Entire Transcript of Deposition of Dr. Hansen A. Yuan, dated August 22, 2014

This transcript is being filed in IPR2013-00506 pursuant to a request by Patent Owner and the Board's concurrence. *See* Paper 31.

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

MEDTRONIC, INC.,
Petitioner,
-vs-
NUVASIVE, INC.,
Patent Owner.
Patent Number 8,361,156 B2
Issue Date: January 29, 2013
Case IPR2013-00506

MEDTRONIC, INC.,
Petitioner,
-vs-
NUVASIVE, INC.,
Patent Owner.
Patent Number 8,187,334 B2
Issue Date: May 29, 2012
Case IPR2013-00507

MEDTRONIC, INC.,
Petitioner,
-vs-
NUVASIVE, INC.,
Patent Owner.
Patent Number 8,187,334 B2
Issue Date: May 29, 2012
Case IPR2013-00508

Examination Under Oath of HANSEN A. YUAN, M.D., held at 211 West Jefferson Street, Suite 21, Syracuse, New York, on August 22, 2014, before MARITA PETRERA, Registered Professional Reporter, and Notary Public in and for the State of New York.

1 APPEARANCES
2 For the Petitioner:
3 FOX ROTHSCHILD, LLP
4 Attorneys at Law
5 The Executive Building
6 1030 15th Street, N.W.
7 Suite 380 East
8 Washington, DC 20005
9 BY: JEFF E. SCHWARTZ, ESQ.
10 jeschwartz@foxrothschild.com
11 202-236-0459
12
13 MARTIN & FERRARO, LLP
14 Attorneys at Law
15 5151 Headquarters drive
16 Suite 170
17 Plano, Texas 75024
18 BY: BRENT D. MARTIN, ESQ.
19 bmartin@martinferraro.com
20 972-668-3129
21
22

1 For the Patent Owner:
2 FISH & RICHARDSON
3 Attorneys at Law
4 12390 El Camino Real
5 San Diego, CA 92130
6 BY: MICHAEL A. AMON, ESQ.
7 amon@fr.com
8 858-678-4708
9
10 FISH & RICHARDSON
11 Attorneys at Law
12 3200 RBC Plaza
13 60 South Sixth Street
14 Minneapolis, MN 55402
15 BY: STUART NELSON, ESQ.
16 snelson@fr.com
17 612-337-2538
18
19 * * *
20
21
22

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15 Placement of a Single
16 Cylindrical Threaded Cage
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18 Approval extension for BAK
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1 EXHIBITS

2 MSD

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3 Exhibit 1028 US Patent number 7,815,682 246
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5 Exhibit 1030 MAS TLIF brochure 250
6 Exhibit 1018 "Medtronic VERTE-STACK 251
7 PEEK Stackable Corpectomy
8 Device Surgical Technique"
9 Exhibit 1017 1/5/2010 NASS memo re: 254
10 Lateral Interbody Fusion
11 (XLIF, DLIF) of the Lumbar
12 Spine
13 Exhibit 1032 VERTE-STACK Spinal System 293
14 510(k) Summary
15 Exhibit 1041 document which states the 298
16 CoRoent system was approved
17 By the FDA as a vertebral body
18 replacement device (unidentified)
19
20 * * *
21
22

1 H A N S E N A. Y U A N, M.D., having been
2 called as a witness, being duly sworn, testified as
3 follows:
4 MR. AMON: I'll make appearances
5 first on the record.
6 MR. SCHWARTZ: Jeff Schwartz for
7 Medtronic and Brent Martin for
8 Medtronic.
9 MR. AMON: Michael Amon, of Fish
10 & Richardson on behalf of NuVasive and
11 of Dr. Yuan. With me is Stewart
12 Nelson, also of Fish & Richardson, and
13 we'll put on the record that Dr. Yuan
14 is waiving review and signature of his
15 deposition.
16
17 EXAMINATION BY MR. SCHWARTZ:
18 Q. Dr. Yuan, could you state your full name
19 for the record?
20 **A. Hansen A. Yuan.**
21 Q. And your address, sir?
22 **A. Right now is address 3692 Nelson's Walk,**

1 **Naples, Florida, 34102.**
2 Q. Sir, have you ever been deposed before?
3 **A. I've been deposed before.**
4 Q. How many times have you been deposed?
5 **A. The deposition most of the time when I was**
6 **actively practicing, so the last time probably is**
7 **about eight or nine years ago, and totally, maybe a**
8 **dozen times.**
9 Q. Okay. Have you ever been deposed in a
10 Patent Office proceeding before?
11 **A. No.**
12 Q. Okay. So I'm not going to belabor some of
13 the typical stuff. You know how this works. I'll
14 ask questions and then the Court Reporter will take
15 down my question and your answer, you understand
16 that, right, sir?
17 **A. Yes, sir.**
18 Q. And you're under oath, so you understand
19 that there's an obligation to tell the truth,
20 correct?
21 **A. Yes, sir.**
22 Q. And if you don't, there's a potential

1 penalty of perjury, you understand that, right, sir?
2 **A. That's correct.**
3 Q. And the Court Reporter will need you to
4 answer out loud, so shaking your head or something
5 like that, I might understand, but the Court
6 Reporter won't know how to transcribe that. So
7 we'll need your answers to be verbal, if that's
8 okay?
9 **A. Yes, sir.**
10 Q. The other thing is that the Court Reporter
11 will need for us to not talk over each other, so
12 when I'm asking a question, just wait until I'm
13 finished and I'll try to not interrupt you while
14 you're making an answer. Is that okay?
15 **A. Yes, sir.**
16 Q. Okay. And if you need a break for any
17 reason, stretch your legs or whatever, just let me
18 know, and I'll be glad to go off the record so long
19 as there's not a question pending, okay?
20 **A. Yes.**
21 Q. And one of the nuances which you may not
22 be used to, since this is a Patent Office

1 proceeding, is that now that the -- this is
2 considered Cross-Examination, and once the
3 Cross-Examination has begun, you're not to consult
4 with counsel until the Cross-Examination is
5 complete.
6 You understand that, sir?
7 **A. Yes.**
8 Q. So if we take a break, of course you're
9 free to talk about the weather or what you want to
10 have for lunch or something like that, but you
11 shouldn't be talking about the questions or answers
12 or what may be coming up or something like that.
13 You understand that, sir?
14 **A. Yes.**
15 Q. Have you taken any medication that might
16 affect your ability to answer my questions today,
17 sir?
18 **A. No, sir.**
19 Q. Okay. And have you taken any medication
20 that might affect your ability to understand my
21 questions?
22 **A. No, sir.**

1 Q. Okay. What did you do to prepare for this
2 deposition, sir? And as a prerequisite, I'm not
3 intending to elicit any conversations you may have
4 had with counsel as to the specifics of what you
5 said or what they said to you. But I just want to
6 know in general what you did to prepare for this
7 deposition?
8 **A. I review a series of documents, I review**
9 **actually four patents that is my Declaration along**
10 **with certainly the two patents that we are discussing**
11 **for NuVasive which is a patent '334 and patent '156.**
12 **And I have reviewed Dr. Hynes's deposition with you,**
13 **along with reviewing the Medtronic's and also**
14 **NuVasive's position; certainly the Declarations.**
15 Q. And when you say the Medtronic and
16 NuVasive positions, was that in a document?
17 **A. Excuse my word, I'm not an attorney, so I**
18 **merely saying that I have reviewed what is, what**
19 **today's issue is going to be. That's the two points**
20 **concerning the, I'm not saying the right word, but I**
21 **guess is a declaration or your, maybe not the word is**
22 **position, but just what Medtronic's and the**

1 **NuVasive's declaration is as good a word as I can**
2 **say.**
3 Q. Sure.
4 **A. If I look at the document, I will know what**
5 **I actually say. I didn't memorize.**
6 Q. Yep. And sir, again, my questions are
7 also not intended to be a memorization test. I'll
8 certainly be asking you questions that may be from
9 your memory, but I'm not trying to trip you up or
10 something like that. I'm just trying to get
11 whatever your recollection is, if that's okay.
12 **A. Yes.**
13 Q. Do you recall how much time you spent
14 preparing for today's deposition, sir?
15 **A. A general estimate, I read through these**
16 **documents probably somewhere around about seven,**
17 **eight hours, and then I spent time with my attorneys,**
18 **Mr. Amon and also Mr. Nelson, sometimes one of them,**
19 **sometimes both of them, over the last two days.**
20 Q. Did you talk about your deposition
21 preparation with anyone other than the two attorneys
22 that are here in the room?

1 **A. No, sir.**
2 Q. Okay. During your review of the documents
3 in preparation for this deposition, did that review
4 suggest to you that you should change or alter
5 anything that was in your declaration?
6 **A. Can you ask me that one more time?**
7 Q. Sure. When you were, you just discussed
8 what you did to prepare for your deposition, you
9 reviewed a number of documents, depositions, things
10 like that. As part of that thought process, in your
11 preparation, did that bring to mind to you that you
12 wanted to change or alter something that you said in
13 your declaration in these matters?
14 **A. We obviously discussed more specifically**
15 **verbally some of the topics and some of the points.**
16 **There was some going back and forth. So mainly for**
17 **me to be educated on the terminology, the legal**
18 **terminology side which I'm not an attorney so it was**
19 **a learning experience, but we didn't change anything.**
20 Q. Okay. So as far as the conclusions that
21 you reached in your reports, right now you're fine
22 with those conclusions, is that right?

1 **A. It stands, correct.**
2 Q. Sir, I'm going to hand you what's
3 previously been identified as NuVasive Exhibit 2021.
4 (Handed.)
5 MR. AMON: Thank you.
6 Q. Sir, do you recognize that document?
7 MR. AMON: Dr. Yuan, take your
8 time to review, if necessary.
9 THE WITNESS: Thank you. I'll
10 take a look at this.
11 MR. SCHWARTZ: For the record, I
12 would ask Counsel not to converse with
13 the witness while I'm asking
14 questions.
15 Q. The question pending, sir, is just whether
16 you recognize that document.
17 **A. This is my CV. I'm just looking through.**
18 **Yes. This is my CV, and it may not be exactly up to**
19 **date today, but generally it is correct.**
20 Q. It's not up to date today?
21 **A. I don't know, because every month something**
22 **changes, still going forward.**

1 Q. Okay.
2 **A. But nothing, nothing of significance.**
3 **Nothing of issue. Things continue to evolve even**
4 **though I'm no longer academically active at the**
5 **university being professor emeritus, there are other**
6 **things I'm continuing to do.**
7 Q. Do you have a more up to date CV, sir?
8 **A. That I have to ask my assistant because she**
9 **constantly update. Same thing I got to ask my wife**
10 **what I can do.**
11 Q. But what I'm quite honestly trying to
12 avoid, sir, going through your life's history to the
13 extent it's accurately represented in your CV so I
14 don't have to ask you questions where you worked and
15 when and all that type of stuff.
16 So is it fair that we can rely on the
17 information in this CV as being accurate as to what
18 it reflects?
19 **A. Yes, sir.**
20 Q. Okay. So other than the possibility that
21 there may be some new paper or presentation or
22 appointment since this was created, the information

1 in this document's accurate?
2 **A. Exactly.**
3 Q. Okay.
4 **A. I'd just like to be exactly up to date.**
5 Q. Okay. And sir, avoiding getting into your
6 life's history, I'd like to get into a little bit of
7 your connection with NuVasive. So starting out, you
8 served on their board of directors, correct?
9 **A. That's correct.**
10 Q. And you're no longer in that capacity?
11 **A. It's been many years since I resigned.**
12 Q. Do you recall about when you resigned?
13 **A. I don't know exactly. I can look it up.**
14 **Do you know exactly which page it is, if you do you**
15 **will help.**
16 Q. I honestly don't but I will look through
17 it as you do. I apologize if it says on your
18 resume.
19 It lists, on page, what appears to be
20 Page 114 which is about the second to last page,
21 that you were on the board of directors for
22 NuVasive, it doesn't give any dates for that which

1 is why I was asking the question.
2 **A. I apologize for that. I will say it's**
3 **approximately six or seven years ago.**
4 Q. Okay.
5 **A. That's as far as I can approximate.**
6 Q. And do you recall around when you started
7 on the board?
8 **A. I was totally on the board about three and**
9 **a half years. Three and a half to four years.**
10 Q. So you started about 10 years ago, about?
11 **A. That's correct.**
12 Q. Can you tell me generally what your
13 responsibilities were as a member of the board for
14 NuVasive?
15 **A. Yes, sir. When I was asked to join the**
16 **board, there was no technical person on the board,**
17 **technical meaning somebody who is either an engineer**
18 **or somebody who is a physician. And there was one**
19 **just before me who served, who was one of the**
20 **founders, and then after him there was another spine**
21 **surgeon who served on the board for several years,**
22 **and I was merely asked to join to really offer more**

1 **clinical and more technical position on the board;**
2 **nothing financial, nothing business, which is not**
3 **anything of my forte.**
4 Q. And were you paid for that responsibility,
5 sir?
6 **A. There was stock options, and I guess they**
7 **assigned some number of restricted stocks for the**
8 **year you were on the board, and then there's a**
9 **vesting period.**
10 Q. Any other payment of any type besides
11 stock options, sir?
12 **A. They paid for expenses.**
13 Q. Anything else, sir?
14 **A. Trying to think, so I'm not missing**
15 **something.**
16 Q. Was there a salary of any type?
17 **A. No. Because I'm not employees, I'm not on**
18 **salary. I think there was a fee that they paid if**
19 **you attend a board meeting.**
20 Q. Okay.
21 **A. I don't even, I don't even recall the**
22 **amount, but I was -- this will be a guess -- maybe**

1 **like $2,000 per board meeting.**
2 Q. Okay.
3 **A. As a guess.**
4 Q. And do you still have any of those stock
5 options?
6 **A. My stock options vested, I still have those**
7 **stocks, correct.**
8 Q. Okay. So you have some amount of stock in
9 NuVasive at this point?
10 **A. Yes, sir.**
11 Q. Do you have a general feel for how much
12 that is worth?
13 **A. I don't follow the stock market so I don't**
14 **look at it so to answer your question, do I have a**
15 **general feel, I could, I wouldn't even be able to**
16 **tell you what the value is. The number of stock**
17 **probably is in the ballpark like 20,000 shares. And**
18 **there are options still.**
19 Q. And so 20,000 shares that are vested, is
20 that --
21 **A. They are vested but in order for me to**
22 **exercise obviously you have to pay the value of what**

1 **it is at the time that was vested, or what was --**
2 **when was given. So it could be, like, $39 a share,**
3 **or today I wouldn't want to sell it, and I guess**
4 **understanding with the stock prices, you know, my**
5 **wife does this so I don't look at it, and she doesn't**
6 **manage my stock but she always tell me it's going up,**
7 **going down, so I only know that some stocks are at**
8 **about 39, some stocks are at about $20. So there's a**
9 **wide variation over those years.**
10 Q. So in broad terms are we looking at about
11 a couple hundred thousand dollars worth of stock?
12 MR. AMON: Objection;
13 speculation.
14 Q. I'm just asking for your best guess.
15 **A. We can do the math. I didn't figure it**
16 **out.**
17 Q. Right.
18 **A. So I would say it's approximately that.**
19 Q. Okay. Thank you, sir.
20 **A. Thank you.**
21 Q. Sir, when you were on the board in this
22 technical role, did you -- maybe I should just ask

1 it open-endedly, what if anything did you do as part
2 of that?
3 **A. In those technical -- let me answer that**
4 **directly first. If they going to be designing a new**
5 **pedicle screw, they will ask me would it be something**
6 **I would use, would it be something that is better**
7 **than what I'm using at the time. I'm not involved**
8 **with the so-called, the development of it. It's just**
9 **merely a general question of whether as a physician I**
10 **will use it or not or if it was an improvement over**
11 **what I have.**
12 **And they will be showing new technology**
13 **that they are considering acquiring such as a bone**
14 **graft material, what bone graft material I'm using**
15 **currently, is this new one with this different**
16 **properties be something that is of more value to me.**
17 **More in that capacity, and also I, you have to serve**
18 **on a committee so as a board member I serve on the**
19 **compensation committee.**
20 Q. And what did the compensation committee
21 do?
22 **A. I'm just a member and basically the**

