

In the Matter Of:

Nuvasive, Inc. vs Alphatec Holdings, Inc., et al.

JIM YOUSSEF, M.D.

January 09, 2020

Job Number: 596169

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1 UNITED STATES PATENT AND TRADEMARK OFFICE
2 BEFORE THE PATENT TRIAL AND APPEAL BOARD

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5 ALPHATEC HOLDINGS, INC., and
6 ALPHATEC SPINE, INC.,

7

Petitioners,

8

vs.

Case No. IPR2019-00362
US Patent No. 8,361,156

9

NUVASIVE, INC.,

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Patent Owner.

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DEPOSITION OF

14

JIM YOUSSEF, M.D.

15

Durango, Colorado

16

January 9, 2020

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11:59 a.m.

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Reported by: Heidi K. Konsten, RPR, CCR
Nevada CCR No. 845 - NCRA RPR No. 816435
JOB NO. 596169

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1 UNITED STATES PATENT AND TRADEMARK OFFICE
2 BEFORE THE PATENT TRIAL AND APPEAL BOARD

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5 ALPHATEC HOLDINGS, INC., and
6 ALPHATEC SPINE, INC.,

7 Petitioners,

Case No. IPR2019-00361
US Patent No. 8,187,334

8 vs.

9 NUVASIVE, INC.,

10 Patent Owner.
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1 UNITED STATES PATENT AND TRADEMARK OFFICE
2 BEFORE THE PATENT TRIAL AND APPEAL BOARD

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5 ALPHATEC HOLDINGS, INC., and
6 ALPHATEC SPINE, INC.,

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Petitioners,

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vs.

Case No. IPR2019-00546
US Patent No. 8,187,334

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NUVASIVE, INC.,

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Patent Owner.

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1 Deposition of JIM YOUSSEF, M.D., Volume
2 1, taken at 501 Camino del Rio, Durango, Colorado,
3 on Thursday, January 9, 2020, at 11:59 a.m., before
4 Heidi K. Konsten, Certified Court Reporter in and
5 for the State of Nevada.

6

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INDEX

Page

JIM A. YOUSSEF, M.D.

Examination by Ms. Wickramasekera 6

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EXHIBITS

No. Description Page

(None marked.)

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DURANGO, COLORADO

Thursday, January 9, 2020

11:59 a.m.

DEPOSITION OF JIM A. YOUSSEF, M.D.

* * * * *

JIM A. YOUSSEF, M.D.,

having been first duly sworn, was examined and testified as follows:

EXAMINATION

BY MS. WICKRAMASEKERA:

Q All right. Dr. Youssef, I'm handing you Exhibit 2055 from IPR 2019-361, which appears to be your declaration for the '334 patents.

A Thank you.

Q I'm also handing you Exhibit 2055 from IPR 2019-362, which appears to be your declaration for the '156 patents. And, finally, I'm handing you Exhibit 2055 from proceeding IPR 2019-546, which appears to be your declaration regarding the '334 from that proceeding.

Let me know once you have those in front of you, and please confirm for me that those are the declarations that you submitted in these IPRs.

1 MR. DALKE: I think those are the
2 duplicates. There's one from each stack. I
3 didn't do that very well.

4 THE WITNESS: I believe these are the
5 ones.

6 BY MS. WICKRAMASEKERA:

7 Q Okay.

8 A Thank you.

9 Q Are there any other declarations?

10 A No.

11 Q Okay. Now, you've provided an opinion
12 on behalf of NuVasive in the IPRs that are at
13 issue today; correct?

14 A Correct.

15 Q Okay. And you've been working with
16 NuVasive since 2003; is that correct?

17 A I would call it closer to 2005 or -- I
18 can't recall exactly.

19 Q Okay.

20 A Somewhere in that time frame.

21 Q Okay. And you've been working with
22 NuVasive as a consultant since that time period;
23 is that correct?

24 A I would have to look at my consulting
25 documents to recall the exact first date of my

1 consulting agreement with them.

2 Q Okay. What generally -- what have you
3 been working with -- well, what generally did you
4 start working with NuVasive on when you first
5 began working?

6 A Research.

7 Q Okay. And that was around the 2003 to
8 2005 time frame?

9 A Approximately, yes.

10 Q Okay. And you've provided an opinion
11 that includes -- that includes comments regarding
12 XLIF. Do you recall that?

13 A Specifically, I'm unclear. Can you
14 repeat the question?

15 Q Does your opinion regard XLIF?

16 A My opinion in these IPRs?

17 Q Uh-huh.

18 A It -- actually it involves the
19 procedure -- the patents related to '334 and '156
20 and the claims that are cited within these IPRs.

21 Q Okay. So it does not involve XLIF?

22 A Well, I would say it involves the
23 opinions that I provided for the claims that are
24 in discussion in '334, '156, and the claims that
25 are listed in my IPR.

1 Q So would it be incorrect to say that any
2 of the opinions that are in front of you as
3 Exhibit 2055 in each of the proceedings has
4 anything to do with XLIF?

5 A I would say that my opinions in front of
6 me in these IPRs are related to the claims in
7 specific patents '334 and '156.

8 Q Okay. Now, you reference XLIF in your
9 opinions; correct?

10 A I'm just going to look through this, if
11 you don't mind.

12 Q Sure. Go ahead. If you want me to
13 provide you a reference, I can do that.

14 Actually, did you prepare these
15 declarations yourself?

16 A I did them in collaboration with my
17 attorneys.

18 Q Okay. Did you have any input into what
19 went into the declarations?

20 A Absolutely.

21 Q Okay.

22 A So if you want to point me to that to
23 save time, that would be fine.

24 Q I can do that, but I -- just a quick
25 question.

1 **You don't recall including any mention**
2 **of XLIF in your IPR declarations?**

3 A I need to review the -- the -- review
4 them, and I'll tell you.

5 Q Well, sitting here today, do you believe
6 that the '334 and the '156 patents have anything
7 to do with XLIF?

8 A I think they have to do with -- well, I
9 guess, can you please define XLIF for me?

10 Q I don't think that I can. But I would
11 like you to define XLIF for me.

12 A Well, you asked the question, so that's
13 why I'm asking.

14 Q Okay. Well, how about if we -- sorry,
15 Doctor, I don't mean --

16 A Because XLIF is -- is an acronym; right?

17 Q Yeah. No, I don't mean to be tricky.
18 I'm just a little bit confused.

19 A Okay.

20 Q Because your declarations reference
21 XLIF, so I'm not sure why you're having trouble
22 referencing this.

23 A Can you point me to where you see the
24 reference?

25 Q Sure.

1 A Okay.

2 Q So let's see. I think one of the first
3 places that I see XLIF mentioned is -- now, I am
4 blanking, so give me a second.

5 Thank you, Dave. Paragraph 83.

6 MR. MILLS: Which --

7 MS. WICKRAMASEKERA: On any of your
8 declarations.

9 THE WITNESS: Yes, I see that it says
10 "XLIF is a minimally invasive surgical approach to
11 spinal fusion surgery that accesses the disk space
12 from the lateral aspect of the patient and
13 transverses the psoas muscle."

14 BY MS. WICKRAMASEKERA:

15 Q Okay. And XLIF is a commercial product
16 of NuVasive's?

17 A XLIF is an acronym for a procedure of
18 NuVasive.

19 Q Does it include products --

20 A Yes.

21 Q -- that are for sale?

22 A I believe so, yes.

23 Q Okay. And you collect royalties on
24 certain components of XLIF; is that correct?

25 A I receive royalties on two specific

1 implants currently --

2 Q Okay.

3 A -- that are related to the XLIF
4 procedure.

5 Q Okay. And -- and you've received,
6 according to the public data, as of December 2019,
7 \$3.5 million in payments from NuVasive; is that
8 correct?

9 MR. MILLS: Objection. Foundation.

10 THE WITNESS: So what public data are
11 you referring to?

12 BY MS. WICKRAMASEKERA:

13 Q Are you aware that payments to surgeons
14 have to be publicly reported?

15 A I am.

16 Q You are?

17 A Yes.

18 Q Okay. On OpenPaymentsData.CMS.gov?

19 A Yes.

20 Q Okay. And are you aware of how much is
21 being reported as you having received payments
22 from NuVasive?

23 A I'm aware that there is a reporting
24 window every year on Open Payments that is --
25 allows surgeons to dispute payments that are

1 posted by different medical device companies. I'm
2 aware that Open Payments includes all payments
3 that come from medical device companies to
4 surgeons or physicians in general.

5 They include everything from research to
6 meals to travel to reimbursement to royalties to
7 consulting. So there's a big number that's
8 included in all of that. My activity actually
9 includes all of those things.

10 Q Okay.

11 A And also includes other companies that I
12 work with, so ...

13 Q Right.

14 Are you saying that you don't know
15 what -- what amount is listed for NuVasive?

16 A As of 2019, I don't believe it was
17 published recently, that I know of. I haven't
18 looked at it.

19 Q Okay. Would it surprise you that it's
20 being publicly reported, as of December 3rd, 2019,
21 that you have received \$3.5 million at least from
22 NuVasive?

23 MR. MILLS: Objection. Foundation.

24 THE WITNESS: Can I see the report?

25

1 BY MS. WICKRAMASEKERA:

2 Q No, I'm not going to -- I don't have a
3 copy of it for you, but that's fine.

4 I mean, if you don't know -- if you
5 don't know what's being publicly reported, that's
6 okay. I can ask you the questions and you can say
7 you don't know.

8 A Yeah, that's fine.

9 Q Okay. So you're not aware of having
10 received \$3.5 million in payments from NuVasive?

11 A In 2019?

12 Q No. As of 2019.

13 A Starting when?

14 Q As of December 2019.

15 A Starting when?

16 Q Whenever the public reporting started.

17 A Well, I don't know that the -- do you
18 have the date of the public reporting initiation?

19 Q I don't on me.

20 A Neither do I.

21 Q Okay. So does it sound wrong that
22 you've received \$3.5 million of payments --

23 A No.

24 Q -- from NuVasive?

25 A Doesn't sound wrong.

1 Q Okay. And that -- that includes
2 royalties and license fees?

3 A They're included along with research and
4 reimbursement for travel and hotels and those
5 sorts of things and consulting.

6 Q Now, the work that you're doing on
7 litigations, is that included in this publicly
8 reported data?

9 MR. MILLS: Objection. Foundation.
10 BY MS. WICKRAMASEKERA:

11 Q If you know.

12 A I don't know.

13 Q Okay. Who makes your payments for the
14 work that you're doing in the litigation?

15 A Wilson Sonsini.

16 Q Okay. Do you have a separate agreement
17 regarding your compensation for the work that
18 you're doing in this case and any other cases for
19 NuVasive that are related to litigation or the
20 patent office?

21 MR. MILLS: Objection. Form.

22 THE WITNESS: The -- so if you -- if I
23 heard your question correctly, you're asking does
24 NuVasive have a contract with me on the litigation
25 work? Or if you could repeat the question.

1 BY MS. WICKRAMASEKERA:

2 Q No. I asked if you have a separate
3 agreement regarding --

4 A With -- with whom?

5 Q With anyone regarding compensation for
6 the work that you're doing on this case and other
7 litigations.

8 A What other litigations?

9 Q The district court litigation.

10 A Okay. Related to this case?

11 Q This case and the district court
12 litigation.

13 A Okay.

14 MR. MILLS: Objection. Form.

15 THE WITNESS: Yeah, I think I'm happy to
16 discuss everything about the IPR today, and we can
17 talk about the district court tomorrow.

