
18 is that right?
19 **A Yeah, as shown in Figure 7.**
20 Q And the undesirable material 706 could be a
21 pulmonary embolism or a vegetative growth, correct?
22 **A Well, I believe the prior sections I read**
23 **describe that vegetative growths are typically happening**
24 **within the chambers of the heart, maybe next to pacing**
25 **leads, I believe was mentioned, and those would be located**

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1 **in the right atrium, right ventricle of the heart.**
2 **And 706 seems to be pointing to the pulmonary**
3 **vasculature. So I would call those pulmonary embolisms as**
4 **they're shown in Figure 7.**
5 Q If you look at Column 19, line 12. As
6 illustrated by Figure 7, what does that mean as
7 illustrated by Figure 7?
8 **A I think it means what it says.**
9 Q That what is illustrated in Figure 7 is -- what
10 follows that phrase, correct?
11 **A What line are we looking at?**
12 Q Line 11, Column 19.
13 **A 19... yeah, it says, As illustrated by Figure 7**
14 **during a surgical procedure, such as removal of a**
15 **pacemaker, suction cannula may be placed in a strategic**
16 **location where it can capture vegetative material that may**
17 **become dislodged during removal.**
18 **So I take that to mean that that is an image of**
19 **material that's dislodged, as in now in the pulmonary**
20 **vasculature. Whether you call it vegetative growth or**
21 **pulmonary embolism, it's a blockage in the pulmonary**
22 **vasculature that is -- they're describing removing.**
23 Q In that sentence beginning line 11 on Column 19
24 through 16, when is the suction cannula 71 placed in a
25 strategic location?

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1 **A It doesn't specify, but it -- in reality it would**
2 **be placed after the vegetative growth has been dislodged**
3 **and patient is having symptoms.**
4 Q What would cause the vegetative growth to become
5 dislodged?
6 **A In this example, it describes a surgical**
7 **procedure such as the removal of a pacemaker lead from the**
8 **heart.**
9 Q And isn't the cannula placed during that that
10 surgical procedure?
11 **A I don't know. I'm mostly familiar with**
12 **interventional procedures for removing pacemaker leads**
13 **from the heart, in which case no, they wouldn't place a**
14 **huge cannula prior to that step. If this were truly an**
15 **open surgical procedure, I guess it's possible. It**
16 **doesn't specify either way.**
17 Q So when it says, During a surgical procedure,
18 such as the removal of a pacemaker lead from the heart,
19 suction cannula 71 may be placed in a strategic location,
20 that doesn't indicate to you when the suction cannula is
21 placed in the strategic location?
22 **A It says during, it may be placed at the same**
23 **time. If it's truly an open surgical procedure. I'm**
24 **saying it's my experience is they don't do open surgical**
25 **procedures very often to remove pacemaker leads. This is**

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1 **just giving an example of when one might need to suction**
2 **out vegetative growth.**
3 Q And it says that that example is illustrated by
4 Figure 7, correct?
5 **A Yes.**
6 Q I'm going to hand you what's been previously
7 marked as Exhibit 1012 in the IPR related to the
8 '910 patent. Do you recognize Exhibit 1012?
9 **A Can we take a break?**
10 Q Yeah, sure. Great time to take a break.
11 THE VIDEOGRAPHER: We are going off the record at
12 1355.
13 (Recess taken.)
14 THE VIDEOGRAPHER: Back on the record at 1405.
15 BY MR. HAMILTON:
16 Q I'm going to hand you a document that's been
17 previously marked as Exhibit 1049. I'm not going to go to
18 that one now. I'll come back to that.
19 Do you recognize this document?
20 **A Yes.**
21 Q And for the record, this is marked Exhibit 1049
22 in the IPR regarding the '910 patent. What is
23 Exhibit 1049?
24 **A It's a case report from a journal called,**
25 **Cardiovascular Revascularization Medicine, titled,**

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1 **Successful Management of Acute Massive Pulmonary Embolism**
2 **Using AngioVac Suction Catheter Technique in a**
3 **Hemodynamically Unstable Patient from 2014.**
4 Q So is it okay if I refer to this Exhibit 1049 as
5 Pasha, the first -- last name of the first named author?
6 **A Yes.**
7 Q And if I refer to Pasha, you'll understand that
8 I'm referring to Exhibit 1049 in the '910 patent -- IPR,
9 excuse me.
10 **A Yes.**
11 Q If you look at the second page, six lines down,
12 do you see the term, Saddle embolus?
13 **A Yes.**
14 Q What is a saddle embolus?
15 **A They describe it as -- that the embolus is**
16 **located in the main pulmonary artery extending into the**
17 **right upper and right lower pulmonary arteries.**
18 Q Other than the description set forth in Pasha, do
19 you have any understanding of what a saddle embolus is?
20 **A Not particularly.**
21 Q Do you have any experience with treating a saddle
22 embolus other than as set forth in Pasha?
23 **A No.**
24 Q Could a saddle embolus include something that has
25 a different configuration or shape than the one disclosed

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1 in Pasha?
2 **A Yeah, I don't know.**
3 Q Do you have any understanding of why the embolus
4 in Pasha is described as a saddle embolus?
5 **A Probably because it is in the main pulmonary**
6 **artery and extends into other large arteries. It may give**
7 **a saddle-looking shape on an angio is my guess.**
8 Q Do you have any understanding as to the size of
9 the saddle embolus set forth in Pasha?
10 **A Only that in the abstract, they start the**
11 **discussion by calling it a massive pulmonary embolism with**
12 **hemodynamic instability, and in the first sentence of the**
13 **introduction, they say that a PE is considered massive**
14 **when occlusion of the PA is greater than 50 percent of its**
15 **cross-sectional area resulting in hemodynamic compromise.**
16 **So I think that's the medical definition of massive, would**
17 **be more than 50 percent of its area and having the patient**
18 **in hemodynamic distress.**
19 Q Do you have any understanding of what the
20 diameter of the pulmonary artery is?
21 **A I'm more familiar with aortic dimensions. A PA**
22 **is larger than the aorta so it's something greater than in**
23 **the main pulmonary artery, just distal to the pulmonary**
24 **valve, it would certainly be over one inch, maybe one and**
25 **a half inch in diameter.**

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1 Q Do you see on page -- on the second page, excuse
2 me, about midway through the left column, an 8 French
3 sheath was sutured into the right common femoral artery.
4 Do you see that?
5 **A Yes.**
6 Q What's a sheath as used in that sentence?
7 **A It's a tube that provides access into the femoral**
8 **artery in this case.**
9 Q Would a sheath extend beyond the femoral artery?
10 **A I'm --**
11 MR. BARNES: Object to the form.
12 THE WITNESS: I don't know. In this case I would say
13 in general, relatively short sheaths are used. I'm not
14 sure exactly. Yeah, I'm not sure in this, with an
15 AngioVac device and procedure how that -- how that would
16 work, how long the sheath would be.
17 BY MR. HAMILTON:
18 Q When you say relatively short sheaths are used,
19 what do you mean by that?
20 **A For the procedures I'm familiar with, not this**
21 **AngioVac procedure, doctors are typically using sheaths**
22 **that are 10, 15 centimeters long to put in the femoral**
23 **vein.**
24 Q And why are doctors typically using sheaths that
25 are 10, 15 centimeters long to put in the femoral vein?