1 **chairman of the committee would gather all the**
2 **information and then there will be three of us that**
3 **would review the information for each one of the**
4 **senior managers and executives, and then to see what**
5 **the market compensation should be and then there's an**
6 **open discussion of how well one person performed or**
7 **how poorly one person performed.**
8 Q. Okay. Did you ever get involved in
9 discussions about the safety or efficacy of
10 products, either existing products or new products?
11 **A. No.**
12 Q. Okay.
13 **A. Those things are already -- merely is a**
14 **functionality of a product, how it would improve in**
15 **usage. But safety efficacy, those things are**
16 **something handled by the regulatory and generally**
17 **it's products, either they are too early in the**
18 **development phase and they haven't gone through**
19 **regulatory, or at the end after the FDA approval. So**
20 **the safety efficacy, those things are documented and**
21 **they will present to see, just the question of does**
22 **it help me in my practice.**

1 Q. So for example, when you mentioned that
2 they might show you something new and ask you about
3 your possible use of that in your practice, would
4 you be asked or offer any opinion about the safety
5 of that new thing that they were showing you?
6 MR. AMON: Objection; compound.
7 **A. There never was a time we talked about**
8 **safety.**
9 Q. Okay, fair enough. Did you have any sense
10 in your role on the NuVasive board as to whether or
11 not NuVasive was promoting anything that was unsafe?
12 **A. Not at all. I would have to say that my**
13 **experience on the board there, I been on a few other**
14 **boards, so that was an experience where I was very,**
15 **very impressed by the very careful and detail**
16 **assessment of products. As far as safety issues**
17 **concerned, that is not an issue that there is**
18 **anything that, that would be risky at all to**
19 **patients. Those things are absolutely something that**
20 **they will not be involved with.**
21 Q. Is it fair to say, sir, that if NuVasive
22 were to put out marketing material, you felt

1 confident that the information they were
2 disseminating was not promoting something unsafe?
3 **A. That's correct. I will say that their**
4 **marketing is managed very, very carefully, very**
5 **strictly, and I didn't look at marketing brochures or**
6 **topics as such but I do know that one aspect of their**
7 **maybe quote, unquote, marketing, is really**
8 **concentration in making sure surgeons are**
9 **well-trained to use their products. They made a**
10 **point of making sure that the launching,**
11 **introduction, and continued education both on a**
12 **directly, I would say lecture and also on a hands-on**
13 **cadaver session is very well done. So as I said, my**
14 **experience with them on the safety side is that they**
15 **are very, very careful and I don't know of any, I**
16 **didn't see or perceive any unsafe path that they**
17 **would pursue.**
18 Q. Is the same true with regard to
19 information they describe in their patents and
20 patent applications?
21 MR. AMON: Objection; vague,
22 outside the scope.

1 **A. On the patents side. The only patents I**
2 **have looked at is a patent '334 and '156. So those**
3 **are the only two patents that I'm familiar with of**
4 **theirs, because I did that for this Declaration. So**
5 **I'm trying to understand your question, Counselor.**
6 Q. Well, sir, you talked about the way that
7 NuVasive approaches safety as it pertains to their
8 marketing material. And I'm asking you now, sir, if
9 you think that NuVasive approached the descriptions
10 in their patents the same way?
11 MR. AMON: Same objection;
12 including lacks foundation.
13 **A. Your first statement is that -- can you**
14 **repeat your first statement again? I apologize. I**
15 **don't want to say something that I didn't understand.**
16 **(Whereupon, the pending question**
17 **was then partially read.)**
18 THE WITNESS: Hold on. I didn't
19 look at the marketing material, so I
20 can't correlate your statement of
21 safety to their products, okay. I
22 only know that what's presented and

1 what I as a surgeon would be, would
2 understand, and there was never an
3 issue of safety that was raised, so
4 that statement that you asked is why I
5 didn't understand it, is I didn't make
6 any correlation between the marketing
7 material and safety.
8 EXAMINATION BY MR. SCHWARTZ:
9 Q. Okay. Do you have any reason to think
10 that information that NuVasive puts in its patent
11 applications would promote something unsafe?
12 **A. I have no reason to believe that.**
13 Q. Okay. Thank you, sir.
14 **A. Thank you.**
15 Q. Sir, I'd like to talk a little bit about
16 your background and experience, specifically as it
17 pertains to intervertebral fusion, and in
18 particular, with the use of artificial implants,
19 okay.
20 Can you explain in general how many
21 surgeries that are fusion procedures using
22 intervertebral implants you've done?

1 **A. To give you a number would be totally a**
2 **guess. I did a lot of fusions because of**
3 **degenerative and traumatic spinal condition is a bulk**
4 **of our practice. I don't do any so-called idiopathic**
5 **scoliosis, so no adolescents. Basically degenerative**
6 **and trauma and infections.**
7 **So I would say that between cervical spine,**
8 **thoracic spine and lumbar spine, for fusion**
9 **procedures would be over 60 percent of my total**
10 **number of cases done. So if I did anywhere between**
11 **eight or nine thousand cases totally in my career, I**
12 **would say 60 percent of that.**
13 Q. Okay. And of that, how many would you say
14 were lumbar cases, sir?
15 **A. So lumbar, outside of cervical and thoracic**
16 **would be the biggest number. The cervical now has**
17 **become bigger number in the hands of a surgeon**
18 **because several of the diseases have more ability to**
19 **so call take care of it, but in the older days, the**
20 **cervical ones are really managed much more on a**
21 **non-operative basis. In my days, I would say the**
22 **lumbar, the lumbar were easily be over, again,**

1 **probably over 60 percent of total fusions, 60 to**
2 **70 percent.**
3 Q. So 60 percent to 70 percent of the
4 60 percent of your total cases?
5 **A. Right.**
6 MR. AMON: Dr. Yuan, please let
7 Mr. Schwartz finish his question.
8 THE WITNESS: Sorry.
9 Q. Okay. Sir, and then of those lumbar
10 cases, could you break out anterior procedures
11 versus posterior procedures?
12 **A. There were period of time that we did**
13 **anterior surgery and the anterior surgery that we did**
14 **are actually relatively few. We did a**
15 **laparoscopically, we did open, so the majority of the**
16 **lumbar cases, I would say over 80, 85 percent, either**
17 **going to be posterior, posterolateral. And these all**
18 **happen over a period, so in the early, early days, we**
19 **would have done a lot more anterior -- posterior**
20 **because we didn't have any other, and then for a**
21 **short period of time we went ahead and did a lot of**
22 **anterior, and then towards the end with the**

1 **improvement of the modern interbody spacers, cages,**
2 **we shifted again to posterior and posterolateral and**
3 **then of course the lateral approaches.**
4 Q. When did you first start doing lateral
5 approaches, sir?
6 MR. AMON: Objection; vague.
7 **A. Lateral approaches, for what condition?**
8 Q. Well, any lateral approach using an
9 intervertebral implant for any condition.
10 **A. I did lateral approaches as early as 1980s.**
11 Q. 19?
12 **A. 80s.**
13 Q. 1980s.
14 **A. And that included using cages, but those**
15 **are mostly for fractures, and most of those cases are**
16 **in the thoracic, and in the thoracolumbar junction.**
17 Q. Could you explain what the thoracal lumbar
18 junction is?
19 **A. Between the thoracic which is the ones with**
20 **the ribs and fairly stable and so between the**
21 **thoracic transiting to the lumbar which is more**
22 **flexible, so most of the injuries that's going to**

1 **occur most commonly is between the thoracic and the**
2 **lumbar. So it's pretty much like T11, T12, L1, L2.**
3 Q. Okay.
4 **A. And maybe L3.**
5 Q. Did you do any vertebral body
6 replacements?
7 **A. Yes.**
8 Q. Did you do any of the vertebral body
9 replacements laterally?
10 **A. Oh, yes.**
11 Q. The way you said that, "oh, yes," does
12 that suggest that that was routine for you to do
13 vertebral body replacements laterally?
14 **A. It isn't routine, because most of the cases**
15 **for a period of time that we did vertebral**
16 **replacement, for example, like in the TB, infections,**
17 **and certainly in certain fractures, but most of the**
18 **fractures we still treat posteriorly.**
19 Q. You did do some vertebral body
20 replacements laterally?
21 **A. Yes.**
22 Q. Did you do any anteriorly, from an

1 anterior approach?
2 **A. Vertebral body replacement, is that what**
3 **you're referring to?**
4 Q. Um-hmm.
5 **A. I'm trying to, I'm trying to think the**
6 **term. When you make an exposure, if you are going to**
7 **go to replace a whole vertebral body, you can say**
8 **that you're using a lateral incision because in those**
9 **days not so-called minimally invasive, we use a long**
10 **incision. So when you use a long incision, you are**
11 **literally able to approach the spine direct**
12 **anteriorly, so this is why to be specific to answer**
13 **you, I, when I say we are using a lateral approach,**
14 **we are using a lateral incision because it is an open**
15 **procedure and we could replace a vertebral body**
16 **depending on the anatomy of where the major blood**
17 **vessels are, either putting the implant lateral or**
18 **putting an implant in anteriorly.**
19 Q. Okay. What about an oblique approach,
20 sir, did you do any vertebral body replacements
21 through what's referred to as an oblique approach?
22 **A. You tell me what you mean by an oblique.**

1 Q. Maybe I should switch that around. Do you
2 have an understanding of what an oblique approach
3 is, sir?
4 **A. Standing by itself, an oblique just means**
5 **you're going at an angle. I don't understand the**
6 **question.**
7 Q. Sure. Sir, we talked about vertebral body
8 replacements going in laterally, and we talked about
9 vertebral body replacements going in anteriorly,
10 correct. So now I'm asking about variations from
11 the lateral and anterior, and what I'm asking is, is
12 there something that is angularly different than
13 lateral and anterior where you might go in between
14 those two? Perhaps I'll rephrase. Strike the
15 question. And unfortunately we don't have a video,
16 so I can't capture the precision of this.
17 But anteriorly, generally we are talking
18 about coming in through the belly, right, sir,
19 coming in from the surgeon's perspective and, well,
20 what I'm pointing to towards the belly, towards,
21 towards the spine, correct, sir?
22 **A. (Nodding.)**

1 Q. And then laterally, generally we are
2 talking about from the side of the patient going in
3 at an angle towards the side directly into the
4 vertebra, or generally, correct, sir?
5 **A. (Nodding.)**
6 Q. So for an oblique, I apologize again for
7 not having this down.
8 **A. Go ahead.**
9 Q. Would be somewhere in between where my
10 hand and my pen are, so at an angle something like
11 this?
12 **A. You are still referring, so let me qualify.**
13 **You are still referring to in the thoracolumbar**
14 **junction?**
15 Q. Correct, sir.
16 **A. Okay. And the thoracolumbar junction, when**
17 **you are saying going in obliquely, we don't use a**
18 **term because of the, once you open with a long**
19 **incision, you can put the implant in lateral,**
20 **anterior, slightly off anterior, and in adjusting it,**
21 **you can do all of those.**
22 Q. Okay.

1 **A. So I was a little puzzled why you would ask**
2 **me to describe that, in those levels, an oblique.**
3 **Because I'm, I have the whole area open.**
4 Q. Okay.
5 **A. So the implant can go in slightly at an**
6 **angle, direct lateral or anterior.**
7 Q. So something that would be off an angle
8 from the lateral or anterior, you would just
9 generally categorize as one of those two, lateral or
10 anterior as opposed to calling it an oblique?
11 MR. AMON: Objection;
12 mischaracterizes Dr. Yuan's testimony.
13 **A. We have not used the word oblique, so**
14 **that's, excuse me, so we will say you are making a**
15 **lateral approach and then you have the ability to see**
16 **both lateral and anterior, depending on the visceral**
17 **structures, and how the peritoneum falls away,**
18 **whether it is L2 near where the kidney is, you**
19 **definitely cannot go anterior laterally. So consider**
20 **the kidney is, you are going to go laterally. And**
21 **then when you get below the kidney, you going to go**
22 **anterior. So in that area, there is visceral**

1 **structures, particularly the thoracolumbar junction,**
2 **so we have never used the term oblique approach.**
3 Q. Okay.
4 **A. But you are looking at the whole thing.**
5 Q. Maybe I can do this by diagrams just so we
6 can actually have a record. Well, we'll get to
7 that. There will come a document that will perhaps
8 help us.
9 Getting back to your CV, sir,
10 Exhibit 2021, there's a couple of entries that I'd
11 like to talk about. If you could turn to Page 27 of
12 that document, I'll wait -- okay. Do you see, sir,
13 the entry for Thai Orthopedic Association.
14 **A. Yes.**
15 Q. And within that is the One Year Follow Up
16 on Experiences With BAK in Posterior Interbody and
17 Anterior Interbody Fusion For Degenerative Disc and
18 Low Grade Degenerative Spondylolisthesis of the
19 Lumbar Spine. Do you see that entry, sir?
20 **A. Yes.**
21 Q. Can you explain to me, if you recall, what
22 that one year follow-up was describing? I realize

1 it's 20 years ago, sir, so if you don't recall I
2 appreciate that.
3 **A. That's okay. Very simple. I can cover**
4 **that topic.**
5 **As I was testifying before during your**
6 **questioning of what cases, when we did them -- this**
7 **is back in 1994 -- so in 1994 there was a period of**
8 **time as I mentioned we did some anterior approaches.**
9 **So in this case here, we are using the**
10 **either posterior which is the very popular described**
11 **mostly by my neurosurgical colleagues who are**
12 **comfortable doing posterior interbodies, and we are**
13 **kind of developing and pioneering an approach of**
14 **doing laparoscopic anterior.**
15 **So what the caption here reads is a**
16 **minimally invasive, so is no longer an open**
17 **procedure. We are making stab wounds in different**
18 **location and once we make the stab wounds, we**
19 **actually -- we are filling the abdominal cavity with**
20 **air or carbon dioxide. So we insufflating the**
21 **abdominal cavity and then what that does is allow the**
22 **structures to be able to be moved aside. And then we**

1 **are then going directly in midline to implant the**
2 **cages. So when we said insufflated anterior lateral**
3 **approach, the insufflation portal is not put directly**
4 **to the midline, because the midline is where we want**
5 **to be cutting the cages, through the scope. So the**
6 **insufflation channels, you are making them just off**
7 **midline so you can put in a unit you can seal and**
8 **fill with air.**
9 Q. Okay. Sir, and the anterior lateral
10 approach, what, can you describe that approach in
11 more detail?
12 MR. AMON: Objection; asked and
13 answered. Go ahead.
14 Q. The direction, vis-a-vis the body?
15 **A. The abdomen as you just now showed very**
16 **nicely, this is anterior, is correct, and this is**
17 **lateral.**
18 Q. Okay.
19 **A. So you put little portals, mean little**
20 **holes, you make little stabs, and you make little**
21 **stabs through the skin, through the subcutaneous fat,**
22 **through the peritoneum, and you want to make a little**

1 stab there, so that is anterior lateral direction
2 where we put the air insufflation channels in, into
3 the abdominal cavity, then you insufflate the
4 abdominal cavity with air, you distend it. Then once
5 you distend it you go in from the front with a little
6 incision either at the umbilicus or a little bit
7 below, depending on the level of the spine that you
8 are going to put in the BAK.
9 The BAK for generally degenerative
10 condition here, most commonly the best level to do is
11 L5-S1 because that's at the bifurcation of the
12 vessels. So below the bifurcation you got space. So
13 we know when you do this laparoscopically at the L4-5
14 level, that that's the hardest level, that's at the
15 bifurcation junction, many variations of the vessels.
16 So you cannot retract those vessels very much. You
17 can retract the artery, but the vein, to retract the
18 vein, you have to be very cautious because the vein
19 can flatten out and float underneath your retractor.
20 So generally we are doing L4-5, L5-S1. The better
21 surgeons will do it at L4-5 also.
22 So generally when we teach, we like to let