18 BY MS. WICKRAMASEKERA:

19 Q Dr. Youssef, hold on. Hold on. So
20 first off, I think that if you're going to try and
21 cabin the questions the way you want to, we're
22 going to -- this is going to take a long time.

23 Okay?

24 So I'm entitled to ask you the
25 questions, and if you don't want to answer because

1 you don't know, then you can say you don't know.

2 But you are not entitled to just stop answering
3 the questions.

4 You get it?

5 MR. MILLS: So objection. So, first, my
6 objection is that the witness had not completed
7 his answer and that counsel interrupted him.

8 MS. WICKRAMASEKERA: Okay. You know
9 what, Jad, let me -- let's take a minute here. If
10 Dr. Youssef is going to continue this, we're going
11 to call the Board.

12 Do you want to take a minute?

13 MR. MILLS: Counsel, if you would like
14 to call the Board, you're welcome to call the
15 Board. I don't think there's any reason to call
16 the Board.

17 MS. WICKRAMASEKERA: Okay.

18 MR. MILLS: But I do want to point out
19 that the witness had not completed his answer and
20 that he was interrupted.

21 MS. WICKRAMASEKERA: Okay. He's not
22 answering the question that I'm asking him.

23 BY MS. WICKRAMASEKERA:

24 Q I'm going to ask you questions, and then
25 you can answer them. Okay?

1 A Yeah, and I apologize. I'm just trying
2 to get some clarification, because your question
3 isn't clear to me. And so when I'm asking for
4 clarification, I'm trying to understand it. So
5 I'll ask the clarification if you would like
6 again.

7 Q If you don't understand my question, you
8 should definitely tell me that.

9 A Okay.

10 Q Okay? And I will -- I will help
11 rephrase the question so you can see if you can
12 get it.

13 A Thank you.

14 Q All right. You entered into a new
15 agreement with NuVasive in October of 2017;
16 correct?

17 A A new agreement? What kind of
18 agreement? Can you clarify specifically?

19 Q A global consulting agreement.

20 A Correct.

21 Q Okay. And pursuant to that agreement,
22 you are to be provided cash compensation in the
23 amount of \$1,250,000 paid quarterly over the
24 course of five years; is that correct?

25 A Related to -- so the answer is yes, but

1 it's related to specific activities that have to
2 do with single physician surgery and development
3 of products and procedures related to single
4 physician surgery.

5 Q Okay.

6 A The -- the agreement does not talk about
7 any other activity, including legal activity.

8 Q Is this -- does this agreement --

9 A I wasn't finished with my answer.

10 Q Okay. Go ahead.

11 A And, therefore, it doesn't include any
12 other activity outside the scope of the agreement.

13 Q Right. Okay. So that --

14 A If you show me the agreement, I would be
15 happy to read it out loud for the record.

16 Q Okay. Honestly, Dr. Youssef, I have no
17 idea why you can't just answer my question.

18 MR. MILLS: Objection. Argumentative.

19 BY MS. WICKRAMASEKERA:

20 Q Okay. Let's try this again. All right?

21 So I'm going to ask you questions, and if you
22 can't answer them, just let me know.

23 A Okay.

24 Q Because you're -- you're testing my
25 patience a little bit. This was not meant to be

1 that hard. Okay? So I'm --

2 MR. MILLS: Go ahead and finish.

3 MS. WICKRAMASEKERA: Yeah, let's stop.

4 All right. So here -- no, no, let's stop.

5 MR. MILLS: I need to register my
6 objection. My objection is argumentative.

7 BY MS. WICKRAMASEKERA:

8 Q Okay. So, Dr. Youssef, I believe you
9 testified -- you confirmed that you do have a
10 consulting agreement with NuVasive that you
11 entered into in October of 2017.

12 Now, pursuant to that agreement, for
13 various work that you are going to do for NuVasive
14 on product development, you're going to be paid
15 1.25 million over the course of five years. Am I
16 correct?

17 A Correct.

18 Q Okay. This agreement does not cover the
19 work that you were doing on the litigation or on
20 the P Tec proceedings; correct?

21 A Correct.

22 Q You are being compensated an additional
23 amount, separate and apart from your consulting
24 agreement, for the work that you're doing on the
25 cases. Am I correct?

1 A And that's in each of these reports,
2 yes.

3 Q Yes. Okay.

4 A I disclosed it in my reports.

5 Q Okay. And how much -- to date, do you
6 know how much you have incurred in fees in -- in
7 consulting fees for your work on this case?

8 A I would have to guess. I don't have the
9 exact number in front of me.

10 Q Do you know approximately how much
11 you've worked on the case?

12 A Yes.

13 Q Okay. How much is that?

14 A Upwards of 40 to 50 hours, north of
15 that.

16 Q Okay. All right. Let's go to your
17 declaration, and I'm going to ask you a few
18 questions about sections in there.

19 A Which one?

20 Q Either one. They're all the same.

21 A No, they're not.

22 Q They're not?

23 A Which patent do you want to talk about?

24 Q Let's talk about '334 first.

25 A Okay.

1 Q So why don't we start with the 361
2 proceeding.

3 A Okay.

4 Q All right. Dr. Youssef -- gosh, let me
5 ask you some general background questions first.

6 When did you first -- when did you
7 perform your first spinal fusion surgery?

8 A As a resident or as a --

9 Q At any time.

10 A Probably as a resident, sometime around
11 1992.

12 Q Okay. And what -- what procedure did
13 you do for that surgery?

14 A I can't recall.

15 Q Okay. All right. Why don't you turn to
16 paragraph 32 in your declaration. In the middle
17 of the paragraph, you have a sentence that starts
18 "The claim uses additional language."

19 Do you see that?

20 A I do.

21 Q Okay. In that sentence -- and I'll read
22 the full sentence for the record -- you state "The
23 claim uses additional language to specify that the
24 longitudinal (longest) length of the implant must
25 extend between the distal and proximal ends, that

1 the longitudinal (longest) aperture length has to
2 be generally parallel to the longitudinal
3 (longest) length of the implant, and that the
4 lateral widths of each of the implants and the
5 aperture must extend beyond the sidewalls of the
6 implant."

7 Do you see that?

8 A I do.

9 Q When the claim language that you
10 reference here says "distal end," what does that
11 mean? Distal to what?

12 A I think distal to the direction in which
13 the implant is being placed.

14 Q Okay. And when the claim language uses
15 "proximal end," what does that mean? Proximal to
16 what?

17 A Proximal to the path of insertion.

18 Q Okay. Can you list for me, Dr. Youssef,
19 all of the nonbone spinal fusion implants that you
20 were aware of before 2003?

21 A Nonbone fusion?

22 Q Yes.

23 A There are not very many.

24 Q Can you list any of them for me?

25 A You know, in 2003, the commercial

1 availability of nonbone fusion implants were
2 limited. I think there's one that I reference or
3 I've reviewed as part of my citation here called
4 Telamon.

5 As a spine surgeon, you work with
6 companies, and you get exposed to the products of
7 the companies that are offered by that specific
8 company. At the time in 2003, I was mostly
9 working with Synthes at the time. And so they had
10 mostly allograft as their offering for interbody
11 fusion.

12 They were -- I was involved in an IDE
13 study where we looked at titanium implants and was
14 called the SynCage. But I don't have a
15 recollection -- these names are so many throughout
16 the -- the history of spine surgery that they're
17 all marketing names typically, and so I don't
18 memorize them. I mean, every week there's a new
19 name coming out, a new implant.

20 Q Okay. I noticed that your answer said
21 "commercially available implants were limited,"
22 and that's not what I was asking about.

23 So let me ask you --

24 A Sure. I'm sorry.

25 Q Let me clarify that. Okay?

1 And -- and maybe I should be a little
2 bit broader, because you're providing an opinion
3 as a person ordinary skill in the art.

4 So can you give me a list of all of the
5 nonbone spinal fusion implants, whether
6 commercially available or not, that a POSA --
7 which I'm going to use to mean person of ordinary
8 skill in the art -- would have been aware of
9 before 2003?

10 MR. MILLS: Objection to form.

11 THE WITNESS: Yeah, I can't give you a
12 list.

13 BY MS. WICKRAMASEKERA:

14 Q Are you aware of any -- were POSAs aware
15 of any nonbone spinal fusion implants, whether
16 commercially available or not, before 2003?

17 A Sure.

18 Q Okay. Which ones come to mind?

19 A I think the Brantigan cage comes to
20 mind. I think the Telamon implants come to mind.
21 I think the SynCage comes to mind.

22 Q I think we didn't get the spelling of
23 that last cage.

24 A SynCage, I think it's -- you know, like
25 I said, their marketing names are -- I think it's

1 S-Y-N-C-A-G-E, I believe.

2 Q And who -- who manufactured that --

3 A I think it was Synthes at the time.

4 Q And who --

5 A There was BAK cages, I believe. I need
6 to just wrack my brain a little bit, since it's
7 been 17 years, and the number of implants that
8 have crossed my brain since then is a lot. That's
9 all I can remember right now.

10 Q Okay. And in your -- in your previous
11 answer, you were referring to cages that were
12 actually manufactured; correct?

13 A I believe so. I mean, I'm going on
14 recollection here, and I'm not an implant -- I
15 don't work -- I'm a surgeon. So speaking as a
16 person of ordinary skill in the art, I'm giving
17 you my best recollection in 2003.

18 Q You were about to say something, "I'm
19 not an implant" -- what did you mean to say?

20 A Strike that.

21 Q Okay. And the Brantigan cage that
22 people of ordinary skill in the art would have
23 been aware of before 2003, can you tell me
24 anything more about that cage?

25 A What would you like to know

1 specifically?

2 Q Well, actually, I would like to know --
3 well, was there more than one Brantigan cage known
4 to people of ordinary skill in the art before 2003
5 that was actually manufactured?

6 A No. I -- I would -- not that I know of.

7 Q Okay. You weren't aware of any
8 publications dated before 2003 that describe any
9 actual embodiment of a Brantigan cage?

10 MR. MILLS: Objection. Form.

11 THE WITNESS: When you say
12 "publications," are you talking about
13 peer-reviewed publications?

14 BY MS. WICKRAMASEKERA:

15 Q Yeah, sure.

16 A Okay. So I think there's probably --
17 you know, we could look at PubMed, but I'm sure
18 there's plenty of papers on implants specific to
19 just interbody implants. But I'm not sure that
20 there are publications on Brantigan cages that I
21 can cite at this moment.

22 Q Okay. I don't think I understood your
23 answer there, so let me just ask you about -- you
24 just testified that if -- you're sure that there
25 were papers on implants specific to --

1 A Well, your --

2 Q Specific to what?

3 A Your question was, you weren't aware of
4 any embodiments -- publications that describe the
5 embodiments, right?

6 Q Yeah. Actually, yes. I would like to
7 confirm whether you were aware of any publications
8 describing embodiments of Brantigan cages.

9 A Yeah, I -- not that I'm aware of.

10 Q Were you aware of publications
11 describing embodiments of BAK cages before 2003?

12 A Yeah, I guess I'm hung up on the word
13 "embodiments" that you're describing, because I --

14 Q That's fine. Let me -- let me use a
15 different word then.

16 A Okay.

17 Q By "embodiments," I actually just meant
18 to say an actually manufactured cage, like a
19 three-dimensional real thing that existed, not
20 a -- not just a, you know, patent or anything like
21 that.