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1 **A Well, for procedures I'm familiar with, like**
2 **angioplasty procedures, there's no reason to have a longer**
3 **sheath in place. You just need access into the vessel.**
4 Q And what about procedures for the treatment of a
5 blood clot, embolus, or thrombus, is there any reason to
6 have a longer sheath in place?
7 **A For an access sheath to get into the vessel, I**
8 **think they're probably using fairly short sheaths, not**
9 **particularly long sheaths.**
10 Q And are you saying that because you're familiar
11 with those procedures?
12 **A I'm familiar with cardiovascular procedures, and**
13 **doctors would typically use a short sheath if they're**
14 **tracking a device over a guidewire, for instance, to place**
15 **the device. There's no need to put a sheath all the way**
16 **up into the brain, let's say, if we're talking about**
17 **stroke. They just need access into the vein or artery to**
18 **be able to advance the guidewire into the vasculature.**
19 Q And then do you see in the next line a
20 description of a 4 French sheath was sutured into -- in
21 the common, the left common femoral vein. Do you see
22 that?
23 **A Yes.**
24 Q Do you understand what a 4 French sheath is?
25 **A Yes.**

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1 Q Would you understand that that is similar as to
2 the 8 French sheath, just half the size?
3 **A Sure.**
4 Q And that 8 French and 4 French, is that referring
5 to the inner diameter or outer diameter of the sheath?
6 **A In my experience, access sheaths like these are**
7 **labeled for the size of device that could go through it.**
8 **So the ID of these sheaths is enough to accommodate an 8**
9 **French device or a 4 French device inside.**
10 Q And do you see two lines down from that
11 description of a 4 French sheath, the sentence beginning,
12 The second procedure was performed. Do you see that?
13 **A Yes.**
14 Q What's the first procedure? Let me back up. If
15 a second procedure was performed, does that imply that the
16 first procedure was performed?
17 **A Yeah, it's not clear to me what -- what the first**
18 **procedure necessarily was. They were probably stabilizing**
19 **the patient. They were -- it does say that they were**
20 **giving IV heparin. Yeah, I'm not sure.**
21 Q What is the purpose of IV heparin?
22 **A Prevent blood clots.**
23 Q And why would IV heparin be given to this
24 patient?
25 **A Because she has blood clots.**

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1 Q And by blood clots, you mean the saddle embolus?
2 **A She's got at least that one. They're trying to**
3 **prevent other -- other blood clots from forming by giving**
4 **IV heparin.**
5 Q Would the IV heparin assist in treating the
6 saddle embolus?
7 **A I don't believe so with a massive pulmonary**
8 **embolism like this.**
9 Q When you say you don't believe so, you mean the
10 IV heparin would have no effect on a saddle embolus?
11 MR. BARNES: Objection; mischaracterizes testimony.
12 THE WITNESS: Well, I'm not a doctor. My
13 understanding is that they would be given a thrombolytic
14 agent if they were to attempt to use a drug to help break
15 up the clot. But they specifically say she was deemed not
16 to be a candidate for thrombolysis or open surgery.
17 BY MR. HAMILTON:
18 Q Is heparin a thrombolytic agent?
19 **A I don't think it's considered a thrombolytic**
20 **agent.**
21 Q Are you aware of heparin ever being used as a
22 thrombolytic agent?
23 **A I don't know.**
24 Q If you go down a couple of lines from second
25 procedure to the phrase beginning, The right 8 French

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1 venous sheath was replaced by a 26 French AngioVac
2 catheter. Do you see that?
3 **A Yes.**
4 Q What does that sentence mean -- that phrase?
5 Excuse me.
6 **A So they have the 8 French sheath in place in**
7 **order to put a guidewire in place, the Amplatz stiff wire**
8 **that they mentioned, and they remove the sheath and then**
9 **advance this AngioVac catheter directly over the wire into**
10 **the patient without a -- without an outer sheath.**
11 Q And does that 26 French AngioVac catheter advance
12 to the saddle embolus?
13 **A As I state, the embolus was partially removed by**
14 **suction. So it must have been advanced to the location of**
15 **the embolus.**
16 Q And that suction's applied by the 26 French
17 AngioVac catheter. Is that your understanding?
18 **A That's the catheter that they used in order to**
19 **create the suction.**
20 Q If you look at the first sentence in the next
21 column, Partially removed. What does that mean, partially
22 removed?
23 **A They obviously couldn't remove the entire**
24 **embolus.**
25 Q Does this article indicate that the entire

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1 embolus was ever removed?
2 **A Yeah, at the end of that paragraph, they just say**
3 **on follow-up echo, it showed resolution of the RV**
4 **hypokinesia. They don't specify how much of the thrombus**
5 **may or may not have still been there. She was put on TPA,**
6 **a thrombolytic agent, for the seven days that she was in**
7 **the hospital.**
8 Q So this patient was treated both with AngioVac
9 and a thrombolytic agent; is that right?
10 **A Yes. They applied a thrombolytic agent after the**
11 **AngioVac procedure.**
12 Q Do you have any understanding of how much of the
13 saddle embolus was partially removed by suction versus by
14 application of the thrombolytic agent?
15 **A I don't.**
16 Q And is that because the article doesn't say or
17 you just don't understand?
18 MR. BARNES: Object to the form.
19 THE WITNESS: The article doesn't quantify how much
20 might be remaining. It only says that she showed
21 resolution of her right ventricular hyperkinesia, meaning
22 the RV is functioning normally within seven days which
23 would imply a very good result, being discharged seven
24 days later.
25

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1 BY MR. HAMILTON:
2 Q And based on the article, can you tell what
3 percentage of that very good result was due to the
4 AngioVac versus due to the thrombolytic agent?
5 **A No.**
6 Q The -- earlier I think you had mentioned the
7 patient was deemed to be not a thrombolytic or surgical
8 candidate?
9 **A That's what they said.**
10 Q And yet, a thrombolytic agent was used with this
11 patient, correct?
12 **A I think they meant that a thrombolytic agent**
13 **would be unlikely to be successful in someone with this**
14 **massive amount of clot and in this unstable condition,**
15 **that it would not work to save the woman's life by giving**
16 **thrombolysis.**
17 Q Why would a patient not be a thrombolytic
18 candidate?
19 MR. BARNES: Object to the form.
20 THE WITNESS: Well, the example I just gave, I think
21 is appropriate for this case. Which was massive PE and
22 unstable, unstable condition of the patient. There may be
23 other reasons, medically, that some patients would not be
24 candidates for thrombolytic agents. But I'm not a doctor.
25 I'm not sure.