1 **them do 5-S1, do many, many of those and get**
2 **experience. And then once they get to be very good**
3 **and understand the anatomy well, then we teach them**
4 **how to do the L4-5. So this is just a time where we**
5 **are teaching them how to do the anterior lateral**
6 **insufflation, filling the belly with air, and the**
7 **anterior approach. So that's why it says here**
8 **minimally invasive, mean small incision, and retro**
9 **peritoneal insufflated anterior lateral approach.**
10 **Your filling air, okay, into either the abdomen or**
11 **the retro peritoneum, we did both, depending on**
12 **cases, and anterior laparoscopic approach to the**
13 **lumbar spine. So the anterior approach is for**
14 **putting in the cages and the fusion.**
15 Q. Okay. And sir, the reference to posterior
16 interbody, is that a description of the BAK device?
17 **A. No.**
18 Q. Okay.
19 **A. The BAK is only a device.**
20 Q. Right.
21 **A. The BAK is a device as I mentioned clearly,**
22 **I apologize, that some surgeons are much more**

1 **comfortable with a posterior approach and they will**
2 **use the BAK cage from a posterior approach.**
3 Q. Okay.
4 **A. That means going in from the back, removing**
5 **a lot of bone, and so the posterior approach, the**
6 **risk is removing too much bone in order to get these**
7 **big cages in. But neurosurgeons, I train both, so**
8 **the neurosurgeon are more comfortable with that**
9 **approach because that's a standard approach. At that**
10 **particular time, the innovative young surgeons which**
11 **majority are orthopedic, some are neurosurgeons also,**
12 **because that's when they train a little later, a**
13 **little younger, and at that time they will do the**
14 **anterior approach which is a lot safer once you get**
15 **there. But the approach is you got to handle the big**
16 **vessels. So the BAK merely says it's a cage that**
17 **here we did either anterior approach or we did**
18 **posterior approach, the two comparison.**
19 Q. So that that same device, the BAK device,
20 could be put in from a posterior approach or an
21 anterior approach?
22 **A. That is correct. The BAK was never labeled**

1 **for one or the other.**
2 Q. Okay, sir. If you would, I'd like to move
3 to another entry. This is on Page 33 of your CV.
4 It's the North American Spine Society entry. And
5 specifically, sir, do you see that entry?
6 **A. Yes.**
7 Q. Specifically, sir, I'm interested in the
8 Posterior Lumbar Interbody Fusion With Single
9 Posterolateral Threaded Cage Insertion.
10 Did I read that correctly?
11 **A. Yes.**
12 Q. Can you describe what that was about?
13 **A. I'm sorry it's taking time.**
14 Q. Sure, no problem.
15 **A. I'm reading. I haven't looked at this in**
16 **long time. So I'm thinking back, as you say 1997.**
17 **Northern American Spine we have several papers.**
18 Q. Okay.
19 **A. And so I train a lot of fellows, so each**
20 **fellow in the laboratory will be doing different**
21 **studies. So one of the studies, so this here is**
22 **speaking of a cadaver study. It's a cadaver study.**

1 **Why I say it's a cadaver study is because we are**
2 **trying to evaluate how a single posterolateral cage**
3 **as far as allowing us to know the stability of the**
4 **segment after it's implanted. So by going in here we**
5 **are testing how instead of using two cages routinely,**
6 **we are using only one cage. And we are also**
7 **evaluating how this one cage will distract and how**
8 **the dynamics and the stability will be on different**
9 **testings.**
10 Q. Now, when you say posterior lateral cage,
11 I think was the word you used, what do you mean by
12 that?
13 **A. It's the same cage that we are talking**
14 **about, is like the -- again, this is in the same**
15 **period that we are doing the BAK, and so we are using**
16 **a single BAK cage.**
17 Q. Do you recall if it was longer than the
18 anterior or posterior cage?
19 **A. The BAK cage has a series of sizes. The**
20 **BAK cage sizes generally and here, I don't have the**
21 **document in front of me to let me know exactly, I'm**
22 **just doing this all by recall, so it's an estimate.**

1 **I would say the longest cage probably is**
2 **28 millimeters, okay. That's what I can recall, was**
3 **28 millimeters. So if it was 28-millimeter cage we**
4 **are using here, we are putting one cage from**
5 **posterolateral angle to study the mechanical**
6 **stability and ability to distract a segment.**
7 **When you have like spondylolisthesis,**
8 **meaning the spine is slightly slipped because the**
9 **disc material has settled and the facet joints are**
10 **worn a little bit to allow the slip, so if you go to**
11 **the front and, then the spine is so-called little bit**
12 **kyphotic, tilted to the front, if you distract it and**
13 **actually open the space up and you also somewhat**
14 **reduce the slippage, this is we are talking about is**
15 **really as we say here is a degenerative**
16 **spondylolisthesis, not isthmic, isthmic meaning,**
17 **meaning a crack in the bone along a slip, but**
18 **degenerative meaning just a wear and therefore**
19 **settling.**
20 Q. Now, you mentioned the posterior lateral
21 angle. What is that referring to?
22 **A. You're going through a transforaminal**

1 **approach.**
2 Q. So you're coming in from the posterior but
3 you're going in diagonally across the space?
4 **A. Correct.**
5 Q. And you refer to that as posterior
6 lateral?
7 **A. That's correct.**
8 Q. Okay. Sir, you mentioned that you
9 distract and open the space up. About how much
10 would you open the space up?
11 **A. That's a very important comment, because**
12 **once a disc is degenerated particularly from the**
13 **posterior approach or posterolateral approach, you**
14 **can only distract it whatever the ligaments or the**
15 **annular ligaments will allow. You don't have the**
16 **ability of putting in a spreader and jacking it up**
17 **like a jack.**
18 **So what, how we do this is by putting in a**
19 **debrider so you prepare the disc space by cleaning it**
20 **out, and then you use a smaller size bore of a drill**
21 **to drill the space and when you drill the space you**
22 **actually remove bone from both inferior end plate of**

1 **the level above to the superior end plate of the**
2 **level below, so there's a smaller bore drill, and**
3 **then you put in your cage.**
4 **The front of the cage slightly tapered, so**
5 **the slightly tapered cage will allow you to purchase**
6 **and as it purchase it will slowly raise the level as**
7 **it's implanted. So that's how you distract. So you**
8 **don't distract very much. You distract probably a**
9 **couple millimeters at the most.**
10 Q. Okay. Would that be a couple millimeters
11 on both sides or a couple millimeters in total?
12 **A. Pretty much in total.**
13 Q. Okay. Sir, if you would turn to Page 34
14 in your CV. You see the entry there for
15 January 24th to the 27th of 1998, that begins Spinal
16 Surgery dot dot dot?
17 **A. Yes.**
18 Q. Specifically my question is with regard to
19 the portion dealing with Posterior Lateral Interbody
20 Approach With BAK Cage and Facet Fixation. Do
21 you see that, sir?
22 **A. Yes.**

1 Q. Perhaps as a shortcut, is that basically
2 the same procedure you were just talking about with
3 regard to NASS or is there something different?
4 **A. It is something different.**
5 Q. Okay. I'm trying to avoid duplication,
6 but what were the differences?
7 **A. The NASS was a presentation of anatomical**
8 **cadaver study. This thing here is the, this**
9 **paragraph really speak about current and innovative**
10 **theories and technique. So it is not, it's not the**
11 **standard of care, it's not what is generally used.**
12 **It is really speaking about either, either anatomical**
13 **studies or small clinical studies, small means small**
14 **number.**
15 **So the idea here is, for example, if you**
16 **look at the whole paragraph to make sense, we're**
17 **using anterior thoracolumbar plates for trauma.**
18 Q. Okay.
19 **A. This is a 1998. There's a major question**
20 **whether that is stable after you put in a vertebral**
21 **body replacement, and because the biomechanics of**
22 **this is not as stable as using pedicle screws. So we**

1 **are using anterior thoracolumbar plates and again**
2 **here is a current and innovative theory and**
3 **techniques that we are talking about.**
4 **So with that the posterolateral in the body**
5 **approach using the BAK cage, a single cage, and then**
6 **once you put the cage in, I shared a little bit with**
7 **you before to say once you distract a segment, that**
8 **segment is a little bit unstable because it has a**
9 **little bit of a slippage or listhesis, and once you**
10 **distract you like to hold that position, so then you**
11 **are using the facet joints to fix the facet joints.**
12 **So it's an addition of adding fixation to that**
13 **segment to give it more stability.**
14 Q. Okay.
15 **A. So important thing here is really, again**
16 **the topic goes on to talk about anterior load**
17 **sharing. And you know, it's understanding the**
18 **biomechanics. So this is again a biomechanical study**
19 **and describing these techniques and the testing**
20 **results.**
21 Q. And the posterolateral interbody approach
22 with the BAK cage that's being studied here, is that

1 same single BAK put in at a diagonal?
2 **A. Yes.**
3 Q. Okay. Sir, and then further on down that
4 same page, you see the Ray TFC Symposium?
5 **A. Yes, sir.**
6 Q. And the entry that says "My experience
7 with BAK open anterior/posterior laparoscopic and
8 transforaminal approach with adjunctive fixation and
9 lateral approach using minimally incisional
10 approach."
11 **A. Yes.**
12 Q. I read that correctly?
13 **A. That's correct.**
14 Q. Can you describe what that is and if it's
15 the same as something you've already said, you can
16 just tell me that.
17 **A. We've been doing BAKs at that time in the**
18 **beginning all posterior. And then we begin to**
19 **develop the anterior approach, either open or**
20 **laparoscopic. And it's an extension of what we talk**
21 **about using the single cage lateral --**
22 **transforaminally and then begin to start putting in a**

1 **few of these cages laterally. All of this is done**
2 **pretty much in the upper lumbar spine, thoracolumbar**
3 **junction, upper lumbar spine. The reason for us**
4 **doing these studies is to assess can we go to a**
5 **minimal incisional approach.**
6 **At this particular time, actually Dr. Paul**
7 **McAfee was my fellow -- actually was my resident --**
8 **and so we were doing cases in the laboratory looking**
9 **at the biomechanical and then the, we begin to do a**
10 **few cases clinically. But none of this went on to**
11 **marketing. The reason why is the specifics of that**
12 **cage design, because it has to drill out the end**
13 **plates and then putting in a small cage, even though**
14 **with adjunctive fixation these things collapsed. So**
15 **none of it was developed, none of it went to market.**
16 **Both the mechanical testing results tells us the**
17 **adjunctive fixation might make it work, but**
18 **clinically Paul and I have done a couple lateral**
19 **approach; didn't work. And neither did the**
20 **transforaminal approach.**
21 Q. Are you done, sir? I don't want to
22 interrupt.

1 The couple lateral that you did with Paul,
2 were those in human patients?
3 **A. Yes.**
4 Q. So living people?
5 **A. Yes.**
6 Q. And when you say it didn't work, what do
7 you mean by that? They didn't die, did they?
8 **A. No. Patient didn't die. But spine**
9 **actually we tried to correct it into lordotic posture**
10 **and then as I said, the, the properties are not**
11 **correct because of the end plates being removed to**
12 **use those cages even though they were big cages, and**
13 **the length of them we only had 28s, so those cages**
14 **actually subsided and then the spine basically**
15 **resumed the deformity, which is kyphosis. So a**
16 **kyphotic spine is not a good end result. The**
17 **patients didn't die. But these are done under**
18 **individual hospital IRB approval.**
19 Q. So the IRB communicated to you that it was
20 okay to go ahead with the procedure?
21 **A. It's all approved and documented. The**
22 **patients' permission and signature and all of this is**

1 **notified to the FDA.**
2 Q. So at least you and Dr. McAfee thought it
3 would be safe to do it with a patient?
4 **A. No. We've done mechanical testing, the**
5 **mechanical testing results indicated to us that**
6 **mechanically we're able to achieve the stability, but**
7 **on the clinical usage of it over time, it didn't**
8 **prove out. So many, many, many things that as we say**
9 **innovative and technical, you go through testing, it**
10 **is safe to use on a patient, but when you do it on a**
11 **patient the outcome is not 100 percent.**
12 **So the outcome in our mind listing here is**
13 **something we should not propagate.**
14 Q. But before you put it in the patient you
15 thought it was safe to do what you ultimately did,
16 correct, sir?
17 **A. It is safe.**
18 Q. Okay. It is safe?
19 **A. But it's not efficacious.**
20 Q. And when you -- before you did the
21 procedure, you thought it was reasonable to proceed
22 with the procedure, correct?

1 **A. We have documentation that as far as we can**
2 **ascertain from a mechanical, biomechanical point of**
3 **view and understanding all the variables, we feel**
4 **that this could be something that can be done using a**
5 **much smaller incision, less trauma to the patient, so**
6 **you're balancing benefit versus risk. So there is no**
7 **risk but the benefit wasn't as much as we**
8 **anticipated.**
9 Q. So you thought it was reasonable to
10 proceed as you ultimately did, correct?
11 MR. AMON: Objection; asked and
12 answered, argumentative.
13 **A. As I said, we have done all the studies, we**
14 **have all the mechanical and the technical and the**
15 **clinical understanding that this is not dangerous to**
16 **the patient or safe. We are merely here to try to**
17 **improve a technology from one that took patient weeks**
18 **to recover from the incision in those days, to one**
19 **that we're doing minimally invasively. Maybe I will**
20 **extend it, try to clarify what I'm trying to say.**
21 Q. Actually, sir, I'd like you to answer my
22 question.

1 MR. AMON: Mr. Schwartz, he's
2 answering your question.
3 MR. SCHWARTZ: Please don't make
4 interruptive speaking objections.
5 MR. AMON: I'm not.
6 MR. SCHWARTZ: You are.
7 MR. AMON: No.
8 Q. I'm asking you, yes or no, was it
9 reasonable for you to proceed -- strike that.
10 Before you did the surgery, when you were
11 planning to insert this implant in this patient, did
12 you think it was unreasonable to do so?
13 MR. AMON: Objection; asked and
14 answered.
15 MR. SCHWARTZ: It hasn't been
16 answered.
17 MR. AMON: For the third time.
18 MR. SCHWARTZ: And you're
19 interrupting me improperly.
20 Q. You can answer the question, sir.
21 MR. AMON: Same objection.
22 **A. I explained to your question that I have --**

1 not I -- we as a team have evaluated the parameters
2 that is a standard of care for mechanical testing,
3 for stabilization, added stabilization, understanding
4 that this is going to be an initially one column
5 stability, we've added to make it a two-column
6 stability.
7 So to the best of our knowledge we expected
8 this to be something that will improve the outcome of
9 what we're doing. We did -- is not unsafe to the
10 patient. It's totally safe. It just that our
11 outcome even though the patient -- it didn't achieve
12 our standard outcome result.
13 Most, most of the patients, these two
14 patients that we did the procedure on, they went on
15 and was able to function, but not to our standard,
16 because we like the spine to have been corrected.
17 But the deformity basically allowed to settle into
18 more of a kyphos that we do not feel that this
19 technology should be further carried out, because we
20 feel that that's not going the right direction and is
21 something that we need to stop.
22 MR. AMON: Mr. Schwartz, we've

1 been going for over an hour actually.
2 MR. SCHWARTZ: Let me finish the
3 line of questions and then we will
4 take a break.
5 MR. AMON: Doctor, do you need a
6 break or can you go on?
7 THE WITNESS: I'm okay right now.
8 EXAMINATION BY MR. SCHWARTZ:
9 Q. Okay. Sir, you understand what I mean
10 when I ask you if you think you are acting
11 unreasonably. Do you understand what that means?
12 **A. I don't.**
13 Q. Do you have an understanding of what the
14 word unreasonable means?
15 **A. I understand unreasonable, the word itself,**
16 **yes.**
17 Q. Because you used it in your Declaration.
18 **A. Where, tell me.**
19 MR. SCHWARTZ: He's asking me a
20 question, so this will take a little
21 longer.
22 Q. I'm going to hand you, sir, what's been

1 marked previously as NuVasive Exhibit 2020.
2 MR. AMON: Thank you.
3 MR. SCHWARTZ: Why don't we go
4 ahead and take a break so I can find
5 where the word unreasonable is used.
6 How much time do you need, sir?
7 MR. AMON: 10 minutes.
8 THE WITNESS: I'm fine. I have
9 to go to the bathroom. I'm all set.
10 MR. SCHWARTZ: 10 minutes or
11 less. We'll come back on the record.
12 (10:07 a.m.)
13 (Discussion off the record.)
14 (10:17 a.m.)
15 EXAMINATION BY MR. SCHWARTZ:
16 Q. Ready to go, sir?
17 **A. I'm ready.**
18 Q. Okay. We are back on the record, sir.
19 You understand you are still under oath?
20 **A. Yes, sir.**
21 Q. Okay. Let's back up and try to approach
22 this discussion a little differently.