22 A Right. So that's where I was -- I was
23 confused, because I would assume that embodiment
24 meant --

25 Q Something related to patent?

1 A Right. And I would also say that a
2 peer-reviewed publication -- because I sit on a
3 lot of editorial boards for, you know,
4 publications in our field.

5 Q **Right. Right.**

6 A -- would be really research-driven and
7 not really described -- those typically don't get
8 published in our journals. In other words --

9 Q **Research-driven?**

10 A So, in other words, publications that
11 come into the journals --

12 Q **Right.**

13 A -- which is --

14 Q **Can you give me an example of what**
15 **journal you're talking about?**

16 A Journal of Spinal Disorders or Clinical
17 Orthopedics or Journal of Bone & Joint Surgery.

18 Q **Okay. Are you on --**

19 A They're all listed in my CV.

20 Q **Are you on the board of Spine?**

21 A No.

22 Q **Okay. Have you ever been?**

23 A Yes. I was a clinical reviewer of Spine
24 shortly after I left residency at Dartmouth.
25 James Weinstein was the editor.

1 Q Okay. So go on. You were explaining --

2 A So my point is that those articles are
3 usually submitted as part of a research effort or
4 a clinical observation. They're really not, "Hey,
5 look at my new implant."

6 Q So they're not published? Those
7 research articles are not published?

8 A No, the research articles are published.
9 But your question was, are you familiar with any
10 published articles on the embodiments -- that
11 describe the embodiments of implants.

12 Q Okay. No, that's -- that's fair. And I
13 think we already clarified that.

14 A Yeah.

15 Q Let me rephrase the question.

16 A Okay.

17 Q And that's fair.

18 Are you aware of publications in
19 peer-reviewed journals regarding any actual
20 manufactured Brantigan cages before 2003?

21 A I can't cite them specifically, no.

22 Q Are you otherwise generally aware of
23 them?

24 A I would say that my memory is -- would
25 probably agree that there's something on Brantigan

1 cages in the literature.

2 Q Okay.

3 A The date I couldn't give you today.

4 Q Okay. And let's just break down
5 quickly, when you refer to Brantigan cages, can
6 you tell me, do you recall what types of Brantigan
7 cages?

8 A I don't recall specifically. I think
9 there were some on corpectomy.

10 Q Okay.

11 A Yeah, I can't recall the other ones.

12 Q Okay. Do you recall any on -- Brantigan
13 cages that are used in PLIF procedures before
14 2003?

15 A I don't know that -- the date I'm
16 getting hung up on as well, because publications
17 hit the journal a couple of years after maybe
18 they're actually submitted or a year, depending on
19 how popular that journal is at the time. They may
20 go through multiple iterations through a
21 peer-review process.

22 But at the end of the day, I think
23 there's perhaps some publications on PLIF cages
24 that are related to Brantigans.

25 Q Okay. Are you aware of any

1 presentations done before 2003 regarding Brantigan
2 anterior cages?

3 MR. MILLS: Objection to form.

4 THE WITNESS: Presentations where I
5 actually heard them?

6 BY MS. WICKRAMASEKERA:

7 Q Well, you're providing testimony as a
8 person of ordinary skill in the art; right?

9 A Right.

10 Q So as a person of ordinary skill in the
11 art, would -- would that person have been aware of
12 any presentations by Dr. Brantigan before 2003
13 regarding his ALIF cages?

14 A I recall hearing Dr. Brantigan speak,
15 but I can't tell you specifically if he was
16 speaking about a cage, a specific cage, on an
17 anterior lumbar cage.

18 Q Okay. What about -- I think you
19 mentioned BAK.

20 Are you aware of publications in
21 peer-reviewed journals before 2003 regarding the
22 use of BAK cages in spinal fusion surgery?

23 A Once again, the date I can't give you
24 specifically.

25 Q Okay.

1 A I don't want to go on the record as
2 saying I know the date. But I know that there
3 were publications on the threaded cylindrical BAK
4 cages, yes.

5 Q Okay. And do you believe that those
6 publications were in the 2000s or in the '90s?

7 A I don't recall.

8 Q Okay. Did you look into any of these
9 before you submitted your opinion?

10 A Into those specific articles?

11 Q Yeah. Into what was publicly available
12 in peer-reviewed journals regarding the use of
13 nonbone spinal fusion implants before 2003. Did
14 you look into that issue?

15 A Everything that I cited is referenced in
16 my declaration.

17 Q Okay. So if you -- I guess let me ask
18 you this: Does that mean that you searched for or
19 you didn't -- or you searched for and you didn't
20 find any or you didn't search for any?

21 A No, I didn't say any of that.

22 Q Okay.

23 A What I said was that everything that I
24 cited --

25 Q Okay.

1 A -- is in here.

2 Q Okay. So I'm asking you then -- that's
3 not the -- then you're answering a question I'm
4 not asking you.

5 A Okay.

6 Q Before you submitted your opinions in
7 the IPR proceedings, did you search for any
8 publications in peer-reviewed journals that would
9 have been available to a person of ordinary skill
10 in the art before 2003 regarding the use of
11 nonbone spinal fusion implants?

12 A As a part of preparing these
13 declarations, I did some literature research, yes.

14 Q Okay. And you did not find any then?

15 A I don't recall specifically. As I
16 mentioned, everything is cited in here that I
17 found that I felt was relevant to my opinion.

18 Q Okay. Do you know who started AcroMed?

19 A I can't recall. The name is in my head,
20 but I can't think of it at this moment.

21 Q Dr. Steffee?

22 A I think he was part of it, yeah.

23 Q Dr. Brantigan?

24 A I'm not sure if he was part of it. I
25 know he worked with them.

1 Q Okay. Dr. Branch?

2 A I thought he was with Medtronic.

3 Q You weren't aware of Dr. Branch having
4 anything to do with AcroMed?

5 A You know, I'm not familiar with each
6 person's relationship with different companies and
7 whether they started those companies or not.

8 Q Okay. Are you aware of what AcroMed
9 cages people of ordinary skill in the art were
10 aware of before 2003?

11 A Generally, yes.

12 Q Okay. And what -- what cages are those?

13 A Oh, I think the -- or not the Telamon.
14 The -- the Brantigan cages. There's another name
15 for a cage that they had at the time, and I can't
16 recall it.

17 Q It was a --

18 A So let me give you a -- just a
19 perspective of someone in 2003 of -- who is a
20 person of ordinary skill in the art.

21 Q Okay.

22 A The spine world was small. Right? And
23 so spine companies were kind of emerging, as you
24 just mentioned.

25 Q Right.

1 A So many companies had a branch of spine
2 surgery or did some spine surgery, but did not
3 have a stand-alone spine surgery company.

4 Q Okay.

5 A And so as a result I think prior to
6 2003, those exposures were limited. You either
7 saw stuff at -- at conferences or you read about
8 them in articles or a rep came by your office and
9 showed you things.

10 Q Yeah.

11 Were the spine surgeons that attended
12 these conferences, were they people of ordinary
13 skill in the art?

14 A Yes.

15 Q Okay. Now, I believe you testified that
16 everything that you reviewed for purposes of your
17 opinion you would have put into your reports.

18 A What I said -- can we reread my
19 statement, please?

20 Q Well, I guess just -- I don't know where
21 it is in the testimony.

22 But let me ask you, is everything that
23 you reviewed in preparing your -- your opinions,
24 are they noted in your report?

25 A Everything I cited in my declaration --

1 Q Are you going to tell me that everything
2 cited in your declaration is cited in your
3 declaration? Because I think you were going
4 there. And that, although very helpful, is not
5 what I asked.

6 Did you cite in your declaration
7 everything you considered in preparing your
8 opinions?

9 A I think there may have been some things
10 that I felt were not relevant and I didn't cite
11 them perhaps. I can't recall.

12 Q Okay. And did you -- were you -- you're
13 aware that Dr. Brantigan provided testimony on
14 behalf of NuVasive in a prior litigation against
15 Medtronic?

16 MR. MILLS: Objection. Foundation.

17 THE WITNESS: I was not.

18 BY MS. WICKRAMASEKERA:

19 Q Counsel didn't make you aware of that?

20 MR. MILLS: Objection. Foundation.

21 THE WITNESS: Not that I'm aware of.

22 BY MS. WICKRAMASEKERA:

23 Q Okay. So it's safe to assume that you
24 didn't consider that testimony in preparing your
25 opinions?

1 A If it's not cited in here, then I didn't
2 consider it. If it's cited in here, then I did
3 consider it.

4 Q Okay. What's the most common surgical
5 approach for interbody fusions at L4/L5 today?

6 A I would say it's a TLIF.

7 Q Okay. What percent of interbody fusions
8 that are performed at L4/L5 would you say are TLIF
9 today?

10 A I haven't reviewed a market analysis
11 recently, but I'm just going to take a guess.

12 Q Okay.

13 A More than 50 percent.

14 Q Is that your preferred approach for a
15 L4/L5 interbody fusion today?

16 A No.

17 Q Now, you reviewed the Brantigan '327
18 patent in preparing your opinions; correct? Too
19 many opinions? You can't remember?

20 MR. MILLS: Objection to form.

21 THE WITNESS: Well, I'd just like to be
22 clear on my answer, that's all.

23 BY MS. WICKRAMASEKERA:

24 Q Okay.

25 A Could you repeat the question?

1 Q Sure.

2 You reviewed the Brantigan '327 patent
3 in preparing your opinions in these proceedings?

4 A Can you show me that patent? Do you
5 have a copy of it?

6 Q Well, hold on. Let me -- let me
7 actually --

8 Why don't you turn to paragraph 34 of
9 your report. And I think you can use --

10 A The first report?

11 Q The 361, yeah.

12 Paragraph 34, do you see that?

13 A Oh, I thought you said page 34. I
14 apologize.

15 Q No, paragraph 34, which I think is on
16 page ten.

17 A Yes.

18 Q Okay. Do you know what patent that
19 comes from?

20 A I believe the Brantigan '327.

21 Q Okay. Do you recall the Brantigan '327
22 patent, or would you need to see it in order to
23 provide any testimony?

24 A I would prefer to see it.

25 Q Okay. You have an opinion at

1 paragraph -- actually, let me ask you this. No,
2 actually, why don't I reference your opinion.

3 Turn to paragraph 48.

4 A In the same --

5 Q In the same report, yeah.

6 A Forty-eight?

7 Q Yeah. Let me know once you -- once
8 you're ready.

9 A I'm ready.

10 Q Okay. In paragraph 48, you state -- in
11 the middle of the paragraph, you have a sentence
12 that starts "That is."

13 Do you see that?

14 A I do.

15 Q Okay. You state "That is, Michelson
16 only describes combining modular components for
17 insertion into the disk space. It does not
18 describe combining components in the disk space
19 after serial insertion."

20 Do you see that?

21 A I do.

22 Q Can you tell me, in -- before 2003, what
23 would have been the point of making an implant
24 modular if you were going to combine it into a
25 single implant before you inserted it into the

1 **disk space?**

2 MR. MILLS: Objection. Form.

3 Incomplete hypothetical.

4 THE WITNESS: So in the context of 2003
5 and in the context of this IPR, I don't know what
6 you're asking specifically.