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1 BY MR. HAMILTON:
2 Q If you look at the bottom of the next page, I
3 believe it's 243.
4 **A And I'm going to back up to the discussion of the**
5 **first procedure you were asking about. My assumption is**
6 **the first procedure was the pulmonary angiogram. Just**
7 **putting in a guidewire, a sheath, a guidewire, a catheter**
8 **to perform an angiogram is -- I'm guessing, that that is**
9 **what they're referring to as the first procedure. That's**
10 **shown in the top of the second page, 4 lines down where**
11 **they perform the pulmonary angiogram.**
12 Q Thank you.
13 And I'm sorry, I said 243, but I meant 242, the
14 bottom of that page, five or six lines up, Further
15 investigations in clinical trials. Do you see that?
16 **A Yes.**
17 Q Why are further investigations in clinical trials
18 needed to prove the usefulness of this device -- let me
19 back up. What's referred to as this device?
20 **A The AngioVac system or AngioVac circuit, is how**
21 **they describe it as an extracorporeal bypass tubing system**
22 **with AngioVac cannula. It's intended for a different**
23 **purpose. So the indication labeling is for a different**
24 **purpose than what they used it for here. And I believe**
25 **that's why they're saying it would require further**

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1 **investigation in clinical trials for patients like this.**
2 Q Are you familiar with -- if you go to the next
3 column, AngioJet rheolytic thrombectomy. Are you familiar
4 with that?
5 **A Somewhat. I mean, I'm somewhat familiar with the**
6 **procedure.**
7 Q How does the AngioJet -- how does AngioJet
8 rheolytic thrombectomy perform thrombolysis?
9 **A I believe the catheter is injecting kind of high**
10 **pressure jets in order to help break up the clot. But I'm**
11 **not that familiar with the procedure or the device.**
12 Q Do you have any understanding of whether the
13 AngioJet device can be used to treat pulmonary embolisms?
14 **A Well, this line says that it is one of the most**
15 **commonly used catheters for thrombolysis in patients with**
16 **massive pulmonary embolism.**
17 Q And is that your understanding as you sit here
18 today?
19 **A Can you repeat the first question?**
20 Q Is the AngioJet device used to treat pulmonary
21 embolisms -- let me rephrase. One of the most commonly
22 used catheters for treating pulmonary embolisms?
23 MR. BARNES: Object to the form.
24 THE WITNESS: Well, this was written 12 years ago.
25 I'm not sure if it is or isn't still the most commonly

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1 used or one of the most commonly used. I'm not sure.
2 BY MR. HAMILTON:
3 Q What about in 2018?
4 **A Yeah, I don't know.**
5 Q Do you have an understanding for the size of the
6 catheters used in the AngioJet device?
7 **A I don't remember.**
8 Q Are they 16 French?
9 **A I don't remember.**
10 Q If you look down just a couple lines beginning
11 with the sentence, Recently, an ultrasound-assisted
12 catheter-directed thrombolysis USAD has been shown. Do
13 you see that?
14 **A Yes.**
15 Q Do you understand what ultrasound-assisted
16 catheter-directed thrombolysis is?
17 **A Somewhat.**
18 Q Do you have any understanding of any devices on
19 the market that perform that procedure?
20 **A I don't know. I don't know.**
21 Q Other than what's disclosed in this article, are
22 you aware of any other instance in which AngioVac was used
23 to treat a pulmonary embolism?
24 **A I don't know.**
25 Q I'm going to hand you what's been previously

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1 marked as Exhibit 1051 in the IPR related to the
2 '910 patent. And like the previous exhibit, I'm going to
3 refer to this exhibit as Kohi, the last name of the first
4 author. Would you have a different pronunciation for
5 that? I'm open if you do.
6 **A No. That's fine.**
7 Q Okay. And so during this deposition, if I refer
8 to Kohi, you'll understand that I'm referring to this
9 Exhibit 1051 from the IPR related to the '910 patent; is
10 that fair?
11 **A Yes.**
12 Q What is Kohi?
13 **A It's a review article from a journal called,**
14 **Cardiovascular Diagnosis and Therapy in 2016. It's**
15 **called, Catheter-Directed Interventions For Acute Deep**
16 **Vein Thrombosis. The first author is Maureen Kohi,**
17 **K-o-h-i.**
18 Q Did you rely on this article in forming your
19 opinions in this matter?
20 **A Yes. I listed it as Exhibit 10 -- 1051 in the**
21 **'910 declaration.**
22 Q Do you understand what the term venous
23 thromboembolism means?
24 **A Yeah, it's a thrombus within the venous system.**
25 Q If I refer to -- or is it fair -- withdraw that.

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1 Is that sometimes referred to as VTE?
2 **A Yes.**
3 Q Are there different types of VTE?
4 **A There's a subset of VTE. It's called acute deep**
5 **vein thrombosis or DVT. That's a more common location for**
6 **a VTE.**
7 Q Are there any other types of VTE?
8 **A I don't know.**
9 Q If you look at the first paragraph under,
10 Introduction. Does that help you answer that question?
11 **A There are subsets of VTE. And she's listing DVT**
12 **and pulmonary embolism as two.**
13 Q And does this exhibit, Kohi, relate to DVT as
14 opposed to PE?
15 **A Yeah, the focus of this, based on the abstract**
16 **and glancing through it, the focus is certainly deep vein**
17 **thrombosis.**
18 Q If you look at the heading in Column 2 on the
19 first page, anticoagulation therapy. Do you understand
20 what that is?
21 **A Yes.**
22 Q And what is that?
23 **A Drugs like heparin and others are examples of**
24 **anticoagulation therapy used to treat -- treat thrombus.**
25 Q And would that mean applying a thrombolytic

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1 agent?
2 **A I'm not sure.**
3 Q And then if you go to the heading on the third
4 page, Catheter-directed pharmacological thrombolysis,
5 CDPT. Do you see that?
6 **A Yes.**
7 Q Do you understand what that is?
8 **A Yes.**
9 Q And what is that?
10 **A I believe that is when a catheter is placed near**
11 **the point of occlusion and thrombolytic agents are**
12 **infused.**
13 Q So is that essentially anticoagulation therapy,
14 but where the agent is directed to the location of the
15 DVT?
16 **A Well, on Table 1 on page 2, the title is,**
17 **Anticoagulation agents. The first one is heparin. The**
18 **next one is low molecular weight heparin, and it lists**
19 **four different types. There are also oral agents. These**
20 **are Vitamin K antagonists, like warfarin. These are**
21 **anticoagulants. I think that's a different category than**
22 **thrombolytics, but I'm not a physician.**
23 **I just know I had to take some Vitamin K**
24 **antagonist once when I had a deep vein thrombosis myself.**
25 Q I am sorry to hear that. I hope you recovered