1 And actually, since I handed you a
2 document, just so the record's clear I handed you a
3 document that was identified as NuVasive Exhibit
4 2020 for case IPR 2013-00506. I read the case
5 number into the record because NuVasive used the
6 same exhibit number for each of your Declarations,
7 so it's clear which one I've handed you. And for
8 the record, sir, can you identify that document?
9 **A. Yes. This is my Declaration concerning the**
10 **United States Patent and Trademark Office before the**
11 **Patent Trial and Appeal Board.**
12 Q. Okay. On the last page, Page 62, that's
13 your signature, sir?
14 **A. Yes, sir.**
15 Q. Okay. Sir, perhaps I don't need to get
16 into that document for these questions, but if so I
17 will.
18 Getting back to the two lateral surgeries
19 that we were talking about using the BAK device,
20 when you were about to perform that procedure but
21 before you had, did you believe that it was rational
22 for you to do so?

1 **A. Can you qualify for me what you mean by**
2 **rational, sir? I'd like to understand.**
3 Q. Do you have an understanding of what the
4 word rational means, sir?
5 **A. I know what rational mean.**
6 Q. Okay.
7 **A. I'm just trying to understand what you mean**
8 **by rational in relationship to your question,**
9 **Counsel.**
10 Q. What's your understanding of the word
11 rational?
12 **A. We want to open a dictionary?**
13 Q. No, sir, I'm just asking you your
14 understanding of the word rational.
15 **A. I'm trying to ask you your question of the**
16 **word, you are, you told me before that if I have any**
17 **question or don't understand, I'm only asking you to**
18 **qualify for me. I'm not challenging you, just a**
19 **qualification of what you want the word rational to**
20 **mean.**
21 Q. I just want you to apply it as you
22 normally do, sir.

1 **A. Again, I go back to say I like to answer**
2 **your question but I like to understand what you are**
3 **asking.**
4 Q. Okay. If you would turn in your
5 Declaration to Page 54, paragraph 102.
6 **A. What page is that?**
7 Q. Well, it's a little bit confusing because
8 there appears to be two different page numbers, but
9 it's paragraph 102, the continuation of that
10 paragraph on to what appears to be Page 54 of the
11 document.
12 If you see, sir, eight lines down from the
13 top, you use the word "rational." Do you see that?
14 **A. Yes.**
15 Q. Okay. Using your use of the word
16 rational, was it rational for you to proceed with
17 those two lateral surgeries using a BAK?
18 **A. I'm having difficulty, not because I don't**
19 **want to answer. The word rational is in the**
20 **dictionary. The word rational is in this sentence,**
21 **but the word rational here is meaning and what I**
22 **don't understand from your question is it rational is**

1 **that's not a word I have used in deciding for a**
2 **patient whether I will use a certain procedure or do**
3 **a certain procedure or implant.**
4 **So I'm just trying to be very accurate**
5 **because I'm supposed to testify under oath to be very**
6 **accurate and totally clear and honest. So not at all**
7 **challenging you, Counselor, I'm just trying to**
8 **understand so that I will use, so I can respond.**
9 Q. So you're unable to answer my question,
10 sir?
11 **A. In your form of asking me whether is**
12 **rational, in that sense, I don't understand.**
13 Q. Okay. Was it reasonable for you to
14 proceed at the point in time before you did the
15 surgery, was it reasonable for you to proceed with
16 those two lateral surgeries using the BAK device?
17 MR. AMON: Objection; asked and
18 answered for the fourth time now.
19 **A. As I said, Counselor, we have tested it, we**
20 **have the approval from the IRB, we have data and we**
21 **are, we are doing what we think is best to advance a**
22 **technology and having done all the prerequisite, not**

1 **only on the FDA standard but on our own standard**
2 **also, we feel that it was the correct thing to do.**
3 Q. You felt it was the correct thing to do.
4 Thank you, sir.
5 Now, you use the term transforaminal in
6 describing the procedure that we were talking about
7 from the Ray TFC symposium, correct, sir?
8 **A. Yes.**
9 Q. What do you mean by the term
10 transforaminal?
11 **A. Transforaminal is, there is a space**
12 **underneath the pedicle on the upper boundary. The**
13 **disc in the front with the facet joint in the back**
14 **and that the exiting nerve root on the caudal side.**
15 **There is a space. So transforaminal meaning that we**
16 **can use that space, we can enlarge the space by**
17 **removing some bone from underneath the facet joint.**
18 **We can remove a little bit of the end plate both on**
19 **the upper and lower end to make the space big enough**
20 **so that we can safely implant.**
21 Q. Okay. Sir, would you categorize
22 transforaminal as a posterior approach?

1 **A. Transforaminal is posterolateral approach.**
2 Q. You would describe that then as a subset
3 of a posterior lateral approach, or a type of
4 posterior lateral approach? Strike that.
5 Would you describe the transforaminal as a
6 type of posterior lateral approach?
7 **A. The transforaminal is a posterolateral**
8 **approach.**
9 Q. Okay.
10 **A. As you probably try to broaden it to say**
11 **there are other approaches that we call**
12 **posterolateral that could involve more bone removal**
13 **but this is certainly a form of it.**
14 Q. So is it fair to say, sir, that you were
15 involved in surgeries with the BAK device using it
16 in a posterior approach, an anterior approach, a
17 transforaminal approach, a posterior lateral
18 approach, and a lateral approach, is that correct?
19 **A. Yes.**
20 Q. Okay. Sir, rounding out this question, if
21 you would turn to Page 35 in your CV, do you see the
22 entry for the ISSLS annual meeting?

1 **A. In the middle of the page?**
2 Q. Yes. And the title of that paper
3 presentation is "posterior lumbar interbody fusion
4 with single posterior lateral threaded cage
5 insertion, a biomechanical evaluation."
6 **A. Yes, sir.**
7 Q. I read that correctly, sir?
8 **A. Correct.**
9 Q. Can you describe what that is and again,
10 if that is the same thing as what you've already
11 told me about you can just refer back to whatever it
12 is you told me about.
13 **A. It is what we talked about, and sentence**
14 **here is a biomechanical, so is a cadaver study.**
15 Q. Okay. This may be the last question on
16 your CV. If you would turn to Page 29, the fourth
17 entry down -- I'll wait until you get there -- the
18 fourth entry down for North American Spine Society
19 Annual Meeting?
20 **A. Yes, sir.**
21 Q. About halfway through that paragraph, it
22 talks about a video assisted thoracic corpectomy and

1 spinal reconstruction, do you see that reference,
2 sir?
3 **A. Yes.**
4 Q. Can you describe what that thoracic
5 corpectomy was?
6 **A. At that time as I mentioned, there was a**
7 **period of time that we are trying to take big**
8 **incisions to smaller, and the -- everything we tried**
9 **to do with video assisted is really to make it**
10 **minimally invasive, so only needing little stab**
11 **wounds so you get vision and then we are able to do**
12 **the procedure through a small incision.**
13 **So here is a video assisted thoracic**
14 **corpectomy, meaning we will go in, here again is a**
15 **biomechanical study, so was cadaver study that we**
16 **will actually use special tools to remove the**
17 **vertebral body of a segment, and these are in the**
18 **thoracic spine. So a thoracic corpectomy and spinal**
19 **reconstruction, the spinal reconstruction would be**
20 **putting in the cage to stabilize the segment, so the**
21 **anterior column is built back. Then to see the**
22 **stability of that versus doing this open or using**

1 **this as an endoscopic approach.**
2 Q. And what direction was the approach, sir?
3 **A. The approach here in the thoracic spine**
4 **will be a lateral approach.**
5 Q. A lateral approach.
6 Do you know what the implant was that you
7 were putting in?
8 **A. We were using implant at that time, we**
9 **start off in the beginning using only a bone**
10 **construct called fibular graft and then we shortly**
11 **moved on to testing using a Harms cage.**
12 Q. Harms cage?
13 **A. Harms, H-A-R-M-S, Professor Harms, cage.**
14 Q. You think that procedure you were talking
15 about discussed the Harms cage?
16 **A. I don't know, I don't have the whole paper**
17 **in front.**
18 Q. Sir, I'm asking the question in part
19 because we don't have it either, fair enough. I
20 know I'm testing your memory and I appreciate that.
21 **A. Okay.**
22 Q. Would you describe that implant as a

1 vertebral body replacement?
2 MR. AMON: Objection; vague.
3 **A. Can you ask that one more time.**
4 Q. Sure. Sir, we were talking about
5 vertebral body replacements before.
6 **A. Yes.**
7 Q. In this context, for the thoracic
8 corpectomy, would that implant be a vertebral body
9 replacement?
10 **A. Yes.**
11 **(Exhibit MSD 1015, Posterior**
12 **Lumbar Interbody Fusion Using**
13 **Posterior Lateral Placement of a**
14 **Single Cylindrical Threaded Cage,**
15 **marked for identification, this date.)**
16 EXAMINATION BY MR. SCHWARTZ:
17 Q. Sir, you've been handed what was
18 identified as MSD 1015.
19 **A. Thank you.**
20 Q. Do you see your name there, the last named
21 author?
22 **A. Yes.**

1 Q. So that's you?

2 **A. That's correct.**

3 Q. So you're a co-author of this article?

4 **A. Yes.**

5 Q. Okay. Sir, I know we've been talking some

6 about posterior lateral placements of the BAK cage

7 and take as much time as you want to look at that

8 article.

9 **A. Thank you.**

10 Q. My question is, is this generally

11 describing that posterolateral placement of a single

12 BAK cage?

13 **A. Sorry taking me so long.**

14 Q. Had a chance to read it, sir?

15 **A. I read through it, I haven't analyzed in**

16 **detail, but in general I have some information.**

17 Q. So this is describing that posterior

18 lateral placement of the single cylindrical threaded

19 cage we were talking about before?

20 **A. Single cylindrical longer cage, yes.**

21 Q. Longer in this instance was 36 millimeters

22 long, correct?

1 **A. That's correct.**
2 Q. So this was a little longer than the
3 anterior or posterior cages we were talking about
4 before, right, sir?
5 **A. Just the PLIF or the anterior posterior**
6 **cages are shorter.**
7 Q. So this one was longer than that?
8 **A. That's correct.**
9 Q. And why did you use a longer cage for this
10 posterior lateral placement?
11 **A. We wanted to gain more surface area, the**
12 **paper actually made a statement that they didn't test**
13 **a longer diagonal cage versus a shorter one, they**
14 **didn't do that. They just tested one longer one with**
15 **a goal of getting more surface area to proximate**
16 **closer to two cages, as far as the surface area.**
17 Q. Okay. And this was work that you did
18 sometime in 1998, is that right, or before then?
19 **A. Around that time.**
20 Q. Okay.
21 **A. Yes, sir.**
22 Q. And this article actually published some

1 time in 2000?

2 **A. 2000.**

3 Q. Okay. If you would, sir, turn to

4 Page 430, the paragraph just above the Conclusions.

5 There's a sentence, this is the last page, sir. The

6 paragraph just above the Conclusions, about halfway

7 through that paragraph that starts Despite. There's

8 a sentence there: "Clinically, a single long

9 threaded cage in comparison with a single regular

10 length cage has a largest purchase area, (load

11 bearing surface) and a larger region for potential

12 bony ingrowth."

13 Did I read that correctly?

14 **A. That's correct.**

15 Q. Do you agree with that statement, sir?

16 **A. The theory, the theory is correct. I say**

17 **the theory is correct because a longer cage certainly**

18 **would have more, as we said, more surface area, more**

19 **weight bearing area.**

20 Q. Okay, sir.

21 **A. When they say clinically, this is, this is**

22 **what we discuss, and so in a clinical case, this is**

1 **an assumption, that's correct.**
2 Q. Okay. And that, the first sentence of
3 that paragraph where it says, "Despite these
4 limitations, this study shows some biomechanical
5 advantages of posterior lateral insertion of a long
6 threaded cage over two posteriorly placed cages."
7 Did I read that correctly, sir?
8 **A. Yes, sir, in this study.**
9 Q. Do you agree with that sentence?
10 **A. For this, for this cadaver, for this study,**
11 **using the bovine spine, that's what they referring**
12 **to. So the answer is that is true for this study,**
13 **because that they are, they are specifics of a bovine**
14 **spine that is not true in that of a human.**
15 Q. Sir, do you recall if that 36-millimeter
16 long BAK device was commercially available at that
17 time?
18 MR. AMON: Objection;
19 speculation.
20 **A. I don't know for sure. I think the most,**
21 **the most routine length that we use, the longest cage**
22 **I've used, is generally a 28, 26-28. So I'm not sure**

1 **what a 36 -- I'm not positive.**
2 Q. Okay. You are aware that at some point in
3 time BAKs were offered in longer lengths, correct,
4 longer than 28 millimeters?
5 MR. AMON: Objection; assumes
6 facts not in evidence.
7 **A. I don't know that.**
8 Q. Okay.
9 **A. I'm not sure.**
10 Q. Looking back to your CV again, sir. On
11 Page 56 in workshop and training sessions, there's a
12 reference to Sulzer Spine-Tech -- it's about the
13 fourth entry down -- it says Sulzer Spine-Tech -
14 BAK-L and Proximity Training. Do you see that, sir?
15 **A. Yes, sir.**
16 Q. What is the BAK-L?
17 **A. The BAK-L mean the BAK lumbar.**
18 Q. Lumbar, okay, sir. Just to round out this
19 piece of your CV, on the last page, Page 116, under
20 Medical Advisory Board, it indicates that you were
21 on the Medical Advisory Board for CenterPulse,
22 Spine-Tech, Inc, is that correct?

1 **A. Yes.**
2 Q. Do you remember when you were on that
3 advisory board?
4 **A. I don't remember the date. I can tell you**
5 **the circumstances.**
6 Q. Sure.
7 **A. It's after Spine-Tech was sold.**
8 Q. After Spine-Tech was sold?
9 **A. Was sold.**
10 Q. To CenterPulse.
11 **A. To CenterPulse, so it was just an extension**
12 **of my participation with the company.**
13 Q. Okay. So you were, were you in some way
14 advising Spine-Tech before it was purchased by
15 CenterPulse?
16 **A. Yes.**
17 Q. Okay. And I apologize, I'm not sure that
18 I saw that on your bio, so could you tell me what
19 was your role with Spine-Tech before the acquisition
20 by CenterPulse?
21 **A. I worked with Dr. Bagby (phon) and also**
22 **with Spine-Tech for several years, and worked with**

1 **meaning both on the advisory board and also work on**
2 **the development of the proximity cage. I don't**
3 **remember exactly which years, but it's several.**
4 Q. Do you remember -- strike that.
5 How many years before the CenterPulse
6 acquisition were you working with Spine-Tech?
7 **A. Several years.**
8 Q. So less than ten?
9 **A. Less than ten.**
10 Q. Okay. More than five?
11 MR. AMON: Objection;
12 speculation.
13 Q. More than five? You're allowed to
14 speculate, by the way, sir.
15 **A. I know. My attorney doesn't want me to.**
16 **So I don't really know. I will say several, because**
17 **I don't recall how many years exactly.**
18 Q. Okay. But you don't know if it was more
19 than five?
20 **A. I cannot recall.**
21 Q. Okay. Do you recall if you were doing
22 anything with Spine-Tech in 1997 or 1998?