7 So you're saying what would a person of
8 ordinary skill in the art, what would be the
9 motivation to create a modular implant before you
10 insert it into the patient? Is that what you're
11 asking?

12 BY MS. WICKRAMASEKERA:

13 Q No.

14 A Okay. Can you repeat the question?

15 Q So it appears to me -- and you correct
16 me if I'm wrong or if I'm mischaracterizing your
17 opinion. But it appears to me that your opinion
18 in the IPR is that the modular implants would have
19 to be assembled -- fully assembled before
20 insertion into the patient; is that correct?

21 MR. MILLS: Objection. Hold on.
22 Objection. Form. Incomplete hypothetical.

23 BY MS. WICKRAMASEKERA:

24 Q Okay. I think you -- I think he covered
25 up your answer.

1 Did you say "correct"?

2 A I said, yeah. I'm sorry, I got -- I
3 need you to repeat the question.

4 Q That's okay. Okay. I'll restate my
5 question.

6 It appears to me, based on reading your
7 reports, that your opinion is that before 2003, a
8 surgeon would have fully assembled any modular
9 implant before insertion into the patient. Am I
10 correct?

11 A Yes. I -- I would say that it's
12 important to understand modularity in the context
13 of this IPR declaration and my opinion.

14 Q Okay. So my question for you is, why
15 would -- why would it be important to create
16 modular implants before 2003 if you are going to
17 assemble them into a single implant before
18 insertion?

19 MR. MILLS: Objection to form.
20 Incomplete hypothetical as to the scope.

21 THE WITNESS: So Brantigan teaches the
22 assembly of a modular implant for vertebral body
23 reconstruction for corpectomy, not interbody
24 fusion. So in order to create a modular implant
25 and assemble it prior to inserting in the patient,

1 you want to do that to fill a larger gap, such as
2 cervical, for example.

3 And so in a cervical corpectomy, the
4 entire spinal cord is exposed. And so you
5 wouldn't want to be assembling it over the spinal
6 cord for fear of dropping it and paralyzing the
7 patient.

8 BY MS. WICKRAMASEKERA:

9 Q And you also provide that same opinion
10 in paragraphs 47 and 48 for Michelson's implants;
11 correct?

12 A Well, in 47 -- in the same declaration;
13 correct?

14 Q Yes.

15 A I say "With one exception, all
16 embodiments in Michelson are single piece
17 implants. Michelson briefly describes an
18 alternate embodiment of his oversized implant
19 where a modular implant is assembled together
20 prior to the insertion in the disk space."

21 Q Okay. So my question to you is, why
22 would -- why would someone want to create a
23 modular implant before 2003 if it was important to
24 assemble it fully before you insert it into the
25 patient?

1 MR. MILLS: Objection to form.

2 Incomplete hypothetical. Outside the scope.

3 THE WITNESS: Yeah, well, within the
4 context of this declaration and the IPR and the
5 opinions that I provided, the spinal fusion
6 implant that I reference, which is 1000 in this
7 paragraph 47, is similar to the spinal fusion
8 implant 900, but it has a narrower width.

9 And so more than one spinal fusion
10 implant 1000 may be combined in a modular fashion
11 for insertion within the disk space between the
12 adjacent vertebrae.

13 Does that answer your question?

14 BY MS. WICKRAMASEKERA:

15 Q No.

16 A Okay. Sorry.

17 Q My question is, why -- so as a person of
18 ordinary skill in the art reading the Michelson
19 '973 patent as you have described it here, why
20 would it be important to create a modular implant
21 if you're going to assemble it into a single
22 implant before insertion? What's the point of
23 modularity?

24 A Well, if the implant itself was too
25 small to accommodate the space, then I think

1 you -- by having modularity, increasing the size
2 by making it one bigger implant might --

3 Q Okay. Why couldn't you just make it one
4 bigger implant then?

5 A Well, you could, I guess.

6 Q Okay. So is there --

7 A But you didn't ask me that question.

8 Q Is there a point to the modularity
9 that's disclosed in Dr. Michelson's patent that
10 you've described here in paragraphs 47 and 48?
11 Feel free to read the paragraphs, if you need to.

12 A Well, I think what I was trying to get
13 across here is that Dr. Branch contemplated a
14 modular implant that wasn't created within the
15 disk space.

16 Q Okay.

17 A It was assembled within the disk
18 space --

19 Q Right.

20 A -- and I disagree.

21 Q Okay. So that's why I'm asking. And
22 you said you disagree.

23 What I'm asking you is, if you disagree
24 and you believe that the modular implant would
25 need to be fully assembled before insertion,

1 what's the point of the modularity? Why is the
2 modularity important?

3 A Well, in corpectomy, you have no idea
4 how much space you're going to actually need.

5 Q Right.

6 A And so it's hard to predict and it's
7 hard for a manufacturer to provide the appropriate
8 sized implant that fits that -- that space for a
9 corpectomy.

10 Q Okay. And what --

11 A The way it happens today is we use
12 expandable implants, right, so they expand to the
13 side by making one implant. But in 2003, that
14 wasn't available. And so you had to measure, go
15 to the back table, either cut a piece of allograft
16 to that length. Or if you were using a
17 nonallograft bone implant, you would assemble it
18 to the size that would fit into that space.

19 Q Now, for corpectomy, the -- what you're
20 referring to is the height?

21 A Yes.

22 Q Okay. So Michelson -- the Michelson
23 patent relates to interbody fusion. So the same
24 question for you for interbody fusion.

25 A Okay.

1 Q Before 2003, what would have been the
2 point of -- of making an implant modular if you
3 were going to insert -- if you were going to
4 assemble it fully before you inserted it into the
5 interbody space? Why is the modularity important
6 there?

7 A I don't think it's that important, but I
8 don't -- I don't know that there's -- other than
9 what I testified earlier, which is a smaller sized
10 implant that didn't accommodate the space. You're
11 trying to double that size to get it into the
12 space.

13 Q Do you know Dr. Frey?

14 A I do.

15 Q Okay. Do you know Heidi Frey?

16 A His wife?

17 Q Yes.

18 A I've met her.

19 Q Are you aware of publications dated
20 before 2003 that describe the dimensions of the
21 apophyseal ring?

22 A Well, I think there's several
23 publications, one of which I cited in here. I
24 don't know if it describes an apophyseal ring, but
25 the dimensions of the intervertebral space using

1 the skeletons, I think that was the Berry
2 reference.

3 Q Were you aware of NuVasive's use of the
4 Brantigan '327 patent to invalidate Medtronic IP?

5 A Not specifically.

6 Q So you didn't -- were you provided any
7 federal circuit opinions in preparing your
8 declarations in this case where the federal
9 circuit commented on the disclosure of the
10 Brantigan '327 patent?

11 A Can you point me to that in my --

12 Q I don't see it in your declaration, so I
13 was just wondering if you were aware of it.

14 A Not that I recall.

15 Q Okay. So it wasn't -- counsel didn't
16 tell you about it?

17 A I've had so many conversations with
18 counsel that specifically I can't remember that
19 one.

20 Q Do you think it would have been
21 important to know what the federal circuit said
22 about Brantigan '327 in rendering your opinion?

23 MR. MILLS: Objection. Lacks
24 foundation. Calls for speculation.

25 THE WITNESS: Well, I think I took

1 Brantigan '327 into consideration extensively in
2 my report, but I think the references are not
3 taken out of context. They were in relation to
4 these patents specifically.

5 BY MS. WICKRAMASEKERA:

6 Q Okay. So you're not aware of what
7 positions NuVasive has previously taken before
8 other courts regarding Brantigan '327?

9 MR. MILLS: Objection. Lacks
10 foundation.

11 THE WITNESS: I don't recall.

12 BY MS. WICKRAMASEKERA:

13 Q Okay. Can you turn to paragraph 69.

14 A Same report?

15 Q Same report.

16 A 69, did you say?

17 Q Yes. I'm sorry. It's the -- it's
18 actually the top of page 28, paragraph 70. But
19 I'm going to refer to the top of page 28, because
20 the paragraph splits. Let me know once you're
21 there. It's an image.

22 A One second. Okay. I'm there.

23 Q Can you identify for me which would be
24 the distal wall in that implant?

25 A The distal wall would probably be the --

1 at the top of that picture.

2 Q Okay. And the proximal wall?

3 A At the bottom of that picture.

4 Q Okay. How can you tell?

5 A Well, a person of ordinary skill in the
6 art would recognize that that shape is to be
7 inserted anterior to posterior --

8 Q Okay.

9 A -- within a cervical disk space.

10 Q Could you turn to -- it's paragraph
11 91 -- I'm sorry, my pages are off. It's paragraph
12 84. And I'm going to actually ask you about the
13 last few sentences of the paragraph that appear on
14 the next page, so let me know once you're there.
15 I'm going to ask you about the sentence that says
16 "By combining these three critical requirements,"
17 so let me know once you're ready.

18 A I'm ready.

19 Q Okay. In this paragraph, the bottom of
20 paragraph 84, you state "By combining these three
21 critical requirements, NuVasive also allowed a
22 surgeon to perform a lateral interbody fusion
23 surgery without direct visualization and accessing
24 the intended disk space."

25 Do you see that?

1 A I do.

2 Q So direct visualization is not a
3 critical requirement for this procedure that
4 you're describing in 84?

5 A So the procedure I'm describing in 84 is
6 the XLIF procedure, and it uses a -- essentially a
7 functional unit of all of the assemblies that I
8 have described in this paragraph: The retractor,
9 light source, the neuromonitoring, the -- the
10 implant.

11 And all of that is done essentially
12 without direct visualization until you're at the
13 disk space and about to do the discograph.

14 Q Okay. You just mentioned a light
15 source, and I don't see that in the paragraph.

16 Do you?

17 A Well, I apologize. The dilators, the
18 EMGs, the simulation electrodes, the three-bladed
19 retractor that minimizes psoas muscle injury,
20 neuromonitoring to detect the location and
21 proximity of the nerves of the lumbar plexus and
22 the psoas muscle, and a spinal implant long enough
23 to span the ring apophysis but narrow enough to
24 permit trans-psoas insertion.

25 So I misspoke when I looked at this. I

1 meant to say directional EMG electrodes,
2 three-bladed retractor, and all of the things I
3 just listed, which combine to form the functional
4 unit that I just described.

5 Q Okay. Now, in reference, again, to your
6 last statement in the paragraph, "By combining
7 these three critical requirements, NuVasive also
8 allowed a surgeon to perform a lateral interbody
9 fusion surgery without direct visualization and
10 accessing the intended disk space."

11 In reference to that, why -- why was it
12 important for the surgeon to be able to perform an
13 XLIF without direct visualization? Why was direct
14 visualization not necessary?

15 A Well, this procedure, you know,
16 transcended the traditional open lateral
17 procedures that we did in the past. And so by
18 making it minimally invasive and reproducible and
19 adoptable, they had to get to the disk space
20 safely. They had to provide a mechanism to create
21 access to the disk space safely.

22 And so by combining all of these
23 critical elements, it allows you to get there and
24 be confident that you're at the disk space.
25 Because you're doing that without direct

1 visualization.

2 Q So the direct visualization is not
3 required here?

4 A It's only required once you're at the
5 disk space.

6 Q Okay.

7 A After you've removed the dilators, put
8 in your -- and your retractor is docked to the
9 disk space, then you can directly look at the disk
10 space.

11 Q Okay. In paragraph 86, the last
12 sentence of the paragraph, I would like to ask you
13 a question about that. So let me know when you're
14 ready.