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1 well.
2 **A Yes.**
3 Q If you go to the page 602, left-hand column,
4 second paragraph. Do you see reference to EKOS?
5 **A Yes.**
6 Q Are you familiar with ultrasound-accelerated
7 thrombolysis including -- well, withdraw that question.
8 Are you familiar with ultrasound-accelerated
9 thrombolysis?
10 **A Only in that I've seen the EKOS, E-K-O-S, system**
11 **as trade shows. So I'm familiar with the name, not the**
12 **details, necessarily, of how it works. But I know there's**
13 **ultrasound transducers near the tip of the catheter that's**
14 **located close to the area of the occlusion.**
15 Q Do you have any understanding as to the size of
16 the catheters used in ultrasound-accelerated thrombolysis?
17 **A I don't know the size of the catheters, no.**
18 Q If you go to the bottom of page 603, you see the
19 heading, Mechanical and pharmacomechanical thrombectomy?
20 **A Yes.**
21 Q Do you understand what that means?
22 **A Well, Table 3 on the next page shows different**
23 **categories of mechanical thrombectomy devices to treat**
24 **DVT. So in that table, they list five different products**
25 **and companies -- six different companies and the sheath**

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1 **sizes with which they're compatible.**
2 Q And with respect to sheath sizes, all those
3 devices except for the AngioVac are 8 French or smaller,
4 correct?
5 **A Yes.**
6 Q And do you have any understanding as to whether
7 those devices that are 8 French or smaller can
8 successfully treat DVT?
9 **A I'd have to look at this paper in more detail to**
10 **see if she provides success rates, but these are all**
11 **commercial products that are available. So my assumption**
12 **is that they are having some success in treating DVT.**
13 Q Do you have any reason to doubt as you sit here
14 today that these devices having catheters of 8 French or
15 lower can successfully treat DVT?
16 **A Can you reask the question?**
17 Q Do you have any reason, as you sit here today, to
18 doubt whether these devices that are 8 French or smaller
19 listed in the Table 3 of the Kohi article can successfully
20 treat DVT?
21 **A These were most likely on the market as of ten**
22 **years ago when this article was written. So at least at**
23 **that time, I would assume that they may be successful. I**
24 **see in Table 3 that one of the devices, the Covidien**
25 **Trellis device was recalled since 2015. I don't know if**

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1 **that's come back on the market or not. So if they're**
2 **still on the market as of, well, today, then I guess they**
3 **would be considered successful.**
4 Q And what about as of 2018?
5 **A Well, if these were on the market in 2016, which**
6 **as I said one may not have been, I have no reason to think**
7 **that they weren't successful in 2018.**
8 Q And I noticed in Table 3, there's a column that
9 says, Sheath sizes. Does that indicate that the catheters
10 for use with these devices are actually smaller than the
11 French sizes identified?
12 **A That's my general understanding, that the sheath**
13 **sizes listed show that the given device is compatible with**
14 **that sheath size so that the -- if the rheolytic**
15 **thrombectomy device, the first one, is labeled as**
16 **8 French, it could go through an 8 French sheath.**
17 Q If you turn to page 605 and look at the section
18 titled, Complications. Do you see that?
19 **A Yes.**
20 Q Halfway down that paragraph, Bradyarrhythmias are
21 also a specific complication to AngioJet. Do you
22 understand what that means?
23 **A Slow heart rate. I shouldn't say that.**
24 **Irregular heart rate. But not fast. More slow.**
25 Q And do you know why bradyarrhythmias are a

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1 complication to AngioJet?
2 **A It says, This complication occurs with prolonged**
3 **thrombectomy times when used near the heart and usually**
4 **resolves on its own with cessation of device use.**
5 Q If you look at the last sentence in that same
6 paragraph, the second phrase of that sentence, Aggressive
7 mechanical thrombectomy may however result in valvular
8 damage. What does that mean?
9 **A I'm not sure. I'd have to look at the**
10 **Reference 27 that she references. There are small valves**
11 **within the venous, the leg veins. So aggressive**
12 **mechanical thrombectomy may result in valvular damage for**
13 **those leg veins.**
14 Q If you go to the last paragraph beginning on
15 page 606, starting with, Vacuum-assisted aspiration. Do
16 you see that?
17 **A Yes.**
18 Q What does veno-venous circuit mean in that first
19 sentence?
20 **A I'm not sure I'm looking at the right location.**
21 **Can you say that again?**
22 Q Yeah. Sure.
23 The two paragraphs starting there start with very
24 similar phrases. So the second start of a paragraph,
25 vacuum-assisted aspiration thrombectomy. And in the next

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1 line it says, Veno-venous circuit. Do you see that?
2 **A Yes.**
3 Q What does that mean, veno-venous circuit?
4 **A It just means when you're aspirating from the**
5 **venous clot in the venous vasculature and reinfusing the**
6 **filtered blood back into the patient, that's the circuit**
7 **that they're describing.**
8 Q Is that described with respect to the AngioVac
9 device?
10 **A In this paragraph, they show the AngioVac device**
11 **as an example of a veno-venous circuit system.**
12 Q Why does that AngioVac device, or that type of
13 device, include a veno-venous circuit?
14 **A In order to return blood back to the patient.**
15 Q And why do those devices include a way to return
16 blood back to the patient?
17 **A Well, the AngioVac device is, I think, 22 French.**
18 **So there's a fair amount of blood that's -- has to be**
19 **withdrawn during aspiration. So the physician may want to**
20 **reinfuse that blood.**
21 Q Are you aware of any use of the AngioVac device
22 where the physician does not reinfuse the blood?
23 **A No. But I'm not familiar with all the procedures**
24 **that it's used for.**
25 Q If you look at the sentence in that same

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1 paragraph, This technique allows for. Then it continues,
2 Prolonged aspiration thrombectomy to proceed without the
3 risk of blood loss. Do you understand why the device
4 includes prolonged aspiration thrombectomy?
5 **A It's just saying that the technique allows for**
6 **prolonged aspiration. Because they're returning the blood**
7 **to the patient.**
8 Q And what is prolonged aspiration thrombectomy?
9 **A I don't know that there's a definition of time.**
10 Q Do you have an understanding for what prolonged
11 aspiration thrombectomy means?
12 **A I don't know.**
13 Q If you go to page 607, first full paragraph in
14 the left column, do you see the phrase, Making clearance
15 of thrombus in the lower extremities difficult without
16 adjunctive techniques. Do you see that?
17 **A Yes.**
18 Q Why is clearance of thrombus in the lower
19 extremities difficult in that sentence?
20 **A Well, it says that the cannula typically cannot**
21 **be advanced caudal, c-a-u-d-a-l, to the common femoral**
22 **vein making clearance of thrombus in the lower extremities**
23 **difficult without adjunctive techniques.**
24 Q Does that mean you can't advance the device to
25 the location of the thrombus?