1 **A. I don't know when they were sold to**
2 **CenterPulse, so that would be the date that I would**
3 **be able to answer.**
4 Q. Okay.
5 (Exhibit MSD 1016, Document re:
6 Premarket approval extension for BAK
7 interbody fusion system, marked for
8 identification, this date.)
9 EXAMINATION BY MR. SCHWARTZ:
10 Q. Sir, I'm handing you what's been
11 identified as Exhibit MSD 1016. I'll represent for
12 the record that this is a document pulled off of the
13 internet at the website on the top of the page and
14 reflects a premarket approval extension for the BAK
15 interbody fusion system.
16 Sir, what I'm going to ask you to do is
17 just look at the bottom part of that document, where
18 it says Approval Order Statement and has a number of
19 sizes for the BAK implants.
20 Do you see that portion of the document,
21 sir?
22 **A. Yes.**

1 Q. So it appears that in 1997 the decision
2 date of this document being May 9th, 1997, BAK or
3 Spine-Tech, Inc, had approval to market BAK products
4 with those dimensions in a diameter and length,
5 correct, sir?
6 **A. I'm just reading.**
7 Q. Sure.
8 **A. Approval ...**
9 MR. AMON: I'm going to object.
10 It's calling for a legal conclusion.
11 **A. As far as I can comment, I'm reading here**
12 **they do have the sizes, but --**
13 Q. Okay so -- I'm sorry, go ahead.
14 **A. I'm not, I'm not a lawyer so I'm not able**
15 **to say what this means, but I do read it here saying**
16 **approval order.**
17 Q. As a person of skill in the art who had
18 some relationship with Spine-Tech and obviously had
19 some experience using BAK devices, you're here
20 testifying in that capacity, correct, sir?
21 **A. That's correct.**
22 Q. Okay. And as that person, is it fair to

1 say that Spine-Tech had approval in 1997 to market,
2 for example, BAK devices that were 36 millimeters
3 long like the one that you used in your study?
4 MR. AMON: Objection; calls for a
5 legal conclusion. You can go ahead
6 and answer.
7 **A. We have used it in the laboratory. I don't**
8 **remember what size, but the length is 36.**
9 Q. Okay. And so it's fair to say that
10 Spine-Tech, at least, had FDA approval to sell those
11 at that time?
12 MR. AMON: Objection; calls for a
13 legal conclusion.
14 **A. I don't -- I've not used one of that**
15 **length, but in the laboratory we have certainly**
16 **tested it.**
17 Q. When you say you haven't used one, do you
18 exclude from your word use the word Test?
19 **A. No. Used, mean use it clinically in a**
20 **patient.**
21 Q. So you did use it in the context of
22 testing, correct?

1 **A. We did the testing.**
2 Q. And you did that sometime generally around
3 '97 or '98, right, sir?
4 **A. Around that time.**
5 Q. Okay. And as far as you can tell, the FDA
6 had approved Spine-Tech selling them at that time,
7 correct?
8 MR. AMON: Objection.
9 Q. As far as you can tell?
10 MR. AMON: Objection.
11 **A. From reading this document here that you**
12 **showed me, I'm reading that, so now I know.**
13 Q. You have no reason to doubt that, do you,
14 sir?
15 **A. No, I don't doubt that. It's on the**
16 **document.**
17 Q. Okay. Do you recall at any time
18 Spine-Tech selling long BAK devices, long meaning
19 longer than 28 millimeters?
20 **A. I have not used any longer than that**
21 **length, so I would be only making a wild guess, but I**
22 **don't know the answer.**

1 Q. So you don't recall one way or the other?
2 **A. I don't recall them selling it that I know**
3 **of.**
4 Q. Okay. Let's turn back to your Declaration
5 that I handed you before, which was Exhibit 2020 for
6 the 506 case.
7 Actually, before we do that I'm going to
8 start with the patent. I'm going to need to mark
9 this, it's MSD 1115.
10 (Exhibit MSD 1115, 8,361,156
11 Patent, marked for identification,
12 this date.)
13
14 EXAMINATION BY MR. SCHWARTZ:
15 Q. I'm handing you what's been marked as
16 MSD 1115 and ask if you've seen that document
17 before.
18 **A. Yes, I have.**
19 Q. You've seen that document before, sir?
20 And, sir, I know you're not a patent attorney.
21 **A. Thank you.**
22 Q. Of course you are testifying here in a

1 patent proceeding, so I'm curious, do you understand
2 the difference between device claims and method
3 claims in a patent?
4 **A. I've heard about it, but I don't know that,**
5 **the difference.**
6 Q. Okay. Sir, looking at claim 1 of the '156
7 patent which starts at column 12 around line 32, and
8 then ex -- well, it ends at the bottom of column 12.
9 Do you see claim 1?
10 **A. Yes, sir.**
11 Q. I'm sorry, sir, I'm not quite sure what
12 document that is you have in front of you. Is that
13 something I handed you?
14 **A. These are two that I brought, these are**
15 **merely so-called the, my own Declaration, these are**
16 **merely the -- describe from a patent, from a**
17 **document, from a Declaration, this is a '156 patent**
18 **that we are looking at here, and this is the '156**
19 **merely -- this rerepresented the pages of the**
20 **information that's in my Declaration.**
21 Q. Do you mind if I look at it, sir?
22 **A. Please.**

1 Q. So it's sort of a table of contents
2 although there's not one in your Declaration, is
3 that right, sir?
4 **A. That's a table of contents.**
5 Q. Do you mind if I make a copy of these at a
6 lunch break?
7 **A. Oh, no.**
8 MR. AMON: We can actually give
9 you a copy now, Mr. Schwartz.
10 THE WITNESS: This way I won't
11 waste your time.
12 MR. SCHWARTZ: I appreciate that,
13 sir. I am trying to make this move as
14 quickly as possible although I
15 appreciate it may not seem that way to
16 you.
17 THE WITNESS: I'm here at your
18 service.
19 (Handed.)
20 MR. SCHWARTZ: Why don't we do
21 this, mark it just so I have a record
22 of it. We'll mark it as MSD 1049.

1 And I'll make a copy of it at the
2 lunch break.
3 (Exhibit MSD 1049, Declaration
4 re: Case IPR2013-00506, marked for
5 identification, this date.)
6 EXAMINATION BY MR. SCHWARTZ:
7 Q. Looking at claim 1 of the '156 patent, do
8 you know if that's a device claim or a method claim?
9 **A. I'm not, like I said, I've heard the note**
10 **device and the method. I don't know.**
11 Q. Okay. Fair enough. Sir, is there
12 anything in claim 1 that requires the implant to be
13 capable of use for a trans-psoas lateral approach?
14 **A. I understand your question, but can you**
15 **qualify for me just a little bit that the, whether**
16 **claim 1 requires it to be, that's your words.**
17 Q. Um-hmm.
18 **A. Okay. To the best of my ability as I'm**
19 **reading this claim 1, because it requires that the,**
20 **there is a first and second marker in the two**
21 **sidewalls, and in the central region, this was really**
22 **designed to allow this cage to use those two markers,**

1 **and those two markers are designed to identify a**
2 **midline and for it to be lined up with the spinous**
3 **process, therefore, to me this one here, the claim 1**
4 **is the beginning or is a main -- I should say the**
5 **main element of qualifying that it is, can be used as**
6 **a lateral approach to be able to identify midline.**
7 Q. Okay. Sir, but let me ask it a different
8 way. If an implant meeting these structural
9 elements can be used in a different approach, say a
10 posterior lateral approach, is it also covered by
11 these claims?
12 MR. AMON: Objection; incomplete
13 hypothetical. Go ahead.
14 **A. If you using this, the claim 1 from a**
15 **posterolateral approach, the two markers in the**
16 **midline has no meaning.**
17 Q. Do the markers preclude the implant from
18 being used in a posterior lateral approach?
19 **A. As I said, it doesn't add any information**
20 **and it could be confusing.**
21 Q. Let me approach this a different way, sir.
22 In your Declaration, beginning at Page 33

1 -- strike that -- Page 34, you talk about the
2 Medtronic Clydesdale. Do you recall that, sir?
3 Actually it does begin at paragraph 64, Page 33.
4 **A. Your question again one more time,**
5 **Counselor, please?**
6 Q. Do you recall discussing Medtronic's
7 Clydesdale in your opinion?
8 **A. Yes, sir.**
9 Q. Okay.
10 MR. SCHWARTZ: I'm going to mark
11 this as MSD 1020.
12 (Exhibit MSD 1020, Medtronic
13 OLIF25 Procedure document, marked for
14 identification, this date.)
15 EXAMINATION BY MR. SCHWARTZ:
16 Q. Sir, I'm going to hand you what's been
17 marked as MSD 1020 which for the record is the
18 Medtronic OLIF 25 Procedure, an oblique lateral
19 interbody fusion for L2 to L3 surgical technique.
20 Sir, I'll represent to you that Medtronic
21 markets that Clydesdale implant for use in that OLIF
22 or oblique lateral interbody fusion, so with that as

1 the background, sir, my question is since the
2 Clydesdale can be used in an oblique lateral
3 interbody fusion as opposed to a trans-psoas lateral
4 interbody fusion, does it mean that that implant is
5 not covered by those claims?
6 MR. AMON: Objection; outside the
7 scope. Take all the time you need to
8 review the documents, Doctor.
9 MR. SCHWARTZ: It can't possibly
10 be outside the scope because he's
11 opining on the scope of the claims.
12 You can answer, sir.
13 THE WITNESS: Let me take a quick
14 look at this.
15 MR. SCHWARTZ: Sure.
16 THE WITNESS: I'm almost there.
17 MR. SCHWARTZ: Sure, sir.
18 THE WITNESS: Please ask your
19 question one more time.
20 (Whereupon, the pending question
21 was then read.)
22 **A. I'm looking at the Clydesdale and the**

1 **Clydesdale has a midline marker. And if we look at**
2 **the AP, true AP picture photograph on Page 18, we're**
3 **looking at an implant that is requiring the middle**
4 **markers to be focused on the spinous process.**
5 Q. Which figure, sir?
6 **A. Figure 44.**
7 Q. Okay.
8 **A. So the authors here, Dr. Hynes,**
9 **Dr. McMillain and Dr. Kwan, use the approach from an**
10 **anterior lateral oblique approach, but at the time of**
11 **introduction of the cage, literally move this into**
12 **true lateral position.**
13 Q. Okay.
14 **A. So the skin incision as we talk about is**
15 **anterior lateral, but the implantation of the cage**
16 **itself is a true lateral, and as shown in the**
17 **drawings here, we are -- put a patient in the true**
18 **lateral position and then we are taking X-rays**
19 **coaxial with true AP, with the spinous process in**
20 **midline.**
21 Q. That's the position of the patient,
22 correct, sir?

1 **A. Correct. And also the final picture here**
2 **of the documentation shows the cage to be truly AP,**
3 **because the X-rays, so it's not in position of**
4 **patient, it's done for a reason. So now you shoot a**
5 **true AP and now you have the spinous process equal**
6 **distance to the two pedicles along with the lateral**
7 **that we are looking at, the final picture here, to**
8 **show that the -- you really need to line up to make**
9 **sure that the implant in the lateral plane also is**
10 **not an oblique angle to the implant as put in, the**
11 **final position of implant is truly lateral from edge**
12 **to edge.**
13 **So because of the two middle markers lined**
14 **up with the spinous process with this quote, unquote,**
15 **oblique anterior lateral -- anterior lateral**
16 **approach, the cage is really put in truly lateral.**
17 Q. Okay.
18 **A. So your question is can it not be put in in**
19 **an oblique angle. This is not put in oblique angle,**
20 **not in the vertebral body.**
21 Q. Not my question, sir, but I appreciate
22 your point. My question, sir, is since this implant

1 is not put in in a trans-psoas lateral approach,
2 does that mean that it is not covered by claim 1 of
3 the '156 patent?
4 **A. You're asking me this implant because is**
5 **not put in trans-psoas.**
6 Q. Um-hmm.
7 **A. And then the next portion?**
8 Q. Let's take it one at a time. It's not put
9 in trans-psoas, correct, sir, because it comes in
10 anteriorly?
11 MR. AMON: Objection; assumes
12 facts not in evidence; incomplete
13 hypothetical.
14 **A. I know these surgeons and I know what they**
15 **teach. I've been there.**
16 Q. Okay.
17 **A. And I've used the Clydesdale.**
18 Q. I understand.
19 **A. And so when you are doing in the upper**
20 **lumbar, you can go in anterior to the psoas.**
21 Q. Okay.
22 **A. But when you get down to L3-4 some of the**

1 **time and then at the L4-5, you cannot go in anterior**
2 **oblique. You have to go trans-psoas, the psoas**
3 **muscle is there and there's no way to retract it.**
4 Q. In the circumstance where you can go in
5 anteriorly and not go through the psoas as you just
6 described, does that implant meet the terms of the
7 claim?
8 **A. Then this is only limited to the upper**
9 **lumbar spine.**
10 Q. In any instance where you put it in
11 anteriorly without going through the psoas muscle.
12 **A. This implant that you're using is still put**
13 **in whether it be anterior to the psoas or exactly**
14 **trans-psoas, but it lies true lateral so you're still**
15 **lining this up on the patent '156 of the two medial**
16 **markers being lined up. When they are lined up, it**
17 **means it is true lateral.**
18 Q. Okay. Sir, that's not my question.
19 My question is, for an implant that is not
20 put in in a trans-psoas approach, is it covered by
21 claim 1 of the '156 patent?
22 MR. AMON: Objection; asked and

1 answered.
2 **A. Claim 1 doesn't say trans-psoas.**
3 Q. Okay.
4 **A. Claim 1 really just says two medial markers**
5 **are lined up, mean it's a lateral approach.**
6 Q. So you would agree that claim 1 does not
7 require an implant to be put in trans-psoas,
8 correct?
9 **A. I didn't say that.**
10 Q. Okay.
11 **A. I just said claim 1 shows a two medial**
12 **markers lined up on an -- on the AP view, so it**
13 **really stands lateral to lateral of the vertebral**
14 **body.**
15 Q. Does claim 1 require that you put the
16 implant in through the psoas muscle?
17 **A. It did not.**
18 Q. Okay. Where do you see in the claim that
19 it requires the markers to line up in an AP view?
20 **A. The two medial markers are put there for**
21 **the purpose that it is really to exemplify location**
22 **so there's no rotation to the implant. That's the**

1 **intent.**

2 Q. Okay, sir, we'll agree there's two

3 markers. Do you read the claim as requiring that

4 those markers are lined up in the AP view?

5 **A. As one skilled in the art, when you put in**

6 **any markers, there is a strategic or there is a --**

7 **invent a reason for the markers, otherwise they are**

8 **redundant. So as one skilled in the art, myself and**

9 **others, seeing the two markers at midline, there's a**

10 **reason that you want to line them up for the safety**

11 **of the patient and for the stability of the**

12 **construct. That's the intent of the invention.**

13 Q. And if the markers are not lined up when

14 the implant is inserted, does that implant no longer

15 infringe?