15 A I'm ready.

16 Q So in paragraph -- in this sentence, you
17 state "Alignment of radiopaque markers with the
18 pedicles and spinous process was not possible with
19 prior art procedures which relied on lateral
20 X-ray; e.g., PLIF and TLIF."

21 Do you see that?

22 A I do.

23 Q So before 2003, did surgeons not know
24 how to do an anterior/posterior X-ray?

25 A No, they did.

1 Q To your knowledge, has anyone ever
2 inserted a long interbody fusion cage in the
3 lumbar spine laterally and taken an anterior to
4 posterior radiograph and published that before
5 2003?

6 A And published that? Can you clarify
7 what you mean?

8 Q Published in a peer-reviewed
9 publication.

10 A Oh, I'm -- I can't be specific and
11 accurate, but I would imagine that that's the
12 case.

13 Q Oh, you would imagine that somebody had
14 done that and -- and it was public before 2003?

15 A Perhaps, yes.

16 Q Okay. In paragraph 96 --

17 A Same report?

18 Q Same report.

19 -- you state that, "In sum, Dr. Branch's
20 suggestion of modular assembly would be
21 categorically more invasive, less safe, and
22 plainly not a procedure a person skilled in the
23 art would have considered performing."

24 Do you see that?

25 A I do.

1 **Q More invasive than what?**

2 A Than placing a single implant. So
3 you're taking that out of context, because if you
4 go back a few paragraphs, you'll recognize that
5 I'm commenting on the fact that Dr. Branch asserts
6 that Michelson's modularity concept involves
7 serial insertions of modules and assembly in the
8 disk space. That's what I'm referring to.

9 That's more dangerous, would not be
10 considered by anyone of -- as a person of ordinary
11 skill in the art. Because it would just add more
12 time, it would add more hydrogenic injury to the
13 structures. It would be more difficult. It might
14 displace the existing cage that's in the disk
15 space. You would never know if it lined up
16 correctly. It just wouldn't be something that
17 would be entertained.

18 **Q Was Dr. Frey, to your knowledge, a**
19 **person of ordinary skill in the art before 2003?**

20 A I think so. I don't know how old he is,
21 but I think so.

22 **Q In paragraph 109 --**

23 A Same report?

24 **Q Yes.**

25 **Last sentence. Let me know once you're**

1 at the paragraph.

2 A I'm ready.

3 Q Okay. You state at the bottom of that
4 paragraph, "From what I'm able to surmise, I
5 struggle to identify any way in which the proposed
6 combination would increase safety and decrease
7 invasiveness."

8 Do you see that?

9 A I do.

10 Q So you're not aware, even today, of any
11 publications showing the benefits of inserting two
12 curved implants into the interbody space?

13 A Well, I don't think today is relevant.

14 Q Right.

15 A I think we're talking about --

16 Q So this is --

17 A -- a person of ordinary skill in the art
18 in 2003.

19 Q Okay. So is your statement limited to
20 2003 and before then?

21 A Well, I don't think this is appropriate
22 today either.

23 Q Okay. Are you aware of any studies done
24 on this?

25 A I don't know about specific studies that

1 I can cite.

2 Q Okay. In paragraph 115, let me know
3 when you're there.

4 A I'm there.

5 Q Okay. You state "Even if somehow
6 accomplished, such a side-by-side configuration
7 would be a poor use of the implant design and
8 unlikely to provide suitable treatment for the
9 patient."

10 Do you see that?

11 A I do.

12 Q So you're not aware of any -- any
13 peer-reviewed publications regarding side-by-side
14 insertion of implants before 2003; am I correct?
15 Do you need me to read it again? Because I took a
16 long pause.

17 A I think I got it.

18 Q All right.

19 A I'm not familiar with the use of nonbone
20 implants that were placed side by side.

21 Q Before 2003?

22 A Before 2003.

23 Q Okay. At the -- further down in
24 paragraph 116 -- it's actually two pages over
25 underneath the image of the spine that you have

1 there. I have to ask you a question about a
2 sentence after that, but go ahead and read
3 whatever you need to in order to -- and then let
4 me know when you're ready.

5 A I'm ready.

6 Q Okay. I'm actually going to ask you a
7 question about before the image and after.

8 So you state in paragraph 116, "As shown
9 below, the lumbar curvature results in an
10 interbody space that is taller in the anterior
11 portion than the posterior portion." And then on
12 the next page, you go on to say "Placing two
13 implants of the same height side by side would
14 alter the natural curvature."

15 Do you see that?

16 A I do.

17 Q Do you think surgeons would have known
18 that before 2003?

19 A Yes. So I'm going to elaborate on that
20 answer, if you don't mind.

21 Q Well, you answered my question.

22 A Okay.

23 Q So you're free to do that on redirect --

24 A That's fine.

25 Q -- if your counsel wants you to.

1 MS. WICKRAMASEKERA: I don't have
2 anything further.

3 MR. MILLS: Let's take a break.

4 MS. WICKRAMASEKERA: Okay.

5 (Whereupon, a recess was taken.)

6 MR. MILLS: No redirect. The deposition
7 is over. We can go off the record.

8 (Whereupon, the deposition
9 concluded at 1:07 p.m.)

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COUNTY OF CLARK)

I, Heidi K. Konsten, Certified Court Reporter licensed by the State of Nevada, do hereby certify that I reported the deposition of JIM A. YOUSSEF, M.D., on January 9, 2020, at 11:59 a.m.

Prior to being deposed, the witness was duly sworn by me to testify to the truth. I thereafter transcribed my said stenographic notes via computer-aided transcription into written form, and that the transcript is a complete, true and accurate transcription and that a request was not made for a review of the transcript.

I further certify that I am not a relative, employee or independent contractor of counsel or any party involved in the proceeding, nor a person financially interested in the proceeding, nor do I have any other relationship that may reasonably cause my impartiality to be questioned.

IN WITNESS WHEREOF, I have set my hand in my office in the County of Clark, State of Nevada, this January 9, 2020.

Heidi K. Konsten

1	ERRATA SHEET		
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24		JIM A. YOUSSEF, M.D.	
25			

\$	1:07 59:9	2020 1:16 4:3 6:2	4	7
	2			
\$1,250,000 18:23		2055 6:14,17, 20 9:3	40 21:14	70 49:18
	2000s 33:6		415 947-2000 4:17	8
\$3.5 12:7 13:21 14:10, 22	2003 7:16 8:7 23:20,25 24:8 25:9,16	213 565-1750 4:12		
1	26:17,23 27:4,8 28:11 30:20 31:14 32:1,12,21 33:13 34:10 35:10,19 36:6 40:22 41:4 42:7,16 43:23 46:13 47:1,20 53:23 54:5,14 55:19 56:18, 20 57:14,21, 22 58:18	213 598-9084 4:11	415 947-2027 4:17	8,187,334 2:7 3:7
1 4:2		28 49:18,19	47 43:10,12 44:7 45:10	8,361,156 1:7
1.25 20:15		3	48 40:3,10 43:10 45:10	816435 1:22
1000 44:6,10		32 22:16	5	83 11:5
109 55:22	2005 7:17 8:8	327 38:17 39:2,20,21 48:4,10,22 49:1,8	50 21:14 38:13	84 50:12,20 51:4,5
115 57:2		3300 4:16	501 4:2	845 1:22
116 57:24 58:8	2017 18:15 20:11		596169 1:23	86 53:11
11:59 1:17 4:3 6:3	2019 12:6 13:16,20 14:11,12,14	334 6:15,22 8:19,24 9:7 10:6 21:24	6	9 1:16 4:3 6:2
156 6:19 8:19, 24 9:7 10:6	2019-361 6:14	34 39:8,12,13, 15	6 5:4	900 44:8
17 26:7	2019-362 6:18	361 22:1 39:11	69 49:13,16	90071 4:11
1992 22:11	2019-546 6:20	3rd 13:20		90s 33:6
				91 50:11

94105 4:16	54:11	adoptable 52:19	26:9 29:19 38:22 43:15 51:7,11 52:2, 22 57:18	38:10
96 54:16	Acromed 34:18 35:4,8	after 29:24 31:17 40:19 53:7 58:2,7		Angeles 4:11
973 44:19	acronym 10:16 11:17		allograft 24:10 46:15	another 35:14
A		again 18:6 19:20 32:23 52:5 57:15	allowed 50:21 52:8	answering 17:2,22 34:3
a.m. 1:17 4:3 6:3	across 45:13	against 37:14	allows 12:25 52:23	anterior 32:2, 17 50:7 54:3 58:10
able 52:12 56:4	activities 19:1	agree 30:25	along 15:3	anterior/ posterior 53:24
Absolutely 9:20	activity 13:8 19:7,12	agreement 8:1 15:16 16:3 18:15, 17,18,19,21 19:6,8,12,14 20:10,12,18, 24	ALPHATEC 1:5 2:5 3:5	anyone 16:5 54:1 55:10
access 52:21	actual 27:9 30:19	ahead 9:12 19:10 20:2 58:2	already 30:13	anything 9:4 10:6 26:24 28:20 35:4 59:2
accesses 11:11	actually 8:18 9:14 13:8 26:12 27:2,5 28:6,17,18 31:18 32:5 39:7 40:1,2 46:4 49:18 50:12 57:24 58:6	ALIF 32:13	also 6:17 13:11 29:1 43:9 50:21 52:7	apart 20:23
accessing 50:23 52:10	add 55:11,12	Alignment 53:17	alter 58:14	aperture 23:1,5
accommodate 44:25 47:10	additional 20:22 22:18, 23	all 6:13 13:2, 8,9 18:14 19:20 20:4 21:16,20 22:4,15 23:19 24:17 25:4	alternate 43:18	apologize 18:1 39:14 51:17
accomplished 57:6	adjacent 44:12		although 37:4	apophyseal 47:21,24
according 12:6			amount 13:15 18:23 20:23	
accurate			analysis	

apophysis 51:23	19 56:17	9:17	before 1:2 2:2 3:2 4:3 23:20 25:9,16 26:23 27:4,8 28:11 30:20 31:13 32:1,12,21 33:9,13 34:6, 10 35:10 40:22,25 41:9,19 42:7, 9,16,17 43:23,24 44:22 45:25 47:1,4,20 49:7 53:23 54:4,14 55:19 56:20 57:14, 21,22 58:7,18	Berry 48:1
APPEAL 1:2 2:2 3:2	articles 30:2, 7,8,10 33:10 36:8	availability 24:1		best 26:17
appear 50:13	aspect 11:12	available 24:21 25:6,16 33:11 34:9 46:14		between 22:25 44:11
APPEARANC ES 4:7	assemble 42:17,25 43:24 44:21 46:17 47:4	Avenue 4:10		beyond 23:5
appears 6:14, 18,21 41:15, 17 42:6	assembled 41:19 42:8 43:19 45:17, 25	aware 12:13, 20,23 13:2 14:9 23:20 25:8,14 26:23 27:7 28:3,7,9, 10 30:18,22 31:25 32:11, 20 35:3,8,10 37:13,19,21 47:19 48:3,13 49:6 56:10,23 57:12		big 13:7
approach 11:10 38:5,14	assemblies 51:7		began 8:5	bigger 45:2,4
appropriate 46:7 56:21	assembling 43:5		behalf 7:12 37:14	bit 10:18 19:25 25:2 26:6
approximatel y 8:9 21:10	assembly 42:22 54:20 55:7	B	being 12:21 13:20 14:5 20:22 23:13	blanking 11:4
argumentativ e 19:18 20:6	asserts 55:5	back 46:15 55:4	believe 7:4 10:5 11:22 13:16 20:8 26:1,5,13 33:5 36:15 39:20 45:24	board 1:2 2:2 3:2 17:11,14, 15,16 29:20
around 8:7 22:10	assume 28:23 37:23	background 22:5	below 58:9	boards 29:3
art 25:3,8 26:16,22 27:4 32:8,11 34:10 35:9,20 36:13 41:8 44:18 50:6 53:19 54:23 55:11,	attended 36:11	BAK 26:5 28:11 32:19, 22 33:3	benefits 56:11	body 42:22
	attorneys	based 42:6		bone 29:17 46:17
				bottom 50:3, 19 56:3
				brain 26:6,8
				branch 35:1,3