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1 **A Well, the following paragraph, following sentence**
2 **say, The published experience with use of the AngioVac**
3 **cannula for treatment of DVT is limited to a case series**
4 **of about 40 patients with they report very high technical**
5 **success rates.**
6 **So I'm not sure if it can't be advanced. It**
7 **obviously has been used in some patients as of 2016, when**
8 **this was written.**
9 Q If you go to back to page 1 under anticoagulation
10 therapy, first sentence, Mainstay for the treatment of
11 patients with VTE. Do you see that?
12 **A Yes.**
13 Q Do you understand what's meant by mainstay for
14 the treatment of patients with VTE?
15 **A Most likely that that's the first line of**
16 **treatment for -- in most patients that are indicated, that**
17 **that would be -- the first choice would be to give**
18 **anticoagulants, not to do interventional procedures on**
19 **patients.**
20 Q And then I want to contrast that with page 607,
21 second column, the sentence above the heading, May-Thurner
22 Syndrome. Do you see that sentence?
23 **A Above May-Thurner Syndrome?**
24 Q That's right.
25 **A Yes.**

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1 Q And what is meant by, Further trials are needed
2 to demonstrate their safety, efficacy, and comparative
3 effectiveness in the treatment of patients with acute DVT?
4 **A I think it means what it says. Like most journal**
5 **articles, most physicians writing the articles conclude by**
6 **saying further trials are necessary. And back in 2016,**
7 **when this was written, some of these -- some of these**
8 **approaches may have been fairly new at that time.**
9 Q And when you say some of these approaches, you
10 mean aspirational thrombectomy devices?
11 **A Well, the whole... the mechanical thrombectomy**
12 **devices listed on the table, certainly some of those are**
13 **not -- have not been around that many decades, let's say.**
14 Q If you look at Figure 11 on page 606. Do you
15 understand what's depicted in Figure 11?
16 **A Yes. It says, Aspirated thrombus removed.**
17 Q And how was that thrombus removed in Figure 11?
18 Let me rephrase the question. Was that thrombus removed
19 using the AngioVac?
20 **A Yeah. Figure 11 is referred to in the text, in**
21 **the same paragraph that they're discussing the AngioVac**
22 **system. So yes. I believe that's the filter -- filter**
23 **system used in the AngioVac system at the time.**
24 Q Do you have any understanding as to why two
25 filters are shown in that figure?

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1 A No.
2 Q Does Figure 11 show the aspirated thrombus as
3 broken up into small pieces?
4 A I can't say from the images.
5 Q So as you sit here today, you can't tell whether
6 the thrombus is broken into small pieces or not from
7 Figure 11?
8 A I don't know what small pieces mean. It
9 obviously had to be a certain size to come into the
10 filter. It's, you know, cone shaped inside. Probably
11 because the filter is cone shaped. It's certainly not
12 one. It's unlikely to be one big clot. There probably
13 are multiple pieces or portions in there.
14 MR. HAMILTON: All right. Why don't we take a
15 five-minute break.
16 THE VIDEOGRAPHER: We are going off the record at
17 1510.
18 (Recess taken.)
19 THE VIDEOGRAPHER: We are back on the record at 1523.
20 BY MR. HAMILTON:
21 Q Mr. Thornton, do you understand you're still
22 under oath?
23 A Yes.
24 Q And did you communicate in any way with anybody
25 regarding the substance of these matters during the break?

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1 A No.
2 Q Did you review any documents during the break?
3 A No.
4 Q Are you familiar with Root 92 Medical?
5 A I believe I've seen that name maybe on a patent.
6 I'm not familiar with the company or what they make.
7 Q Are you familiar with a device called HiPoint
8 Reperfusion System D?
9 A I'm not.
10 Q Are you familiar with a company called Silk Road
11 Medical?
12 A I know that's the company that Garrison, Garrison
13 patent came from.
14 Q Other than that Silk Road Medical is the
15 applicant identified on the Garrison reference, are you
16 familiar with Silk Road Medical?
17 A Only from the standpoint of Michi Garrison, the
18 first author, I do know who that is. She's a former
19 colleague.
20 Q When you say former colleague, former colleague
21 from work?
22 A Back at Advanced Cardiovascular Systems in the
23 early '90s.
24 Q So you were a co-worker with Michi Garrison back
25 in the '90s?

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1 A We were at the same company. We were both in the
2 R&D department. We were on different -- different groups.
3 Different subgroups within R&D.
4 Q Did you ever work together on a project?
5 A No.
6 Q Other than your knowledge of Michi Garrison from
7 Advanced Cardiovascular Systems, have you had any contact
8 with Michi Garrison?
9 A No.
10 Q Prior to your engagement in this matter, were you
11 aware of the Garrison reference?
12 A No.
13 Q If you turn to your declaration with respect to
14 the '910 patent, page 49, paragraph 82. First sentence,
15 what did you mean by, Would not necessarily have needed
16 any modification to treat pulmonary embolisms?
17 A As I said in paragraph 82, especially emboli
18 located at the distal end of the pulmonary vasculature.
19 So smaller vessels, more distal may be in a similar -- may
20 have a similar vessel size as would be present for the
21 catheters shown in Garrison's system.
22 Q So does that mean Garrison's system could be used
23 to treat pulmonary embolisms without any change to the
24 catheter size?
25 A As I said, it would not necessarily need

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1 modification, especially for emboli located in the distal,
2 i.e., smaller vessels of the pulmonary vasculature.
3 Q So does that mean that Garrison's system could
4 treat pulmonary embolisms without enlarging the catheters
5 disclosed in Garrison?
6 MR. BARNES: Objection; asked and answered.
7 THE WITNESS: Yeah, that's what I just said. That
8 emboli located at the distal end of the pulmonary
9 vasculature where the vessels get quite small may be in
10 the same size range that would be appropriate to treat
11 with a catheter of the size shown in Garrison.
12 BY MR. HAMILTON:
13 Q If you could pick up the Garrison reference and
14 turn to page 36. Do you have any understanding as to the
15 size of the catheters disclosed in table -- excuse me,
16 Figure 54?
17 MR. BARNES: Object to the form.
18 THE WITNESS: Yes.
19 BY MR. HAMILTON:
20 Q And about what French are those catheters
21 disclosed in table -- excuse me, Figure 54?
22 MR. BARNES: Object to the form.
23 THE WITNESS: Well, the first columns says these seem
24 to be -- or two of the devices list a 5 French sheath. In
25 the upper table, the table Figure 54, the others don't

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1 list the sheath size. And the lower table, two of the
2 devices mention a 6 French sheath.
3 BY MR. HAMILTON:
4 Q So focusing on the table Figure 54, do you have
5 an understanding that the catheters identified in Table 54
6 are 5 French or smaller?
7 A That's what I'm interpreting from this table,
8 from this limited information here.
9 Q And then moving to Figure 55, you had said there
10 was a 6 French sheath identified. Does that mean that the
11 catheters identified in Figure 55 are smaller than
12 6 French?
13 A That's my interpretation of the data in this
14 table.
15 Q And then turning to Figures 56 and 57 on the next
16 page. Figure 56 refers to the same catheter -- catheters
17 from Figure 54, correct?
18 MR. BARNES: Object to the form, mischaracterizes the
19 document.
20 THE WITNESS: The third one listed the transcarotid
21 distal catheter 0.058-inch ID may be the same as the 058
22 catheters listed on the prior page that are compatible
23 with a 5 French sheath.
24 BY MR. HAMILTON:
25 Q So the catheters identified in Figure 56 are