16 MR. AMON: Objection; outside the

17 scope.

18 **A. I'm not an attorney. I couldn't even tell**

19 **you whether it should be a patent should be --**

20 **whether there is a method or whether it's an implant.**

21 **So I can't answer your question.**

22 Q. Okay. Fair enough. While we are on the

1 topic of the two midline markers, sir, is it useful
2 to know if the markers are not lined up in the AP
3 view? Does that tell you something?
4 **A. Yes, it does.**
5 Q. What does it tell you?
6 **A. It tells you that the device is oblique or**
7 **rotated.**
8 Q. So in a hypothetical where a surgeon wants
9 to put in an implant in the oblique, do those
10 markers give him information to advise him that they
11 have been put in in the oblique?
12 MR. AMON: Objection; incomplete
13 hypothetical, but go ahead.
14 **A. In the lumbar spine you don't want to put**
15 **in an implant of this length that we are talking**
16 **about that is spanning cortex to cortex. If you want**
17 **to put in a short implant, you can put in an oblique**
18 **as long as totally contained within the annual wall.**
19 **But when you going to use a longer implant,**
20 **if it's long and then is oblique, okay, that is not**
21 **something a surgeon would like to do, somebody who is**
22 **skilled in the art, because on the opposite side**

1 **where, when you're penetrating the cortex, you may**
2 **have one edge of the implant not weight bearing if**
3 **it's oblique because the long implant is supposed to**
4 **span it, and because the corner may be non-weight**
5 **bearing. The second reason is that that corner which**
6 **is protruding could be abutting against vessels. So**
7 **intentionally for the safety of the patient that**
8 **would not be something you would like when you are**
9 **doing this in oblique angle to penetrate and then**
10 **turn an oblique angle. You want to keep it lateral,**
11 **you want to keep it behind the vessels, and you want**
12 **it to be true lateral.**
13 Q. Okay. Sir, you said that if the implant
14 is shorter, you might be motivated to put it in in
15 the oblique, correct?
16 **A. You can put it in oblique, sure.**
17 Q. And in that circumstance, having middle
18 markers, would tell you that it is inserted
19 obliquely, correct?
20 **A. It will tell you that you're not true**
21 **lateral.**
22 Q. So it would tell you that it's in

1 obliquely?
2 **A. It wouldn't let you know which direction of**
3 **oblique, but it would tell you you are not in a true**
4 **lateral position, I mean the true side to side**
5 **position, yes, sir.**
6 Q. Okay. So putting it another way, it would
7 tell you that it's in at an angle relative to the AP
8 view?
9 **A. Yes.**
10 Q. Okay. Do you need a break, sir?
11 **A. No, I'm okay.**
12 Q. Sir, in the '156 patent, Exhibit MSD 1115,
13 I'd like you to turn to column 5, '156 patent, sir.
14 I'm referring to the '156 patent, sir. It's this
15 document here.
16 **A. Sorry.**
17 Q. No problem. If you could turn to column
18 5?
19 **A. I'm not used to looking --**
20 Q. I understand, sir. It's a unique type of
21 a document.
22 **A. It will be words.**

1 Q. Do you see column 5, sir?
2 **A. Yes.**
3 Q. Starting at around line 29, I'll go ahead
4 and read the sentence so you don't have to. It
5 says: "The implant 10 is particularly suited for
6 introduction into the disc space via lateral
7 trans-psoas approach to the spine, but may be
8 introduced in any of a variety of approaches such as
9 posterior, anterior, anterolateral and
10 posterolateral without departing from the scope of
11 the present invention, (depending upon the sizing of
12 the implant 10.)"
13 Did I read that correctly, sir?
14 **A. That's correct.**
15 Q. Do you agree with that sentence, sir?
16 **A. I agree.**
17 Q. Okay. So it's fair to say that the
18 implant being claimed is not limited to a lateral
19 trans-psoas approach but may be introduced in a
20 variety of other approaches, correct, sir?
21 **A. Depending upon the size and length of the**
22 **implant.**

1 Q. Right. So if it fits in the
2 intervertebral space and can be put in safely, it
3 would apply, correct?
4 **A. Yes.**
5 MR. AMON: Objection;
6 mischaracterizes the scope of claim 1.
7 MR. SCHWARTZ: Your expert is
8 testifying about the scope of claim 1
9 and he answered the question. Unless
10 you're going to say he's not competent
11 to testify about the scope of the
12 claim.
13 MR. AMON: If you want to engage
14 in discussion, I'm not saying that.
15 I'm making the objection for the
16 record.
17 MR. SCHWARTZ: Sir, while we're
18 at it, why don't we go ahead and get
19 the other implant or other patent into
20 the record. This is MSD 1013.
21 (Exhibit MSD 1013, 8,187,334
22 patent, marked for identification,

1 this date.)
2 EXAMINATION BY MR. SCHWARTZ:
3 Q. I'm going to hand you, sir, what's been
4 marked as MSD 1013 and ask you to identify that
5 document, sir.
6 **A. Yes, sir.**
7 Q. Is that the patent that you opined on, the
8 '334 patent, sir?
9 **A. Yes.**
10 Q. Okay. Now, I'm going to try to cover some
11 of the same ground we just did with the '156 just to
12 see if your answers are the same. I apologize for
13 the duplication but they are two different patents.
14 So if you would, sir, turn to, again,
15 column 5 at about the same place, line 29. You see
16 there, sir, starting about line 29, the same
17 sentence that I just read into the record with
18 regard to the '156 patent, correct, sir?
19 **A. Yes.**
20 Q. So as with your conclusion on the '156
21 patent, is it fair to say that the claims of the
22 '334 patent do not require that the implant be

1 introduced by a lateral trans-psoas approach, but
2 also may be introduced by a variety of other
3 approaches?
4 MR. AMON: Objection;
5 mischaracterizes his testimony and is
6 misleading with respect to the
7 document.
8 Dr. Yuan, take as much time as
9 you want to review the claims in the
10 '334.
11 **A. I will say again that this will be**
12 **dependent on the sizing of the implant or the length**
13 **and the width.**
14 Q. But as to the claim itself, it doesn't
15 require a specific approach, it can be put in by any
16 approach, correct?
17 MR. AMON: Are you talking about
18 a specific claim, Mr. Schwartz?
19 **A. Would you qualify for me which level, which**
20 **indications.**
21 Q. Is the claim, is claim 1 of the '334
22 patent limited to a particular level or indication?

1 **A. Claim 1 on this '334?**

2 Q. Um-hmm.

3 **A. Claim 1, the answer to, the answer is it**

4 **would limit it, yes.**

5 Q. Where is there a limitation in claim 1 to

6 the level or indication?

7 **A. Claim 1 requires of the longitude and**

8 **length be greater than 40 millimeters.**

9 Q. Okay.

10 **A. As we said before, you can use different**

11 **approaches, now this one here limits the length to be**

12 **more than 44 millimeters or more. So this doesn't**

13 **apply to ability to use this in the other approaches.**

14 **So the answer to your question specifically claim 1**

15 **does limit this to be able to be used only in lateral**

16 **approach.**

17 Q. Is it your opinion that you cannot safely

18 put in a 40 millimeter implant in any other approach

19 other than lateral?

20 **A. I have never used an implant 44 millimeter**

21 **or longer.**

22 Q. 40 millimeter?

1 **A. 40 millimeter or longer in any other**
2 **approach.**
3 Q. But are you saying that a surgeon cannot
4 use a 40 millimeter long implant in any other
5 approach than a direct lateral approach?
6 **A. I don't know what another surgeon would,**
7 **but I would say somebody skilled in the art and**
8 **understand, and understand the anatomy, would not use**
9 **an implant 44 millimeters or longer.**
10 Q. Again, sir, we're talking about
11 40 millimeters, I think your answer is 44.
12 **A. 40 millimeter.**
13 Q. So to be clear, it's your opinion that a
14 person of skill in the art would not ever use a 40
15 millimeter long implant for any approach other than
16 a direct lateral approach?
17 MR. AMON: Objection;
18 mischaracterizes Dr. Yuan's testimony.
19 MR. SCHWARTZ: I'm not
20 characterizing his testimony.
21 MR. AMON: You are, Mr. Schwartz,
22 that's all. That's fine. Go ahead.

1 **A. A 40 millimeter long implant, to be**
2 **implanted into the spine as interbody spacer using it**
3 **safely and efficaciously should only be used on a**
4 **lateral approach.**
5 Q. Okay. So, sir, will it fit into an
6 interbody, in an intervertebral space between L4 and
7 L5 if you put it in at an angle?
8 MR. AMON: Objection; incomplete
9 hypothetical.
10 Q. For an average male.
11 **A. 40 millimeter in an average man.**
12 MR. AMON: I'm sorry, can I have
13 the question read back.
14 (Whereupon, the requested portion
15 of the record was then read.)
16 **A. You can, but it is unsafe. That's the**
17 **reason why surgeons skilled in the art wouldn't use**
18 **it of this length.**
19 Q. But it can fit?
20 **A. It cannot fit most of them, not even an**
21 **average, maybe in a big person, but it would not fit**
22 **the average man, the average would be cortex to**

1 **cortex, that's the reason why I say won't be safe.**
2 Q. So cortex to cortex in a big man at L4/L5,
3 40 millimeters will fit at a diagonal?
4 MR. AMON: Objection; incomplete
5 hypothetical, vague.
6 **A. It depends on the, it's going to depend on**
7 **several variable. One of the main variable is the**
8 **approach and the, the direction.**
9 **So if it was like where Clydesdale that you**
10 **showed me, and you're using the approach of anterior**
11 **but you're truly putting in lateral in all the**
12 **pictures that it showed, okay, and it is really a**
13 **lateral implant. At 40 millimeter using it as an**
14 **oblique would be risky.**
15 **Posteriorly, if you're going anterior**
16 **lateral to posterior, you can potentially injure the**
17 **nerve. If you are going posterior lateral to**
18 **anterior lateral, you can penetrate the cortex, the**
19 **anterior cortex, annulus, so it will be unsafe. So**
20 **as a 40 millimeter cage here, that paragraph that you**
21 **read to me tells me this has to be used laterally.**
22 Q. Okay. Sir, but that's not my question.

1 My question was, for a large man at L4/L5,
2 can you safely put a 40 millimeter cage in without
3 it being direct lateral?
4 MR. AMON: Objection; incomplete
5 hypothetical, asked and answered.
6 **A. I don't think it will be safe to put it in**
7 **because you, you are potentially risk nerve,**
8 **depending on which angle you're putting in, or the**
9 **opposite direction of perforating the anterior or**
10 **annular wall and then would be in contact with the**
11 **vessels, because of the length.**
12 Q. Sir, so your answer is no, sir?
13 **A. That's correct.**
14 Q. Okay. Sir, I'm going to hand you what's
15 been previously marked as NuVasive Exhibit 2020 in
16 case number IPR 2013-00507.
17 (Handed.)
18 Q. I'm going to ask you to identify that
19 document, sir.
20 **A. Yes, sir. This is my Declaration, United**
21 **States Patent and Trademark Office, before the Patent**
22 **Trial and Appeal Board, concerning patent number**

1 **'334.**
2 Q. If you would, sir, turn to Page 29 in that
3 document. I think you're looking at Page 30, sir.
4 29 is to the -- do you see that chart that you have
5 on the top of your report?
6 **A. Yes, sir.**
7 Q. That shows the sizes of NuVasive's
8 Co-Roent XL implants, is that correct?
9 **A. Yes, sir.**
10 Q. Do you see there, sir, on the top
11 left-hand column of that chart, there are five sizes
12 of implants that are 40 millimeters long, correct?
13 **A. That's correct.**
14 Q. And sir, the claim, claim 1 of this patent
15 requires a length of the implant to be greater than
16 40 millimeters, correct?
17 **A. It says 40 millimeters or greater.**
18 Q. Actually, sir, if you look at Exhibit MSD
19 1013, the '334 patent, claim 1, the second element
20 there, I'll read it for you: "Wherein said" --
21 strike that.
22 "Wherein said implant has a longitudinal

1 length greater than 40 millimeters."
2 I read that correctly, right, sir?
3 **A. Yes.**
4 Q. So the claim requires that the implant be
5 greater than 40 millimeters, correct, sir?
6 **A. That's what this read, yes.**
7 Q. So the claim requires that, right, sir?
8 MR. AMON: Objection; asked and
9 answered.
10 **A. That's what it reads.**
11 Q. You seem to be hesitant to agree or
12 disagree?
13 **A. I'm not hesitant. That's what is written.**
14 Q. Okay. So if it's written in the claim, is
15 it required by the claim, sir?
16 **A. Here again I'm not an attorney to try to**
17 **answer. You asked me does it say length greater than**
18 **40 millimeter, my answer to you is that's what I**
19 **read.**
20 Q. And you're opining about the scope of
21 these claims, correct, sir?
22 **A. Yes.**

1 Q. So I'm assuming you have an opinion about
2 the scope of these claims, correct, sir? Do you
3 have an opinion about the scope of these claims,
4 sir?
5 **A. Yes.**
6 Q. And is your opinion that an implant must
7 be greater than 40 millimeters in length to meet
8 this claim?
9 **A. Yes.**
10 Q. Okay. Sir, so going back to the chart in
11 your Declaration, at least those five sizes of
12 Co-Roent XL standard do not meet the limitation of
13 this claim, correct, sir?
14 **A. That's correct.**
15 Q. So they're not covered by the '334 patent?
16 MR. AMON: Objection; asked and
17 answered.
18 **A. That's correct.**
19 Q. Okay. But they are apparently capable of
20 trans-psoas lateral implantation, correct, sir?
21 **A. Trans-psoas lateral implant, the average**
22 **length that we use is usually a 50 is what we**

1 **normally use. So being 40 millimeter we do use it in**
2 **smaller, smaller persons. So it is just a size.**
3 Q. So the 40 millimeter Co-Roent XL standard
4 is capable of being used in a translateral -- strike
5 that.
6 A 40 millimeter long Co-Roent XL standard
7 implant is capable of being used in a trans-psoas
8 lateral implantation?
9 MR. AMON: Objection; asked and
10 answered.
11 **A. In a smaller individual, it is a size that**
12 **can be used.**
13 Q. Do you know if they are?
14 **A. As I mentioned, as I stated, the routine**
15 **sizes or the average size that we use are usually the**
16 **50s. Occasionally the 45s. So the 40 is not a**
17 **common one and I have not used a 40, so that's why my**
18 **answer to you is routinely I use the 50s,**
19 **occasionally the 45s.**
20 Q. So you don't know one way or the other if
21 anybody's ever used a 40 in an XLIF?
22 **A. I don't know that.**

1 Q. Okay. Just so the record's clear, XLIF is
2 a procedure promoted by NuVasive, correct?
3 **A. That's correct.**
4 Q. And that procedure is a trans-psoas
5 lateral procedure, correct?
6 **A. Correct.**
7 Q. What's the goal of a spinal fusion
8 procedure, sir?
9 **A. That's a big word, goal.**
10 Q. Okay.
11 **A. Can you tell me little bit of what**
12 **specifics you would like me to answer? I'd be happy**
13 **to.**
14 Q. Maybe we can make this easier.
15 **A. Thank you.**
16 Q. In your expert report, Exhibit 2020 from
17 506 matter, paragraph 31.
18 **A. Tell me once more, sir?**
19 Q. Paragraph 31, Page 15.
20 MR. AMON: Just so the record is
21 clear, the 506 matter relates to the
22 '156 patent.