36:1 45:13 55:5	55:14	cases 15:18 20:25	23 23:9,14	44:10
Branch's 54:19	cages 26:5,11 27:20 28:8,11 30:20 31:1,5, 7,13,23 32:2, 13,22 33:4 35:9,12,14	cash 18:22	claims 8:20, 23,24 9:6	combining 40:16,18 50:16,20 52:6,22
Brantigan 25:19 26:21 27:3,9,20 28:8 30:20,25 31:5,6,12 32:1,12,14 34:23 35:14 37:13 38:17 39:2,20,21 42:21 48:4, 10,22 49:1,8	California 4:11,16	categorically 54:21	clarification 18:2,4,5	come 13:3 25:18,20 29:11
Brantigans 31:24	call 7:17 17:11,14,15	CCR 1:22	clarified 30:13	comes 25:19, 21 39:19
break 31:4 59:3	called 24:3,14	certain 11:24	clarify 18:18 24:25 54:6	coming 24:19
briefly 43:17	Calls 48:24	CERTIFICATE 60:1	clear 18:3 38:22	commented 48:9
broader 25:2	came 36:8	Certified 4:4	clinical 29:16, 23 30:4	commenting 55:5
C	Camino 4:2	cervical 43:2, 3 50:9	closer 7:17	comments 8:11
cabin 16:21	can't 7:18 19:17,22 22:14 25:11 30:21 31:11 32:15,23 34:19,20 35:15 37:11 38:19 48:18 54:10	circuit 48:7,9, 21	collaboration 9:16	commercial 11:15 23:25
case 25:19,23 26:21,24 27:3,9 28:18 32:16,17 35:15 54:2	case 1:7 2:7 3:7 15:18 16:6,10,11 21:7,11 48:8 54:12	citation 24:3	collect 11:23	commercially 24:21 25:6,16
		cite 27:21 30:21 37:6,10 57:1	Colorado 1:15 4:2 6:1	common 38:4
		cited 8:20 33:15,24 34:16 36:25 37:2 38:1,2 47:23	combination 56:6	companies 13:1,3,11 24:6,7 35:6,7, 23 36:1
		claim 22:18,	combine 40:24 52:3	
			combined	

company 24:8 36:3	confused 10:18 28:23	39:5	cover 20:18	7:1
compensated 20:22	consider 37:24 38:2,3	cord 43:4,6	covered 41:24	dangerous 55:9
compensation 15:17 16:5 18:22	consideration 49:1	corpectomy 31:9 42:23 43:3 46:3,9, 19	create 41:9 42:15,24 43:22 44:20 52:20	Dartmouth 29:24
completed 17:6,19	considered 37:7 54:23 55:10	correct 7:13, 14,16,23 9:9 11:24 12:8 18:16,20,24 20:16,17,20, 21,25 26:12 38:18 41:15, 20 42:1,10 43:11,13 57:14	created 45:14	data 12:6,10 15:8
components 11:24 40:16, 18	consultant 7:22		critical 50:16, 21 51:3 52:7, 23	date 7:25 14:18 21:5 31:3,15 32:23 33:2
concept 55:6	consulting 7:24 8:1 13:7 15:5 18:19 20:10,23 21:7		crossed 26:8	dated 27:8 47:19
concluded 59:9	contemplated 45:13	correctly 15:23 55:16	currently 12:1	Dave 11:5
conferences 36:7,12	context 41:4, 5 42:12 44:4 49:3 55:3	counsel 4:7 17:7,13 37:19 48:15,18 58:25	curvature 58:9,14	DAVID 4:9
confident 52:24		couple 31:17	curved 56:12	day 31:22
configuration 57:6	continue 17:10	course 18:24 20:15	cut 46:15	December 12:6 13:20 14:14
confirm 6:24 28:7	contract 15:24	court 4:4 16:9,11,17 60:1	CV 29:19	declaration 6:15,18,21 21:17 22:16 33:16 36:25 37:2,3,6 42:13 43:12 44:4 48:12
confirmed 20:9	conversations 48:17	courts 49:8	cylindrical 33:3	
	copy 14:3		D	
			DALKE 4:9	declarations

6:25 7:9 9:15, 19 10:2,20 11:8 34:13 48:8	28:8,11,13 51:4,5	disagree 45:20,22,23	49:24,25	each 7:2 9:3 21:1 23:4 35:5
decrease 56:6	Description 5:10	disclosed 21:4 45:9	district 16:9, 11,17	earlier 47:9
define 10:9, 11	design 57:7	disclosure 48:9	docked 53:8	editor 29:25
definitely 18:8	detect 51:20	discograph 51:13	Doctor 10:15	editorial 29:3
del 4:2	development 19:2 20:14	discuss 16:16	documents 7:25	effort 30:3
depending 31:18	device 13:1,3	discussion 8:24	done 32:1 51:11 54:14 56:23	either 21:20 36:6 46:15 56:22
deposition 1:13 4:1 6:4 59:6,8	different 13:1 28:15 35:6	disk 11:11 40:17,18 41:1 43:20 44:11 45:15,17 50:9,24 51:13 52:10,19,21, 24 53:5,9 55:8,14	double 47:11	elaborate 58:19
describe 27:8 28:4 30:11 40:18 47:20	difficult 55:13	Disorders 29:16	down 31:4 57:23	electrodes 51:18 52:1
described 29:7 44:19 45:10 51:8 52:4	dilators 51:17 53:7	displace 55:14	dropping 43:6	elements 52:23
describes 40:16 43:17 47:24	dimensions 47:20,25	dispute 12:25	duly 6:8	embodiment 27:9 28:23 43:18
describing	direct 50:23 51:2,12 52:9, 13,25 53:2	distal 22:25 23:10,11,12	durango 1:15 4:2 6:1	embodiments 28:4,5,8,11, 13,17 30:10, 11 43:16
	direction 23:12		E	emerging 35:23
	directional 52:1			
	directly 53:9		e.g. 53:20	

EMG 52:1	33:15,23 34:16 36:16, 22,25 37:1,7	30:1	21:6,7	20:15
EMGS 51:18		exposed 24:6 43:4	felt 34:17 37:10	follows 6:9
end 23:10,15 31:22	exact 7:25 21:9	exposures 36:6	few 21:17 50:13 55:4	form 15:21 16:14 25:10 27:10 32:3 38:20 41:2,22 42:19 44:1 52:3
ends 22:25	exactly 7:18	extend 22:25 23:5	field 29:4	Forty-eight 40:6
enough 51:22,23	Examination 5:4 6:11	extensively 49:1	fill 43:1	found 34:17
entered 18:14 20:11	examined 6:8	F	finally 6:19	foundation 12:9 13:23 15:9 37:16,20 48:24 49:10
entertained 55:17	example 29:14 43:2	fact 55:5	find 33:20 34:14	frame 7:20 8:8
entire 43:4	exception 43:15	fair 30:12,17	fine 9:23 14:3,8 28:14 58:24	Francisco 4:16
entitled 16:24 17:2	Exhibit 6:14, 17,20 9:3	familiar 30:9 35:5 57:19	finish 20:2	free 45:11 58:23
ESQ 4:9,14	EXHIBITS 5:8	fashion 44:10	finished 19:9	Frey 47:13,15 55:18
essentially 51:6,11	existed 28:19	Fax 4:17	first 6:8 7:25 8:4 11:2 16:20 17:5 21:24 22:5,6, 7 39:10	front 6:23 9:2, 5 21:9
even 56:10 57:5	existing 55:14	fear 43:6	fit 46:18	full 22:22
every 12:24 24:18	expand 46:12	federal 48:7, 8,21	fits 46:8	
everything 13:5 16:16	expandable 46:12	Feel 45:11	five 18:24	
	explaining	fees 15:2		

<p>fully 41:19 42:8 43:24 45:25 47:4</p> <p>functional 51:7 52:3</p> <p>further 57:23 59:2</p> <p>fusion 11:11 22:7 23:19,21 24:1,11 25:5, 15 32:22 33:13 34:11 38:15 42:24 44:5,7,9 46:23,24 50:22 52:9 54:2</p> <p>fusions 38:5, 7</p> <hr/> <p style="text-align: center;">G</p> <hr/> <p>gap 43:1</p> <p>general 13:4 22:5</p> <p>generally 8:2, 3 23:2 30:22 35:11</p> <p>GERRARD 4:14</p>	<p>getting 31:16</p> <p>give 11:4 25:4,11 29:14 31:3 32:23 35:18</p> <p>giving 26:16</p> <p>global 18:19</p> <p>Goodrich 4:15</p> <p>gosh 22:4</p> <p>Grand 4:10</p> <p>guess 10:9 21:8 28:12 33:17 36:20 38:11 45:5</p> <hr/> <p style="text-align: center;">H</p> <hr/> <p>handing 6:13, 17,19</p> <p>happens 46:11</p> <p>happy 16:15 19:15</p> <p>hard 20:1 46:6,7</p>	<p>having 6:8 10:21 12:21 14:9 35:3 45:1</p> <p>head 34:19</p> <p>heard 15:23 32:5</p> <p>hearing 32:14</p> <p>Heidi 1:22 4:4 47:15</p> <p><small>LITIGATIONS SERVICES, P.C. - 01/09/2020</small></p> <p>height 46:20 58:13</p> <p>help 18:10</p> <p>helpful 37:4</p> <p><small>LITIGATIONS SERVICES, P.C. - 01/09/2020</small></p> <p>here 10:5 17:9 20:4 23:10 24:3 26:14 34:1,16 38:1,2 44:19 45:10,13 47:23 53:3</p> <p>Hey 30:4</p> <p>history 24:16</p> <p>hit 31:17</p> <p>hold 16:19</p>	<p>39:6 41:21</p> <p>HOLDINGS 1:5 2:5 3:5</p> <p>Honestly 19:16</p> <p>hotels 15:4</p> <p>hours 21:14</p> <p>hung 28:12 31:16</p> <p>hydrogenic 55:12</p> <p>hypothetical 41:3,22 42:20 44:2</p> <hr/> <p style="text-align: center;">I</p> <hr/> <p>IDE 24:12</p> <p>idea 19:17 46:3</p> <p>identify 49:23 56:5</p> <p>image 49:21 57:25 58:7</p> <p>imagine</p>	<p>54:11,13</p> <p>implant 22:24 23:3,6,13 24:19 26:14, 19 30:5 40:23,25 41:9 42:9,17,22,24 43:18,19,23 44:6,8,10,20, 22,24 45:2,4, 14,24 46:8, 13,17 47:2,10 49:24 51:10, 22 55:2 57:7</p> <p>implants 12:1 23:4,19 24:1, 13,21 25:5, 15,20 26:7 27:18,19,25 30:11 33:13 34:11 41:18 42:16 43:10, 17 46:12 56:12 57:14, 20 58:13</p> <p>important 42:12,15 43:23 44:20 46:2 47:5,7 48:21 52:12</p> <p>include 11:19 13:5 19:11</p> <p>included 13:8 15:3,7</p>
---	---	---	--	--