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1 5 French or smaller; is that right?
2 A I'm not sure. I'm assuming that based on the
3 tables on page 54 -- Figure 54.
4 Q Thank you.
5 And then similarly, for Figure 57, does that
6 identify catheters that correspond to at least some of the
7 catheters from Figure 55.
8 MR. BARNES: Object to the form.
9 THE WITNESS: It may. It appears to be similar to the
10 071 catheters shown on Figure 55 that are compatible with
11 a 6 French sheath.
12 BY MR. HAMILTON:
13 Q So would you understand that the catheters
14 identified in Figure 57 are 6 French or smaller?
15 A I think that's what I just said.
16 Q If you take a look at your declaration with
17 respect to the '910 patent, turn to page 52, paragraph 86.
18 And I want to focus on the second full sentence in that
19 paragraph beginning with, I have not seen.
20 A Before we go there, I think I recognize one of
21 the errors that I mentioned earlier. Bottom of page 51,
22 last line references the '333 patent. And I believe that
23 should reference the '910 patent.
24 Can you reask the question?
25 Q Sure.

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1 Do you have any experience designing aspiration
2 catheters to treat cerebral occlusions?
3 A No.
4 Q When you say, I have not seen any patents that
5 describe and then you have a statement after that, did you
6 look for patents that describe cerebral occlusions as so
7 different from other types of occlusions?
8 A We certainly have looked at and discussed a lot
9 of patents and a lot of exhibits over the multiple
10 depositions and declarations. And as I said, I have not
11 seen any patents that describe the occlusions as so
12 different that an aspiration catheter would need to be
13 designed -- sorry, an aspiration catheter designed to
14 treat such occlusions would be totally irrelevant to other
15 parts of the vasculature.
16 Q In the course of your work on this matter, did
17 you run a search or have a search conducted related to
18 patents comparing cerebral occlusions and other types of
19 occlusions?
20 MR. BARNES: Objection.
21 To the extent you performed any searches at the
22 instruction of counsel, I instruct you not to answer. If
23 you can otherwise answer the question, you may.
24 THE WITNESS: I don't think I performed any specific
25 searches. But we've certainly looked at dozens, if not --

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1 well, dozens and dozens of patents related to these
2 matters.
3 BY MR. HAMILTON:
4 Q And when you say dozens and dozens of patents
5 related to these matters, you mean the patents identified
6 in your list of exhibits for these matters?
7 A Yes.
8 Q And other than the patents identified in your
9 list of exhibits for these matters, did you search for any
10 other patents related to comparison of cerebral occlusions
11 to other types of occlusions?
12 A I don't believe so.
13 Q All right. Let's turn to the '910 patent.
14 And if you could turn to page 66, Column 35,
15 line 53. Do you recall earlier today, some questions
16 related to the term a pulmonary embolism in line 53?
17 A I'm not sure about in line 53, but we've
18 certainly talked about pulmonary embolisms today.
19 Q So I want you to look at Column 36, line 14. Do
20 you see the term, The pulmonary embolism?
21 A Yes.
22 Q And is that referencing the pulmonary embolism
23 that's set forth on line 53 of Column 35?
24 A Well, I believe this whole claim is talking about
25 treating pulmonary embolisms with a clot aspiration

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1 **system.**
2 Q Are you finished with your answer?
3 **A Yeah.**
4 Q So Claim 1 is directed to treating a pulmonary
5 embolism, correct?
6 **A It says, Treating clot material comprising of**
7 **pulmonary embolism. I'm sure there could be, you know,**
8 **more than one in the pulmonary vasculature that this claim**
9 **is referring to.**
10 Q So is it your understanding that this claim is
11 directed to treating multiple pulmonary embolisms at the
12 same time?
13 MR. BARNES: Objection; mischaracterizes testimony.
14 THE WITNESS: I think it's directed to treating the
15 problem of pulmonary embolism. Doesn't say how large or
16 how small or how many. Just says, Comprising a pulmonary
17 embolism.
18 BY MR. HAMILTON:
19 Q So let's look at line 14 to 15 of Column 36.
20 Reference to positioned proximate to the pulmonary
21 embolism. Does that identify a specific position?
22 MR. BARNES: Object to the form.
23 THE WITNESS: Well, I read, Catheter's position
24 proximate to the pulmonary embolism, meaning nearby, next
25 to the pulmonary embolism. And I think they show examples

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1 of that in, say, Figure 10A or 13A.
2 BY MR. HAMILTON:
3 Q So let's focus on Figure 10A. Does Figure 10A
4 show a single clot?
5 **A They're depicting it as one blob of material.**
6 **It's -- I'm not sure if it's a single clot or multiple**
7 **clots next to each other. It's -- you know, it's not**
8 **clear.**
9 Q So when you look at Figure 10A, you can't tell if
10 that is multiple clots next to each other or a single
11 clot. Is that your testimony?
12 **A I'm not sure what the definition of single clot**
13 **is. There's an occlusion in the vessel that reaches into**
14 **a side branch. They're showing it as a single blob of**
15 **material.**
16 Q So setting aside the word clot, that's a single
17 mass of material, is that correct, a single continuous
18 mass of material?
19 MR. BARNES: Objection; mischaracterizes the document.
20 THE WITNESS: They're describing that -- the draftsman
21 is picturing that as a single -- I said blob. You said...
22 BY MR. HAMILTON:
23 Q Continuous mass of material.
24 **A They're depicting that as a continuous mass of**
25 **material.**

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1 Q And would you understand that that continuous
2 mass of material is a clot?
3 **A Sure.**
4 Q And is that continuous mass of material a
5 continuous clot?
6 **A I don't know. It's called a pulmonary embolism**
7 **in the specification. It's labeled as PE in this -- in**
8 **this Figure 10A.**
9 Q Let's turn to Figure 13A. Does Figure 13A also
10 depict a single, continuous mass of material?
11 **A Sure.**
12 Q And would you understand that single, continuous
13 mass of material is a clot?
14 **A Yes. It's labeled as pulmonary embolism in the**
15 **Figure 13A.**
16 Q So turning back to Column 36. When the second
17 catheter is positioned proximate to the pulmonary
18 embolism, that's referring to the same clot material,
19 single, continuous clot material, referenced in the
20 Column 35 lines 53 to 54; is that right?
21 **A Well, I don't know if it's a single piece of clot**
22 **material in this claim. They're just talking about**
23 **treating a pulmonary embolism, which could be discrete,**
24 **and it could be extended and consist of multiple portions**
25 **of clot, I guess.**