1 THE WITNESS: What page again,
2 please?
3 Q. Page 15. Paragraph 31. Page 15.
4 **A. I'm a little bit hard of hearing, I**
5 **apologize.**
6 Q. No problem, sir. I understand. I'm a
7 little hard of hearing myself. Do you see the
8 second sentence in paragraph 31 says: "The goal of
9 interbody fusion, a type of arthrodesis, is to
10 induce bone growth between two vertebrae into a
11 single bony bridge using surgery."
12 Is that correct, sir?
13 **A. Yes, sir.**
14 Q. And you also talk right after that about
15 what the procedure is designed to do?
16 **A. Yes, sir.**
17 Q. Okay. Does the approach that you put the
18 implant in by affect that goal?
19 **A. Can you ask that one more time?**
20 Q. Does the approach -- strike that. I won't
21 try to resay it.
22 The approach that you put the implant in,

1 does that affect the goal you've stated?
2 **A. You can use many approaches. Some approach**
3 **are done open, some approach are done minimally**
4 **invasively, so you are asking me to just generalize**
5 **does approach, any one of those approaches -- are you**
6 **asking me to say do they all try to achieve the same**
7 **goal?**
8 Q. Um-hmm.
9 **A. The answer is yes.**
10 Q. Okay, thank you, sir.
11 MR. AMON: Dr. Yuan, we've been
12 going for an hour and a half. Are you
13 okay?
14 THE WITNESS: I'm okay, if he's
15 okay. And we can go a little bit
16 more.
17 MR. AMON: Miss Petrera?
18 THE COURT REPORTER: I'm fine.
19 EXAMINATION BY MR. SCHWARTZ:
20 Q. Sir, are you familiar with when doctors
21 generally started using a trans-psoas approach?
22 **A. I've done trans-psoas approach 30 years**

1 **ago.**
2 Q. Okay.
3 **A. But was not, not a common approach because**
4 **of the risk, the risk, the risk of weakening the**
5 **psoas muscle but to do the L3-4, L4-5, you have to go**
6 **trans-psoas because the psoas muscle is so big. You**
7 **can't go to the front. And the vessels are in the**
8 **front.**
9 **So what we generally did in the past is to**
10 **make an incision in the beginning quite big, you**
11 **eventually make smaller with better retraction to get**
12 **there but the nerves are there, so the trans-psoas**
13 **approach became, is a developmental thing, became,**
14 **evolved over time, and Dr. Clementa (phon) is the**
15 **first one to start working with this and then**
16 **beginning to use neuro monitoring to make it a safer**
17 **procedure and to become more popular procedure.**
18 **So when you ask me that, we been using it**
19 **in the past when we had to go there, but not as a**
20 **routine.**
21 Q. And is one of the circumstances where you
22 had to go there because there was TB, tuberculosis?

1 **A. Infection.**
2 Q. Infection?
3 **A. Or fracture.**
4 Q. Or fracture, okay, sir. Would you say
5 that the use of neuro monitoring made the
6 trans-psoas approach more generally acceptable?
7 **A. I would use the word that made it lot safer**
8 **and a lot more predictable and also less traumatic**
9 **and could be done minimally invasively.**
10 Q. Do you think the introduction of neuro
11 monitoring motivated more -- strike that --
12 motivated more surgeons to do a trans-psoas lateral
13 approach?
14 **A. I wouldn't say motivated. I would say**
15 **facilitated.**
16 Q. Going back to that 40 millimeter dimension
17 in the claim, sir, that dimension is largely
18 dictated by the anatomy of the patients we are
19 looking at, right, sir?
20 **A. I'm trying to follow you, Counselor. So**
21 **going back to the 40 millimeter, are we going back to**
22 **talking about the patent or we are talking about**

1 **clinical?**
2 Q. Fair question, sir. In the claim 1 of the
3 '334 patent, when we were talking about the length
4 being greater than 40 millimeters, do you remember
5 that conversation?
6 **A. Yes, sir.**
7 Q. The reason it's 40 millimeters is dictated
8 by the patient's anatomy, correct?
9 MR. AMON: Objection; vague.
10 **A. The 40 millimeter length, again, as you're**
11 **referring, going back to the patent of the**
12 **40 millimeters, I keep saying 44, I apologize.**
13 Q. No problem.
14 **A. 40 millimeters length, that is the**
15 **beginning of trying to fit a span of anatomical spine**
16 **in the low lumbar region, so 40 is the low extreme**
17 **and going up to 55, okay. Which is again 40 and 55**
18 **are rare to use, more in the middle are going to be**
19 **the majority. So it is designed to fit the**
20 **anatomical structure, mainly the L4-5 and**
21 **occasionally going down to the 3-4. So it fits**
22 **majority of the patients for sizing and also to be**

1 **able to weight bear and being able to visualize and**
2 **mark it in the location between the two patents of**
3 **the claim 1. I'm sorry, I don't mean to go more.**
4 **I'm just trying to answer your question.**
5 Q. I appreciate it, sir.
6 **A. I'll slow down.**
7 Q. That's just fine for me, sir.
8 Sir, I'm going to turn in your expert
9 report and this again is Exhibit 2020 in the 506
10 matter, I think that's the one you have in front of
11 you, and I'd like to turn to Page 7, talking about
12 the latter part of paragraph 13. In fact the last
13 sentence of paragraph 13.
14 I'll read. "Finally my analysis is based
15 on having personally used both the SVS-PR and
16 Telamon devices in surgery throughout the years."
17 Do you see that, sir?
18 **A. Yes.**
19 Q. I read that correctly?
20 **A. Yes.**
21 Q. Do you recall when you used the SVS-PR?
22 **A. I don't know the exact date here again.**

1 **PLIF was the standard procedure that we did before**
2 **the TLIF. So I don't, I don't know the date, I don't**
3 **recall the date.**
4 Q. Do you recall if it was before 2000?
5 **A. I cannot tell you. I will be totally**
6 **guessing.**
7 Q. And that's for the SVS-PR?
8 **A. And the Telamon. They are both about the**
9 **same time. So I don't remember the date. I've used**
10 **numerous PLIF devices, but I have used these two.**
11 Q. Do you have records that would show that?
12 **A. I have record in the office.**
13 Q. Okay. Is that something that maybe you
14 could call back to your office during a break and
15 find out?
16 **A. I'm retired almost since '07, '08, so my**
17 **files are probably in my days are still on charts,**
18 **not on computers.**
19 Q. Okay.
20 **A. So again, State University of New York**
21 **after so many years, okay, once you have stopped**
22 **practicing, I don't know how long these charts are no**

1 **longer filed. So the answer is not going to be easy,**
2 **but you can, can it be done, with a lot of work you**
3 **probably can.**
4 Q. When did you stop practicing?
5 **A. 2007. That's practicing in the US.**
6 Q. Okay.
7 **A. As far as surgery, I'm still doing, still**
8 **doing surgery.**
9 Q. But you think you would have personally
10 used these products, the SVS-PR and Telamon before
11 2007?
12 **A. Yes.**
13 Q. Do you have a feel for how much before
14 2007?
15 MR. AMON: Objection; asked and
16 answered.
17 **A. I like to tell you but I don't, I don't**
18 **remember.**
19 Q. Okay. Do you recall how many times you
20 used the SVS-PR?
21 **A. I'm hesitating because we have a training**
22 **program, we train a lot of fellows, a lot of**

1 residents, and what is fortunate for me and the
2 university here is that the university allowed us
3 fairly free to use devices in those days, not like
4 now Obamacare, things are changed.
5 So the last few years things have become
6 much harder is what I hear from my younger partners.
7 So we use any new device that came out that is
8 approved, either younger faculty member wants to use
9 it, we allow him to acquire it. So I personally
10 would review it and probably do the first few. And
11 then the rest of the faculty can go ahead and
12 continue to use it if that's what they wish.
13 I know that the Medtronic is very, very big
14 part of a spine practice and I also know that the
15 Synthes and J&J, all three major companies. And then
16 eventually Stryker became a bigger and bigger force.
17 So we use all the products.
18 So this is why I cannot remember how many
19 times I've used it. When I put that down here is
20 with a lot of thought, okay, that I have seen the
21 device, I use the device, and as I read through the
22 patent I recall having used them. I apologize, not

1 **able to give you a number.**
2 Q. Fair enough, sir.
3 MR. AMON: Do you want to quit
4 after you finish this section for a
5 while?
6 MR. SCHWARTZ: This is a good
7 time. Do you want to make this a
8 short break or do lunch now? Up to
9 you. We can make this a short break
10 and do lunch in another hour and a
11 half or so. So make this ten minute.
12 (Discussion off the record.)
13 EXAMINATION BY MR. SCHWARTZ:
14 Q. Back on the record. You understand you
15 are still under oath, right, sir?
16 **A. I am, sir.**
17 Q. Let's go back to your expert, your
18 Declaration, NuVasive Exhibit 2020 for the 506
19 matter which is the '156 patent and turn to, I'd
20 like to address the sentence that is on the bottom
21 of Page 16 and continues to the top of Page 17 in
22 paragraph 35.

1 So I'll read the sentence: "The maximum
2 possible length for an implant as is inserted from
3 either the front or the back of the patient is
4 limited to the depth of the vertebra measured from
5 the anterior to the posterior end of the vertebra."
6 Did I read that correctly, sir?
7 **A. Yes, sir.**
8 Q. Okay. Now, sir, we talked for example
9 about your experience with a posterior lateral
10 implantation. Do you remember that?
11 **A. Yes.**
12 Q. For a posterior lateral implantation, one
13 that goes in at an angle, the length of that implant
14 is not limited to the depth of the vertebra measured
15 from the anterior to the posterior end of the
16 vertebra, correct?
17 MR. AMON: Objection; incomplete
18 hypothetical.
19 **A. May I get a little more clarity in the**
20 **depth, anterior posterior distance obviously as you**
21 **well know, Counselor, remains constant.**
22 Q. Um-hmm.

1 **A. So you are asking me that if you approach**
2 **it from posterolateral, okay, then can you tell me --**
3 Q. Then the length of that implant is not
4 limited by the depth as measured from the anterior
5 to the posterior end of the vertebra because it's at
6 an angle, right, sir?
7 **A. That's correct.**
8 Q. So if it's at a diagonal, it can be longer
9 than the anterior to posterior end of the vertebra?
10 **A. That's correct.**
11 Q. Okay. I'd like to refer you now to your
12 paragraph 39 which is just the next page where
13 you're talking about the Telamon. Do you see that
14 paragraph, sir, it appears in its entirety on
15 Page 18.
16 You mentioned there that the Telamon was
17 designed to be used as a posterior or PLIF implant,
18 correct, sir?
19 **A. Yes.**
20 Q. Okay, sir. And what do you base your
21 opinion that the Telamon was designed to be used as
22 a posterior or PLIF implant?

1 **A. Base that on the patent of Telamon and also**
2 **on the -- because of the sizes of the Telamon there**
3 **was included in the patent and its description that**
4 **it reads intended as a PLIF implant.**
5 Q. So it can be used as a PLIF, right, sir?
6 **A. It is designed to be used as a PLIF**
7 **implant.**
8 Q. Okay. Sir, I'm going to hand you what has
9 been previously identified as MSD 1107. Is that the
10 document that you reviewed for purposes of coming to
11 your opinion about the Telamon?
12 **A. I have --**
13 Q. Or at least one of them?
14 **A. Yes, sir.**
15 Q. Sir, on that document, on the left side of
16 the front, do you see in very small letters the
17 paragraph on the bottom that starts: The
18 Verte-Stack Telamon PEEK, those words?
19 **A. Yes, I can see it.**
20 Q. I'll read at least the beginning part of
21 that sentence. "The Verte-Stack Telamon PEEK,
22 vertebral body spacer is a vertebral body

1 replacement device intended for use in the
2 thoracolumbar spine, (T1 to L5" -- correction --
3 "T1-L5), to replace a collapsed, damaged or unstable
4 vertebral body due to tumor or trauma (i.e.
5 fracture)."
6 Did I read that correctly?
7 **A. That's what you read.**
8 Q. So, and in fact on the right side, in big
9 bold letters, it says: Medtronic Sofamor Danek,
10 Telamon Verte-Stack PEEK Vertebral Body Spacer,
11 correct, sir?
12 **A. Yes.**
13 Q. So in addition to being a PLIF, it's also
14 a vertebral body spacer, right, sir?
15 **A. That's what that says.**
16 Q. Okay. So at least the document says that
17 this product is a vertebral body spacer?
18 **A. That's correct.**
19 Q. And as a vertebral body spacer, as we
20 talked about before, it could be put in laterally,
21 correct?
22 MR. AMON: Objection;

1 mischaracterizes prior testimony.
2 **A. Yes, it can be put in lateral.**
3 Q. And it can be put in at an angle?
4 **A. Yes.**
5 Q. Or anteriorly, correct, sir?
6 **A. It can be put in anteriorly.**
7 Q. Okay. Sir, in paragraph 40, I'm on your
8 report now, sir, I'm not on the Telamon, in
9 paragraph 40 which is on the next page in your
10 report, Page 19, the last sentence, you say: "A
11 small increase in the size of the implant, i.e. a
12 few millimeters difference or a few degrees
13 difference in lordosis can prevent or otherwise
14 hinder the original intended use and can mean the
15 difference between an implant that alleviates pain
16 and one that causes significant additional problems
17 for the patient."
18 I read that correctly, right, sir?
19 **A. That's correct.**
20 Q. Now, when we were talking a moment ago
21 about the claim 1 of the '334 patent requiring the
22 implant to be greater than 40 millimeters, it's

1 correct, isn't it, that an implant that is
2 40 millimeters can also be used for a translateral
3 or -- strike that -- strike that whole question.
4 It's correct that an implant that is
5 40 millimeters long is also usable as a trans-psoas
6 lateral implant, correct?
7 MR. AMON: Objection; asked and
8 answered.
9 **A. Yes, it can be used as we qualified before**
10 **that in a smaller upper lumbar vertebral body because**
11 **the size is smaller.**
12 Q. So at least that small change, the change
13 being the claim requires greater than 40 and the
14 implant is 40, doesn't affect its ability to be used
15 as a translateral -- strike that -- trans-psoas
16 lateral implant, correct, sir?
17 **A. Now your, Counsel, now your comment becomes**
18 **broader because to qualify for use, it has other**
19 **claims, then it becomes depending on the level of the**
20 **vertebral body that you're going to be using it in.**
21 Q. But in some level that implant with the
22 small change of being 40 millimeters as opposed to

1 greater than 40 millimeters is still useful as a
2 trans-psoas lateral implant?
3 **A. The 40 in a smaller vertebral segment can**
4 **be used as a trans-psoas, correct.**
5 Q. So that small change at least doesn't
6 hinder its use for a trans-psoas lateral
7 implantation?
8 **A. That's correct.**
9 Q. Sir, if you would, turn to the paragraph
10 45 which goes from Page 21 to 22. The sentence that
11 begins at the top of Page 22, I'll read it: "The
12 complication of using markers as identified by
13 Dr. Hynes is that the implant can have too many of
14 them."
15 I read that correctly, right, sir?
16 **A. That's correct.**
17 Q. Now, Dr. Hynes did not testify that having
18 two markers in the center of a long implant is too
19 many, did he?
20 MR. AMON: Objection; assumes
21 facts not in evidence.
22 **A. I don't know whether he did specifically**

1 **that sentence or not. If you want to show me**
2 **where -- I don't remember. I read his deposition,**
3 **but if you show it to me, I'm happy to --**
4 Q. So you don't recall if he said that or
5 not.
6 **A. I don't recall.**
7 Q. Okay. Let's start this way.
8 MR. SCHWARTZ: Let's mark this as
9 MSD 1050.
10 (Exhibit MSD 1050, Excerpt of
11 Deposition of Richard Hynes, M.D.,
12 marked for identification, this date.)
13 EXAMINATION BY MR. SCHWARTZ:
14 Q. Sir, I'm handing you what's been marked as
15 MSD 1050 which I'll represent for the record is an
16 extract of Dr. Hynes's deposition transcript. I
17 tried to save the tree and not present multiple
18 copies of a large document. But I do want to refer
19 to the citations that you rely on in your report.
20 Let's turn first to Page 141, line 7 to 16.
21 On Page 141, line 7 to 16, the question:
22 "So then why not, to take it to an extreme, and I

1 recognize that my question is an absurd extreme, why
2 not place 50 markers in it?"
3 I read that question correctly, right,
4 sir?
5 **A. Yes.**
6 Q. Then I interject an objection; and then
7 the answer: "Well, if you place 50 markers, then
8 you basically have a Michelson and then you can see
9 everything. It's more than you need to know.
10 That's a metal cage. So you can't see the bone
11 graft. That's the whole reason we like the PEEK, is
12 so we can see the graft better."
13 Did I read the answer correctly, sir?
14 **A. That's what he answered.**
15 Q. So the question was about 50 markers,
16 right?
17 MR. AMON: Objection; the
18 document speaks for itself.
19 **A. That's what it says. That's what Dr. Hynes**
20 **declared.**
21 Q. That was the question to him, was about 50
22 markers, correct?