includes 8:11 13:2,9,11 15:1	inserting 42:25 56:11	46:18 47:4,11 49:1 56:12	IPRS 6:25 7:12 8:16,20 9:6	K
including 10:1 19:7	insertion 23:17 40:17, 19 41:20 42:9,18 43:20 44:11,22 45:25 51:24 57:14	invalidate 48:4	issue 7:13 33:14	kind 18:17 35:23
Incomplete 41:3,22 42:20 44:2		invasive 11:10 52:18 54:21 55:1	iterations 31:20	knowledge 54:1 55:18
incorrect 9:1	insertions 55:7	invasiveness 56:7	J	known 27:3 58:17
increase 56:6	intended 50:24 52:10	involve 8:21	Jad 4:14 17:9	Konsten 1:22 4:4
increasing 45:1	interbody 24:10 27:19 38:5,7,15 42:23 46:23, 24 47:5 50:22 52:8 54:2 56:12 58:10	involved 24:12	James 29:25	L
incurred 21:6		involves 8:18,22 55:6	January 1:16 4:3 6:2	L4/15 38:5,8, 15
INDEX 5:1		IP 48:4 <small>LITIGATION SERVICES 800-330-1112 WWW.LITIGATIONSERVICES.COM</small>	JIM 1:14 4:1 5:3 6:4,7	Lacks 48:23 49:9
initiation 14:18	interrupted 17:7,20	IPR 6:14,18, 20 8:25 10:2 16:16 34:7 41:5,18 42:13 44:4	JOB 1:23	language 22:18,23 23:9,14
injury 51:19 55:12	intervertebral 47:25		Joint 29:17	larger 43:1
input 9:18	into 9:18,19 18:14 20:11 29:11 33:8, 10,11,14 36:17 40:17, 24,25 41:10, 20 42:9,17 43:24 44:21	IPR2019-00361 2:7	journal 29:15, 16,17 31:17, 19	last 25:23 50:13 52:6 53:11 55:25
insert 41:10 43:24 47:3		IPR2019-00362 1:7	journals 29:8, 11 30:19 32:21 33:12 34:8	lateral 11:12 23:4 50:22 52:8,16 53:19
inserted 40:25 47:4 50:7 54:2		IPR2019-00546 3:7		

laterally 54:3	21 36:6 56:19	22:24 23:1,2	many 23:23 24:15 36:1 38:19 48:17	52:20
least 13:21	lined 55:15	looked 13:18 24:13 51:25	marked 5:11	medical 13:1, 3
left 29:24	list 23:18,24 25:4,12	Los 4:11	markers 53:17	Medtronic 35:2 37:15 48:4
legal 19:7	listed 8:25 13:15 29:19 52:3	lot 26:8 29:3	market 4:15 38:10	memorize 24:18
length 22:24 23:1,3 46:16	literature 31:1 34:13	loud 19:15	marketing 24:17 25:25	memory 30:24
less 54:21	litigation 15:14,19,24 16:9,12 20:19 37:14	lumbar 32:17 51:21 54:3 58:9	may 31:19 37:9 44:10	mention 10:1
let 6:23 17:9 19:22 22:4 24:23,25 27:23 28:14 30:15 33:17 35:18 36:22 39:6 40:1,7 49:20 50:14, 17 53:13 55:25 57:2 58:3	litigations 15:7 16:7,8	M	maybe 25:1 31:17	mentioned 11:3 32:19 34:16 35:24 51:14
license 15:2	little 10:18 19:25 25:1 26:6	M.D. 1:14 4:1 5:3 6:4,7	meals 13:6	met 47:18
light 51:9,14	location 51:20	make 37:19 45:3	mean 10:15, 17 14:4 23:11,15 24:18 25:7 26:13,19 33:18 54:7	Michelson 40:15 43:16, 17 44:18 46:22
like 10:11 17:13 18:5 25:24 26:25 27:2 28:6,18, 20 38:21 53:12	long 16:22 51:22 54:2 57:16	makes 15:13	meant 19:25 28:17,24 52:1	Michelson's 43:10 45:9 55:6
limited 24:2,	longest 22:24 23:1,3	making 40:23 45:2 46:13 47:2 52:18	measure 46:14	middle 22:16 40:11
	longitudinal	manufacturer 46:7	mechanism	might 45:2

55:13	40:16,24 41:9,18 42:8, 16,22,24 43:19,23 44:10,20 45:14,24 47:2 54:20	muscle 11:13 51:19,22	neuromonitoring 51:9,20	2:8 3:8 7:12, 16,22 8:4 11:18 12:7,22 13:15,22 14:10,24 15:19,24 18:15 20:10, 13 37:14 49:7 50:21 52:7
million 12:7 13:21 14:10, 22 20:15		must 22:24 23:5	Nevada 1:22 4:5	
MILLS 4:14 11:6 12:9 13:23 15:9,21 16:14 17:5, 13,18 19:18 20:2,5 25:10 27:10 32:3 37:16,20 38:20 41:2,21 42:19 44:1 48:23 49:9 59:3,6	modularity 42:12 44:23 45:1,8 46:1,2 47:5 55:6	N	never 55:15	
	modules 55:7	name 24:19 34:19 35:14	new 18:14,17 24:18,19 30:5	Nuvasive's 11:16 48:3
	moment 27:21 34:20	names 24:15, 17 25:25	next 50:14 58:12	O
	more 26:24 27:3 38:13 44:9 54:21 55:1,9,11,12, 13	narrow 51:23	NIMALKA 4:9	objection 12:9 13:23 15:9,21 16:14 17:5,6 19:18 20:6 25:10 27:10 32:3 37:16,20 38:20 41:2, 21,22 42:19 44:1 48:23 49:9
mind 9:11 25:18,20,21 58:20	most 38:4	narrower 44:8	nonallograft 46:17	
minimally 11:10 52:18	mostly 24:8, 10	natural 58:14	nonbone 23:19,21 24:1 25:5,15 33:13 34:11 57:19	
minimizes 51:19	motivation 41:9	NCRA 1:22	none 5:11	
minute 17:9, 12	much 12:20 21:5,6,10,13 46:4	necessary 52:14	north 21:14	observation 30:4
mischaracterizing 41:16	multiple 31:20	need 10:3 20:5 26:5 39:22 42:3 45:11,25 46:4 57:15 58:3	noted 36:24	October 18:15 20:11
misspoke 51:25		Neither 14:20	noticed 24:20	off 16:20 50:11 59:7
modular		nerves 51:21	number 13:7 21:9 26:7	offered 24:7
			Nuvasive 1:8	

offering 24:10	34:17 36:17 39:25 40:2 41:17 42:7,13 43:9 48:22	Owner 1:9 2:9 3:9 4:13	part 24:3 30:3 34:12,22,24	53:18
office 1:1 2:1 3:1 15:20 36:8		P	past 52:17	peer-review 31:21
old 55:20	opinions 8:23 9:2,5,9 34:6 36:23 37:8,25 38:18,19 39:3 44:5 48:7	p.m. 59:9	patent 1:1,2, 7,9 2:1,2,7,9 3:1,2,7,9 4:13 15:20 21:23 28:20,25 38:18 39:2,4, 18,22 44:19 45:9 46:23 48:4,10	peer-reviewed 27:13 29:2 30:19 32:21 33:12 34:8 54:8 57:13
once 6:23 32:23 40:7 49:20 50:14, 17 53:4 55:25	order 39:22 42:24 58:3	pages 50:11 57:24	patents 6:15, 19 8:19 9:7 10:6 49:4	people 26:22 27:4 35:9 36:12
one 4:15 7:2 11:2 21:19,20 24:2 27:3 43:15 44:9 45:2,3 46:13 47:23 48:19 49:22	ordinary 25:3,7 26:16, 22 27:4 32:8, 10 34:9 35:9, 20 36:12 41:8 44:18 50:5 55:10,19 56:17	papers 27:18, 25	path 23:17	percent 38:7, 13
ones 7:5 25:18 31:11	Orthopedics 29:17	paragraph 11:5 22:16,17 39:8,12,15 40:1,3,10,11 44:7 49:13, 18,20 50:10, 11,13,19,20 51:8,15 52:6 53:11,12,16 54:16 55:22 56:1,4 57:2, 24 58:8	patience 19:25	perform 22:7 50:22 52:8,12
only 40:16 53:4	otherwise 30:22	paragraphs 43:10 45:10, 11 55:4	patient 11:12 41:10,20 42:9,25 43:7, 25 57:9	performed 38:8
open 12:24 13:2 52:16	outside 19:12 44:2	parallel 23:2	pause 57:16	performing 54:23
Openpayment sdata.cms. gov 12:18	over 18:23 20:15 43:5 57:24 59:7	paralyzing 43:6	payments 12:7,13,21, 24,25 13:2 14:10,22 15:13	perhaps 31:23 37:11 54:15
opinion 7:11 8:10,15,16 25:2 33:9	oversized 43:18		pedicles	period 7:22 permit 51:24 person 25:3,7 26:16 32:8,

10,11 34:9 35:20 41:7 44:17 50:5 54:22 55:10, 19 56:17	plenty 27:18	prefer 39:24	52:17 53:19	17 50:2
person's 35:6	plexus 51:21	preferred 38:14	proceeding 6:20,22 22:2	proximity 51:21
perspective 35:19	PLIF 31:13,23 53:20	prepare 9:14	proceedings 9:3 20:20 34:7 39:3	psoas 11:13 51:19,22
Petitioners 1:6 2:6 3:6 4:8	point 9:22 10:23 17:18 30:2 40:23 44:22 45:8 46:1 47:2 48:11	preparing 34:12 36:23 37:7,24 38:18 39:3 48:7	process 31:21 53:18	public 12:6, 10 14:16,18 54:14
physician 19:2,4	poor 57:7	presentations 32:1,4,12	product 11:15 20:14	publication 29:2 54:9
physicians 13:4	popular 31:19	previous 26:10	products 11:19 19:3 24:6	publications 27:8,12,13,20 28:4,7,10 29:4,10 30:18 31:16,23 32:20 33:3,6 34:8 47:19,23 56:11 57:13
picture 50:1,3	portion 58:11	previously 49:7	proposed 56:5	publicly 12:14 13:20 14:5 15:7 33:11
piece 43:16 46:15	POSA 25:6	prior 36:5 37:14 42:25 43:20 53:19	provide 9:13 39:23 43:9 46:7 52:20 57:8	published 13:17 29:8 30:6,7,8,10 54:4,6,8
placed 23:13 57:20	POSAS 25:14	probably 22:10 27:16 30:25 49:25	provided 7:11 8:10,23 18:22 37:13 44:5 48:6	Pubmed 27:17
places 11:3	positions 49:7	procedure 8:19 11:17 12:4 22:12 51:3,5,6 52:15 54:22	providing 25:2 32:7	purposes
placing 55:2 58:12	possible 53:18	procedures 19:3 31:13	proximal 22:25 23:15,	
plainly 54:22	posted 13:1			
Plaza 4:15	posterior 50:7 54:4 58:11			
	predict 46:6			