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1 Q And would those multiple portions of clot be
2 located at different locations?
3 **A They could be.**
4 Q Then let's turn to Column 36, line 33. Do you
5 see reference to the pulmonary embolism again?
6 **A Yes.**
7 Q Is that also referring to the same pulmonary
8 embolism set forth in Column 35, line 53?
9 **A Well, it says a second catheter is aspirating**
10 **blood in at least a portion of the pulmonary embolism into**
11 **the second catheter.**
12 Q So is at least a portion of the pulmonary
13 embolism referring to the same pulmonary embolism set
14 forth in line 53 of Column 35?
15 **A I don't know. They could have removed with the**
16 **first catheter and its aspiration. It could have removed**
17 **part or all of the -- part of the pulmonary embolism. And**
18 **the second catheter's removing another portion. It's not**
19 **clear that it differentiates between the two.**
20 Q So is it your understanding that the first
21 catheter is configured to remove some portion of the
22 pulmonary embolism?
23 **A Well, as the claim says, you're applying a vacuum**
24 **to the first catheter to generate suction at a distal**
25 **portion of the first catheter.**

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1 Q So does that mean the first catheter is designed
2 to aspirate some portion of the pulmonary embolism?
3 **A That would certainly be the goal of the**
4 **physician.**
5 Q If you look at Column 36, line, 9. Do you see
6 the second catheter has a size of 16 French or greater?
7 **A Yes.**
8 Q And then if you look at line 7 of that same
9 column, the second catheter advanceable through the first
10 catheter. Do you see that?
11 **A Yes.**
12 Q Does that mean that the first catheter has a size
13 greater than 16 French?
14 **A Well, they state that the second catheter has a**
15 **distal portion where the second catheter has a size of 16**
16 **French or greater.**
17 Q So could a second catheter having a size of 16
18 French or greater be advanced through a first catheter if
19 that first catheter had a size of 16 French or smaller?
20 **A No. It would need some clearance. I'm not sure**
21 **whether -- once again, they're talking about the inside**
22 **diameter or outside diameter, but the first catheter would**
23 **have a size that's larger than 16 French. For instance,**
24 **in Claim 3, they specifically say that the first**
25 **catheter's the size of 24 French.**

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1 Q How much larger than 16 French would you
2 understand the first catheter to be?
3 **A 8 French.**
4 Q So let me just clarify. So when you said
5 8 French, you're referring to this Claim 3; is that right?
6 **A Claim 3 says that the first catheter's the size**
7 **of 24 French. The second catheter is 16 French. 24 minus**
8 **16 is 8.**
9 Q And focusing on Claim 1, what's the smallest size
10 the first catheter could be where the second catheter
11 having a size of 16 French could be advanceable through
12 the first catheter?
13 **A I don't know. They don't specify whether 16**
14 **French is the OD or the ID.**
15 Q So does that mean you can't tell what the minimum
16 size of the first catheter would be in Claim 1?
17 **A Claim 1 does not provide the size of the first**
18 **catheter.**
19 Q But Claim 1 does indicate that the second
20 catheter has to be advanceable through the first catheter,
21 correct?
22 **A Yes. The second catheter with a size of 16**
23 **French would need to be advanceable through the first**
24 **catheter.**
25 Q So do you have an understanding for what the

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1 minimum size of the first catheter would be such that a
2 second catheter having a size of 16 French or greater
3 could be advanced through the first catheter?
4 **A If you tell me 16 French is the OD, I could give**
5 **an engineering answer for what the inside diameter of the**
6 **first catheter might be.**
7 Q And what would it be in that case?
8 **A In the case where the OD of the second catheter**
9 **is 16 French, I would guess that the ID of the first**
10 **catheter would be 18 French or greater.**
11 Q Would the --
12 **A And I'll add to that answer. And I'm saying that**
13 **based on my experience with the MitraClip device where we**
14 **had a roughly 16 French OD steerable sheath that was**
15 **nested within a 24 French OD steerable sheath. So I'm**
16 **just giving you a rough estimate based on my experience.**
17 Q So the MitraClip had a 16 French outer diameter
18 steerable sheath and a 24 French outer diameter steerable
19 sheath; is that right?
20 **A 24 French outer diameter at the insertion site.**
21 **The distal end was 22 French. And it was compatible with**
22 **an inner catheter -- an inner steerable catheter that was**
23 **approximately 16 French in OD.**
24 Q And would the minimum inner diagram of the first
25 catheter through which a second catheter could be advanced

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1 depend on where that catheter is -- what position that
2 catheter's advanced to?
3 MR. BARNES: Object to the form.
4 THE WITNESS: Can you repeat the question?
5 BY MR. HAMILTON:
6 Q Would the minimum inner diameter of the first
7 catheter through which a second catheter could be advanced
8 depend on where that first catheter is advanced to in the
9 vasculature?
10 MR. BARNES: Object to the form.
11 THE WITNESS: I don't know.
12 BY MR. HAMILTON:
13 Q Would it be more difficult to advance a first
14 catheter -- excuse me, a second catheter through a first
15 catheter if you are advancing to a position through a
16 complicated vasculature?
17 MR. BARNES: Object to the form.
18 THE WITNESS: If the first catheter were in a tortuous
19 path versus a straight path, the friction is higher. Not
20 sure that -- yeah, let's just leave it at that. The
21 friction is higher, which may make it more difficult to
22 advance.
23 BY MR. HAMILTON:
24 Q If you turn to Column 36, line 6. Do you see
25 reference to a pulmonary embolism?

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1 **A Yes.**
2 Q And if you look at the line before, you can see,
3 Treating clot material comprising a pulmonary embolism.
4 Do you see that?
5 **A Yes.**
6 Q Does that phrase and those terms have the same
7 meaning as used in Claim 1 as previously discussed here
8 today?
9 **A I don't see any differences between Claim 1 and**
10 **Claim 11 in their description of the pulmonary embolism.**
11 Q And if you go down to line 20, Column 37, the
12 phrase, Position proximate to the pulmonary embolism.
13 Does that phrase have the same meaning as that phrase is
14 used in Claim 1?
15 **A I'm assuming that.**
16 Q And then what about down at line 37 of Column 37.
17 The phrase, A portion of the pulmonary embolism, does that
18 phrase have the same meaning as the same phrase used in
19 Claim 1?
20 **A It would seem to have the same meaning to me.**
21 **Yes.**
22 Q If you look at Column 36, line 45. Do you see
23 the term, Electric pump?
24 **A Yes.**
25 Q Do you understand what that term means in that