36:16	R	receive 11:25	33:15	35:6
pursuant 18:21 20:12	radiograph 54:4	received 12:5,21 13:21 14:10,22	references 49:2	relevant 34:17 37:10 56:13
put 36:17 53:7	radiopaque 53:17	recently 13:17 38:11	referencing 10:22	relied 53:19
Q	read 19:15 22:21 36:7 45:11 57:15 58:2	recess 59:5	referring 12:11 26:11 46:20 55:8	remember 26:9 38:19 48:18
quarterly 18:23	reading 42:6 44:18	recognize 50:6 55:4	regard 8:15	removed 53:7
question 8:14 9:25 10:12 15:23,25 17:22 18:2,7, 11 19:17 28:3 30:9,15 34:3 38:25 41:14 42:3,5,14 43:21 44:13, 17 45:7 46:24 53:13 58:1,7, 21	ready 40:8,9 50:17,18 53:14,15 56:2 58:4,5	recollection 24:15 26:14, 17	regarding 6:21 8:11 15:17 16:3,5 30:19 32:1, 13,21 33:12 34:10 49:8 57:13	rendering 48:22 rep 36:8
questions 14:6 16:21,25 17:3,24 19:21 21:18 22:5	real 28:19	reconstructio n 42:23	register 20:5	repeat 8:14 15:25 38:25 41:14 42:3
quick 9:24	really 29:6,7 30:4	record 19:15 22:22 33:1 59:7	reimburseme nt 13:6 15:4	rephrase 18:11 30:15
quickly 31:5	reason 17:15	redirect 58:23 59:6	related 8:19 9:6 12:3 15:19 16:10 18:25 19:1,3 28:25 31:24	report 13:24 36:24 39:9,10 40:5 49:2,14, 15 54:17,18 55:23
	recall 7:18,25 8:12 10:1 22:14 31:6,8, 11,12 32:14 33:7 34:15,19 35:16 37:11 39:21 48:14 49:11	refer 31:5 49:19	relates 46:23	reported 1:22 12:14,21 13:20 14:5 15:8
		referenced	relationship	Reporter 4:4

60:1	restate 42:4	safe 37:23 54:21	saying 13:14 33:2 41:7	shape 50:6
reporting 12:23 14:16, 18	result 36:5	safely 52:20, 21	says 11:9 23:10 50:15	shortly 29:24
reports 21:1, 4 36:17 42:7	results 58:9	safety 56:6	scope 19:12 42:20 44:2	should 18:8 25:1
reproducible 52:18	retractor 51:8,19 52:2 53:8	said 24:20 25:25 33:23 36:18 39:13 42:2 45:22 48:21	search 33:20 34:7	show 19:14 39:4
required 53:3,4	reviewed 24:3 36:16,23 38:10,17 39:2	sale 11:21 <small>LITIGATIONS SERVICES, P.C. - 01/09/2020</small>	searched 33:18,19	showing 56:11
requirement 51:3	reviewer 29:23	same 21:20 40:4,5 43:9, 12 46:23 49:14,15 54:17,18 55:23 58:13	second 11:4 49:22	shown 58:8
requirements 50:16,21 52:7	ring 47:21,24 51:23	San 4:16	sections 21:18	side 46:13 57:20 58:13
reread 36:18	Rio 4:2	save 9:23	sentence 22:17,21,22 40:11 50:15 53:12,16 55:25 58:2	side-by-side 57:6,13
research 8:6 13:5 15:3 30:3,7,8 34:13	Rosati 4:15	saw 36:7	sentences 50:13	sidewalls 23:5
research-driven 29:6,9	royalties 11:23,25 13:6 15:2	say 8:22 9:1,5 14:6 17:1 26:18,19 27:11 28:18 29:1 30:24 33:21 38:6,8 42:1,11 43:15 49:16 52:1 58:12	sentences 50:13	similar 44:7
residency 29:24	RPR 1:22		separate 15:16 16:2 20:23	simulation 51:18
resident 22:8, 10	S		serial 40:19 55:7	since 7:16,22 26:6,8
	S-Y-N-C-A-G-E 26:1		several 47:22	single 19:2,3 40:25 42:17

43:16 44:21 55:2	someone 35:19 43:22	46:4,8,18 47:5,10,12,25 50:9,24 51:13 52:10,19,21, 24 53:5,9,10 55:8,15 56:12 58:10	spinal 11:11 22:7 23:19 25:5,15 29:16 32:22 33:13 34:11 43:4,5 44:5,7,9 51:22	22:22 40:10, 15 50:20 53:17 54:19 56:3 57:5 58:8
sit 29:2	something 26:18 28:25 30:25 55:16			
sitting 10:5				statement 36:19 52:6 56:19
size 45:1 46:18 47:11	sometime 22:10	span 51:23	spine 1:5 2:5 3:5 24:5,16 29:20,23 35:22,23 36:1,2,3,11 54:3 57:25	STATES 1:1 2:1 3:1
sized 46:8 47:9	Somewhere 7:20	speak 32:14		Steffee 34:21
skeletons 48:1	SONJA 4:14	speaking 26:15 32:16	spinous 53:18	stop 17:2 20:3,4
skill 25:3,8 26:16,22 27:4 32:8,10 34:9 35:9,20 36:13 41:8 44:18 50:5 55:11,19 56:17	Sonsini 4:15 15:15	Spear 4:16	splits 49:20	STRAWN 4:10
	sorry 10:14 24:24 42:2 44:16 49:17 50:11	specific 9:7 11:25 19:1 24:7 27:18,25 28:2 32:16 33:10 54:10 56:25 <small>LITIGATION SERVICES 800-330-1112 WWW.LITIGATIONSERVICES.COM</small>	stack 7:2	Strike 26:20
skilled 54:22	sorts 15:5	specifically 8:13 18:18 27:1 30:21 31:8 32:15,24 34:15 41:6 48:5,18 49:4	stand-alone 36:3	structures 55:13
small 35:22 44:25	sound 14:21, 25	specify 22:23	start 8:4 22:1	struggle 56:5
smaller 47:9	source 51:9, 15	speculation 48:24	started 14:16 34:18 35:7	studies 56:23,25
somebody 54:13	South 4:10	spelling 25:22	Starting 14:13,15	study 24:13
somehow 57:5	space 11:11 40:17,18 41:1 43:20 44:11, 25 45:15,18		starts 22:17 40:12	stuff 36:7
			state 4:5	submitted

6:25 30:3 31:18 33:9 34:6	13:19	Tec 20:20	threaded 33:3	15 46:11 56:10,13,22
such 43:1 57:6	sworn 6:8	Telamon 24:4 25:20 35:13	three 50:16, 20 52:7	together 43:19
suggestion 54:20	Syncage 24:14 25:21, 24	ten 39:16	three-bladed 51:18 52:2	tomorrow 16:17
suitable 57:8	Synthes 24:9 26:3	testified 6:9 20:9 27:24 36:15 47:9	three- dimensional 28:19	took 48:25 57:15
Suite 4:16	T	testimony 32:7 36:21 37:13,24 39:23	through 9:10 31:20	top 49:18,19 50:1
sum 54:19	table 46:15	testing 19:24	throughout 24:15	Tower 4:16
surgeon 24:5 26:15 42:8 50:22 52:8,12	take 16:22 17:9,12 38:11 59:3	than 27:3 38:13 44:9 47:8 55:1,2 58:11	Thursday 4:3 6:2	TRADEMARK 1:1 2:1 3:1
surgeons 12:13,25 13:4 36:11 53:23 58:17	taken 4:2 49:3,7 54:3 59:5	their 24:10 25:25	time 7:20,22 8:8 9:23 16:22 22:9 24:8,9 26:3 31:19 35:15 55:12	traditional 52:16
surgery 11:11 19:2,4 22:7, 13 24:16 29:17 32:22 36:2,3 50:23 52:9	taking 55:3	therefore 19:11	titanium 24:13	trans-psoas 51:24
surgical 11:10 38:4	talk 16:17 19:6 21:23,24	thing 28:19	TLIF 38:6,8 53:20	transcended 52:16
surmise 56:4	talking 27:12 29:15 56:15	things 13:9 15:5 36:9 37:9 52:2	today 7:13 10:5 16:16 31:3 38:5,9,	transverses 11:13
surprise	taller 58:10	thought 35:2 39:13		travel 13:6 15:4
	teaches 42:21			treatment

57:8	57:25	V	Weinstein 29:25	widths 23:4
TRIAL 1:2 2:2 3:2	understand 18:4,7 42:12	various 20:13	welcome 17:14	wife 47:16
tricky 10:17	understood 27:22	vertebrae 44:12	went 9:19	will 18:10
trouble 10:21	unit 51:7 52:4	vertebral 42:22	whatever 58:3	Wilson 4:15 15:15
try 16:20 19:20	UNITED 1:1 2:1 3:1	visualization 50:23 51:2,12 52:9,13,14 53:1,2	Whenever 14:16	window 12:24
trying 18:1,4 45:12 47:11	unlikely 57:8	Volume 4:1	whereupon 59:5,8	WINSTON 4:10
turn 22:15 39:8 40:3 49:13 50:10	until 51:12	W	whether 25:5, 15 28:7 35:7	within 8:20 44:3,11 45:14,17 50:9
two 11:25 56:11 57:24 58:12	Upwards 21:14	wall 49:24,25 50:2	whom 16:4	without 50:23 51:12 52:9, 13,25
types 31:6	use 25:7 28:14 32:22 33:12 34:10 39:9 46:11 48:3 57:7,19	want 9:12,22 16:21,25 17:12,18 21:23 33:1 43:1,5,22	Wickramasek era 4:9 5:4 6:12 7:6 11:7, 14 12:12 14:1 15:10 16:1,18 17:8,17,21,23 19:19 20:3,7 25:13 27:14 32:6 37:18,22 38:23 41:12, 23 43:8 44:14 49:5,12 59:1, 4	witness 7:4 11:9 12:10 13:24 15:22 16:15 17:6,19 25:11 27:11 32:4 37:17,21 38:21 41:4 42:21 44:3 48:25 49:11
typically 24:17 29:7	used 31:13	wants 58:25	width 44:8	wondering 48:13
U	uses 22:18,23 23:14 51:6	way 16:21 46:11 56:5		word 28:12, 15
Uh-huh 8:17	using 46:16 47:25	week 24:18		
unclear 8:13	usually 30:3			
underneath				

words 29:8, 10	Y	
work 13:12 15:6,14,17,25 16:6 20:13, 19,24 21:7 24:5 26:15	year 12:24 31:18 years 18:24 20:15 26:7 31:17	
worked 21:11 34:25	yourself 9:15	
working 7:15, 21 8:3,4,5 24:9	Youssef 1:14 4:1 5:3 6:4,7, 13 16:19 17:10 19:16 20:8 22:4 23:18	<small>JIM YOUSSEF, M.D. - 01/09/2020</small>
world 35:22		
wrack 26:6		
wrong 14:21, 25 41:16		<small>Litigation Services 800-330-1112 www.litigation-services.com</small>
X		
X-RAY 53:20, 24		
XLIF 8:12,15, 21 9:4,8 10:2, 7,9,11,16,21 11:3,10,15, 17,24 12:3 51:6 52:13		