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1 claim?
2 **A Yeah, on page 51, line 57, the pressure source**
3 **140 is configured to generate a vacuum and store vacuum**
4 **for subsequent application to the catheter subsystem 100.**
5 **Further details are below. Reference to Figure 2**
6 **through 7. Figures 2 through 7...**
7 Q And I just want to clarify, you're reading from
8 Column 6, line 57; is that right?
9 **A Yeah, Column 6 of the '910 patent, line 57 start.**
10 **I'm in Column 12, line 47. They say, In some embodiments,**
11 **the secondary syringe 460 can comprise a pump or vacuum**
12 **source other than a syringe. I'm not sure they have any**
13 **more detail about the type of pump. Maybe they list**
14 **electric pump somewhere else. But in the claim, it**
15 **mentions electric pump.**
16 Q Is a syringe an electric pump?
17 **A No.**
18 Q And if you look at Claim 14, that's Column 38,
19 beginning at line 6 and specifically, line 8. Do you see
20 reference to an electric pump there?
21 **A You said Column 13?**
22 Q Sorry, Column 38.
23 **A Sorry. Yes. The clot treatment system of**
24 **Claim 11, wherein the first pressure source and the second**
25 **pressure source comprise an electric pump.**

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1 Q And just like for the previous Claim 5 we just
2 discussed, the electric pump set forth in Claim 14 would
3 not include a syringe, correct?
4 **A Well, all of the figures in this patent show**
5 **syringes. I don't believe they show an electric pump, but**
6 **certainly, they provide an electric pump as a type of**
7 **vacuum source that I just read from column... Column 6.**
8 **Where it says, The pressure source is configured to**
9 **generate a vacuum and store the vacuum for subsequent**
10 **application to the catheter subsystem.**
11 Q If you look at Column 38, line 33 -- excuse me,
12 line -- end of line 32 going on to 33. Do you see that
13 term again, Electric pump?
14 **A Yes.**
15 Q Is that term used in the same manner as the term
16 is used in Claim 14 and Claim 5 that we just discussed?
17 **A That's my assumption.**
18 Q If you could turn to the '333 patent. I'm going
19 to ask you a few questions about the claims on page 66 and
20 67, specifically, Column 35, line 51. Is Claim 1 directed
21 to a method of treating pulmonary embolism?
22 **A Yes.**
23 Q And you see reference to a pulmonary embolism
24 in -- about line 51 of Claim 35?
25 **A Yes.**

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1 Q And then I want you to go down to line 56 of that
2 same column. You see reference to the pulmonary embolism?
3 **A Yes.**
4 Q Is that referring to the pulmonary embolism set
5 forth in line 51 of Column 35?
6 **A Yes. I assume this whole claim is talking about**
7 **treating pulmonary embolism in patients.**
8 Q If you look at the top of Column 36, line 1. At
9 least a portion of the pulmonary embolism. Do you see
10 that?
11 **A Yes.**
12 Q Does that reference a portion of the pulmonary
13 embolism set forth in Column 35, line 51?
14 **A Yes. I think this whole claim is talking about**
15 **aspirating pulmonary embolism from patients.**
16 Q If you turn to Column 37, line 23. Is Claim 20
17 directed at treating a method -- excuse me, a method of
18 treating a deep vein thrombosis?
19 MR. BARNES: Object to the form.
20 THE WITNESS: Yes. Starting with Claim 20, all the
21 following claims, I believe, are related to treating deep
22 vein thrombosis within a patient.
23 BY MR. HAMILTON:
24 Q Is Claim 20 directed to a method of treating a
25 pulmonary embolism?

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A Claim 20 relates to deep vein thrombosis.
Q Does that mean it doesn't -- it is not directed to a method of treating a pulmonary embolism?
A Well, the claim is limited, I guess, to deep vein thrombosis. The steps from Claim 20 and beyond, I'm not sure if they're any different from the step -- from the claims of 1 through 19 except for stating that in Claims 1 through 19, they're treating pulmonary embolism, and 20 and beyond are treating deep vein thrombosis.
Q And similar question with respect to Claim 1. Column 35 beginning at line 51. Is Claim 1 directed to a method of treating a deep vein thrombosis?
A No. It says it's a method for treating pulmonary embolism. But as I look at the claim language, it seems that they are possibly identical. I'm not sure if they're exactly identical, but they seem quite similar looking quickly among the two claim sets -- between the two claim sets.
Q Would a person of skill in the art understand a method of treating pulmonary embolism -- withdraw the question.
If you look at Column 36, line 11, I think it starts at line 10. You see the phrase, A catheter having a size of 16 French or greater?
A Yes.

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Q Do you have an understanding of whether that refers to the inner diameter, the outer diameter of the catheter?
A I don't.
Q And then similarly for Claim 3, Column 36, say starting at line 13. A catheter having a size of 20 French or greater. Do you see that?
A Yes.
Q Do you have an understanding of whether that 20 French is the inside diameter or outside diameter of the catheter?
A I don't think this specification in this patent's delineated between inside and outside diameter, so I don't know for sure.
MR. BARNES: Joe, we've been going for about another hour. So whenever is a good time for another break.
MR. HAMILTON: Okay. Yeah, why don't we take a quick break.
THE VIDEOGRAPHER: We are going off the record at 1623.
(Recess taken.)
MR. HAMILTON: So for the record, we're going to finish with questioning today and then just pick up tomorrow at 9:00 a.m. and finish the depo.
THE STENOGRAPHIC REPORTER: All right, thank you so

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much.
MR. HAMILTON: Thanks.
(WHEREUPON THE DEPOSITION WAS CONCLUDED AT 4:25 P.M.)

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Please be advised I have read the foregoing deposition, pages 1 through 146, inclusive.
I hereby state there are:

(Check one)_____ no corrections

_____ corrections per attached

_____

TROY L. THORNTON

--oOo--

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1 WITNESS'S CHANGES OR CORRECTIONS
2
3 NOTE: If you are adding to your testimony, print
the exact words you want to add. If you are
4 deleting from your testimony, print the exact
words you want to delete. Specify with "Add"
5 or "Delete" and sign this form.
6
Deposition of: TROY L. THORNTON
7 Case Title: IMPERATIVE V. INARI
Date of Deposition: FEBRUARY 18, 2026
8
9 I,_____have
10 the following corrections to make to my deposition:
11 Page Line Change/Add/Delete
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13 ___ ___ _____
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1 CERTIFICATE OF SHORTHAND REPORTER/STENOGRAPHER
2
3 I, Christa Yan, Certified Shorthand/Stenographic Reporter
within and for the State of California do hereby certify:
4
That Troy L. Thornton, the Witness whose deposition is
5 hereinbefore set forth, was duly sworn by me before the
commencement of such deposition and that such deposition
6 was taken before me and is a true record of the testimony
given by such witness.
7
I further certify that both parties were represented by
8 counsel at the deposition.
9 I further certify that the deposition of Troy L. Thornton
occurred at 333 Bush Street in San Francisco, California
10 on February 18, 2026 commencing at 9:06 a.m. to 4:23 p.m.
11 I further certify that I am not related to any of the
parties to this action by blood or marriage, I am not
12 employed by or an attorney to any of the parties to this
action, and that I am in no way interested, financially or
13 otherwise, in the outcome of this matter.
14
15 IN WITNESS WHEREOF, I have hereunto set my hand this 25th
day of February 2026.
16
17
18
19
_____
20 CERTIFIED SHORTHAND/STENOGRAPHIC REPORTER
IN AND FOR THE STATE OF CALIFORNIA
21
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