1 **A. That's correct.**

2 Q. Not about two in the middle or some number

3 on an end.

4 **A. That's correct.**

5 Q. Okay. So he certainly didn't say on this

6 page that it would be confusing or complicated or

7 too many to have two markers in the middle, did he?

8 MR. AMON: Objection. The

9 document reads what it reads.

10 **A. I'm reading here as you read to me, the**

11 **question was an absurd number of 50 markers and**

12 **Dr. Hynes answered in his opinion, only, and then you**

13 **can see everything. That's what he said.**

14 Q. So he wasn't saying that two markers in

15 the middle made it confusing, right?

16 **A. There is no indication at all and I cannot**

17 **derive anything from him, what he's trying to imply.**

18 Q. Okay. Well, I'm just asking you, sir,

19 because you cited to this for support for your

20 statement of what Dr. Hynes said. So I'm just

21 asking you about that, okay. I'm trying to

22 understand your conclusion based on his testimony.

1 And I want to make it clear that at least for this
2 question and answer, Dr. Hynes is not saying that
3 it's complicated to put two markers in the center,
4 correct?
5 **A. I'm trying to understand what, what you are**
6 **asking me to answer.**
7 Q. Let me try it a different way, sir. I'm
8 sorry, were you answering? I didn't mean to
9 interrupt.
10 **A. I'm trying to understand from this**
11 **paragraph how you got to where you are.**
12 Q. Okay.
13 **A. So please, tell me one more time what**
14 **specifically --**
15 Q. Is there anything in this question and
16 answer that would tell you that Dr. Hynes believes
17 or thinks that putting two markers in the center of
18 a long implant is complicated?
19 **A. No.**
20 Q. Okay. Thank you, sir.
21 Sir, why are there markers in the middle
22 of the implant claimed in the '156 patent?

1 MR. AMON: I'm sorry, can you
2 repeat the question.
3 (Whereupon, the pending question
4 was then read.)
5 MR. AMON: Thank you.
6 **A. I read that to tell me that those two**
7 **markers that are put in the middle has a strategic**
8 **indication and benefit.**
9 Q. What is that strategic indication and
10 benefit?
11 **A. It's meant to be used in a lateral cage**
12 **that it will allow you to line up to the spinous**
13 **process and allow you to know the obliquity or**
14 **rotation of the implant so it will be implanted in**
15 **the safest and also the proper weight bearing**
16 **fashion.**
17 Q. Okay. So if you wanted to put in a long
18 implant laterally, you would be motivated to put two
19 markers in the middle?
20 MR. AMON: Objection;
21 mischaracterizes Dr. Yuan's testimony.
22 **A. What do you mean you will be motivated?**

1 Q. Sir, do you not understand the word
2 motivated?
3 **A. I'm trying to understand your question, so**
4 **if you can clarify it I will appreciate it.**
5 Q. Do you have an understanding of the word
6 motivated, sir?
7 **A. I don't see the word motivated and the**
8 **question that you asked as something that, that I**
9 **understand.**
10 Q. Do you have an understanding of the word
11 motivation? I mean you've used it in your report.
12 I can point you to it if you want.
13 **A. It would be a lot easier if you tell me why**
14 **you're using the word motivated. Maybe use a**
15 **different word to clarify, I can probably answer.**
16 **Otherwise I wouldn't be able to answer. I'm trying**
17 **to understand.**
18 Q. So you cannot answer a question about the
19 motivation to put markers in the center of an
20 implant generally?
21 MR. AMON: Objection. He's
22 asking you for clarification and

1 you're not able to clarify the
2 question.
3 **A. I didn't say I'm not able to answer. I'm**
4 **asking you to tell me why you using the word**
5 **motivation if you can give me an understanding so I**
6 **can understand what you're asking, and there's no**
7 **other words you can use or clarify for me?**
8 Q. Okay. Sir, if you're not saying that you
9 can't answer the question, then I'm going to ask the
10 Court Reporter to read the question again.
11 (Whereupon, the pending question
12 was then read.)
13 MR. AMON: I'm going to interpose
14 an objection as vague as to time.
15 **A. I don't mean to interrupt you, but I don't**
16 **understand the word; why you could not clarify for**
17 **me, why you would stick to the one with motivated.**
18 **The word motivated in that sentence that you are**
19 **asking, I don't understand.**
20 Q. Okay. So you don't -- so your answer is
21 you can't answer that question?
22 MR. AMON: That's not his answer.

1 Q. Is that correct?
2 **A. I did not say I cannot answer the question.**
3 **I'm asking you to clarify it for me.**
4 Q. Okay. If you can answer the question,
5 sir, I'm going to ask you to answer it. So I'll ask
6 the Court Reporter to read it again.
7 (Whereupon, the pending question
8 was then read.)
9 MR. AMON: Objection; vague, and
10 vague as to time.
11 **A. I come back to ask you to clarify the word**
12 **for me so I can understand.**
13 Q. Okay. So without clarification, you
14 cannot answer that question?
15 **A. That's correct.**
16 Q. Okay. I'll move on.
17 Sir, on the paragraph or the sentence that
18 runs on the bottom of Page 22 to the beginning of
19 Page 23, I'll read it for the record.
20 **A. Which document.**
21 Q. Same document we've been reading from.
22 I'm sorry. The Exhibit 2020, Declaration of Hansen

1 **A. Yuan, case IPR 2013-00506.**
2 **Paragraph 47, the sentence from the bottom**
3 **of 22 to the top of 24. I'll read it: "Of**
4 **particular note is that the positioning of the**
5 **radiopaque markers proximal to the medial plane of**
6 **the implant represents a novel placement that had**
7 **not been necessary or even contemplated for PLIF**
8 **implants such as the SVS-PR and Telamon, and that**
9 **the claim requirements for longitudinal length,**
10 **maximum lateral width and the relationship between**
11 **the length being greater than the maximum width,**
12 **exclude anterior implants such as Baccelli."**
13 **Did I read that correctly, sir?**
14 **A. Yes.**
15 Q. So the part of the sentence where you talk
16 about the positioning of radiopaque markers proximal
17 to the medial plane of the implant, that was shown
18 in Baccelli, correct, sir?
19 **A. Can you show me Baccelli's?**
20 Q. Absolutely.
21 **A. Thank you.**
22 Q. Sir, I'm handing you what's been

1 previously identified as MSD 1004 which I'll
2 represent for the record is the Baccelli patent
3 application US 2003/28249.
4 (Handed.)
5 MR. AMON: Thank you.
6 Q. So, sir, to restate the question.
7 **A. Please.**
8 Q. Baccelli does show the positioning of
9 radiopaque markers proximal to the medial plane of
10 the implant, correct?
11 **A. Can you show me on this drawing which ones?**
12 Q. Sure. Markers 24 here and there, sir.
13 **A. Yes, thank you.**
14 Q. So Baccelli does show that, correct?
15 **A. Correct.**
16 Q. Sir, I'm going to turn to paragraph 50,
17 which is the next page, Page 24 in your expert
18 report.
19 **A. Which one?**
20 Q. Your expert report, sir. Not Baccelli.
21 You can put Baccelli to the side.
22 So paragraph 50, the second sentence says:

1 "I'm not, however, aware of Dr. Michelson or any
2 other person using one of these implants to actually
3 perform a direct lateral trans-psoas approach to the
4 lumbar spine for a fusion procedure."
5 Do you see that?
6 **A. Yes, sir.**
7 Q. Let me back up a little bit. For direct
8 lateral approach, you could certainly do a direct
9 lateral without going trans-psoas, correct?
10 MR. AMON: Objection; incomplete
11 hypothetical.
12 **A. Let's qualify it just a little bit.**
13 Q. Sure.
14 **A. It can be used in certain aspect of the**
15 **lumbar spine where the psoas muscle is not big, so in**
16 **the upper lumbar or the lower thoracic thoracolumbar,**
17 **the answer is yes.**
18 Q. You can retract the psoas instead of going
19 through it, correct?
20 **A. Again, we qualify little bit, again in the**
21 **upper lumbar, you can. So like a 2-3, the psoas is**
22 **of course attached to T12, T11, so the psoas at that**

1 **level is much thinner and has more of a tendonous**
2 **structure, so that can be retract. Most importantly,**
3 **there is no neuro structures in those levels that**
4 **are -- like a plexus, lumbar plexus that you see at**
5 **L3-4, L4-5, L5-S1. So in the upper lumbar, the**
6 **answer is yes, Counselor.**
7 Q. Okay. And are you aware, you take that
8 sentence and take out the word trans-psoas, is that
9 still the case, you're not aware of Dr. Michelson or
10 any other person using one of these implants to
11 actually perform a direct lateral approach to the
12 lumbar spine for a fusion procedure?
13 **A. Well, my Declaration here is specifically**
14 **inclusive of a trans-psoas approach.**
15 Q. I understand that, sir.
16 **A. And you were asking me a hypothetical.**
17 Q. Well, no, sir. I'm not asking you a
18 hypothetical. I'm asking you, this sentence as I
19 understand it, is providing your awareness of what
20 any other person did, correct, and all I'm doing is
21 saying if you take out the word trans-psoas, is the
22 same true?

1 **A. I'm stating specifically for the**
2 **trans-psoas.**
3 Q. I understand that, sir. What I'm asking
4 you is are you aware of anyone using an implant as
5 described in the Michelson '973 patent to perform a
6 direct lateral approach to the lumbar spine for a
7 fusion procedure?
8 **A. I've done it.**
9 Q. You've done it?
10 **A. Correct.**
11 Q. Okay. So you are aware of other people
12 doing that?
13 **A. But a trans-psoas approach, the answer is**
14 **no.**
15 Q. Okay. And do you recall when you did it,
16 sir?
17 **A. I don't remember the dates. It's 20 some**
18 **years ago.**
19 Q. Just one time or a number of times?
20 **A. I've done it on two cases.**
21 Q. Okay.
22 **A. I've done it on two cases. I don't know**

1 **somebody else.**

2 Q. Are you aware of others having done it as

3 well?

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

5 Q. Okay. Have you ever heard of a

6 Dr. Bergey, B-E-R-G-E-Y.

7 **A. B-E-R-G-E-Y, no; no, sir. Where is he?**

8 Q. I'm sorry, say that again?

9 **A. Where is he?**

10 Q. Good question, sir. I'll see if I can

11 answer your question.

12 **A. Thank you.**

13 Q. Maybe at Cedar Sinai?

14 **A. Cedar Sinai in Los Angeles?**

15 Q. Yes.

16 **A. I don't know him. I do know most of the**

17 **spine surgeons there.**

18 Q. Okay. I'm going to go ahead and mark

19 this. We'll chat about it. We'll make this MSD

20 1051.

21 (Exhibit MSD 1051, Endoscopic

22 Lateral Transpsoas Approach to the

1 Lumber Spine article, marked for
2 identification, this date.)
3 EXAMINATION BY MR. SCHWARTZ:
4 Q. Sir, I'm going to hand you what's been
5 identified as MSD 1051.
6 **A. Thank you.**
7 Q. I appreciate you may not be familiar with
8 it, so I'm not asking you to read the entirety of
9 it. I'm just asking if you are familiar with that
10 at all?
11 **A. I'm not, I've not read this article itself.**
12 Q. So when you made this statement in your
13 report that you were not aware of Dr. Michelson or
14 any other person using one of these implants to
15 actually perform a direct lateral trans-psoas
16 approach to the lumbar spine for a fusion procedure,
17 you didn't have this article by Dr. Bergey in mind?
18 **A. That's correct. I've not seen this before.**
19 Q. Okay. Now, I'll point you to a sentence
20 on the first page where it says Materials and
21 Methods.
22 **A. Yes, sir.**

1 Q. It says: "21 patients underwent lumbar
2 spinal fusion via a lateral endoscopic trans-psoas
3 approach between March 1996 and August 2002."
4 Did I read that correctly?
5 **A. Yes.**
6 Q. So at least assuming this is correct, and
7 I know you don't have personal knowledge of that, if
8 this is correct, then that would be at least an
9 other person that did a direct lateral trans-psoas
10 approach to the lateral spine for a fusion
11 procedure, correct?
12 MR. AMON: Objection;
13 mischaracterizes the document or
14 actually assumes facts not in
15 evidence. Dr. Yuan, take the time you
16 need to review the document so that
17 you can answer Mr. Schwartz's
18 substantive questions.
19 MR. SCHWARTZ: I'm only asking
20 about that sentence, sir. I
21 understand you're not familiar with
22 this document. And I'm asking you the

1 hypothetical of if that sentence is
2 correct.
3 MR. AMON: Your question also
4 assumes facts that he would need to
5 gather from reviewing the article.
6 MR. SCHWARTZ: Please stop
7 coaching the witness.
8 MR. AMON: Not coaching.
9 MR. SCHWARTZ: Please stop
10 coaching the witness.
11 MR. AMON: I'm not coaching.
12 MR. SCHWARTZ: You are coaching
13 and you need to stop.
14 MR. AMON: Mr. Schwartz, please
15 don't raise --
16 MR. SCHWARTZ: Mark this record.
17 MR. AMON: Mr. Schwartz, please
18 don't raise your voice, because,
19 honestly, it's concerning to me and
20 it's concerning to the witness. So to
21 the extent you're going to continue to
22 raise your voice, we are going to take

1 a break.
2 MR. SCHWARTZ: So the record is
3 clear, I did not raise my voice and we
4 need to mark this specific location on
5 the record so that we can bring it to
6 the attention of the Patent Office if
7 it persists.
8 THE WITNESS: Can you ask the
9 question one more time? I apologize,
10 after your --
11 (Whereupon, the pending question
12 was then read.)
13 THE WITNESS: Can you ask the
14 question one more time?
15 (Whereupon, the requested portion
16 of the record was then read.)
17 MR. AMON: Objection; assumes
18 facts not in evidence.
19 THE WITNESS: Your question that
20 you asked me to, I read that sentence,
21 and the dates, my answer to you is
22 that's what this paragraph stated.

1 EXAMINATION BY MR. SCHWARTZ:
2 Q. Okay. Going down to paragraph 51, you
3 talk about Dr. Paul McAfee, and you refer in the
4 third sentence to the fact that -- I'll read the
5 sentence. "Moreover, those procedures were
6 performed using a retracted psoas approach to the
7 spine, not a trans-psoas path."
8 Did I read that sentence correctly?
9 **A. That's correct, sir.**
10 Q. So Dr. McAfee performed lateral fusion
11 procedures by retracting the psoas, correct?
12 **A. Yes.**
13 Q. The next sentence you say: "The implants
14 that we were using were not commercially available."
15 Do you see that?
16 **A. Yes.**
17 Q. Why did you use an implant that was not
18 commercially available?
19 **A. We didn't have one long, long cage, and we**
20 **at that particular time stack one cage behind the**
21 **other to gain the length. So it was approved cages**
22 **for use in the lumbar spine and thoracolumbar spine,**

1 **and it's IRB approved, it's FDA, it's in compliance**
2 **with FDA ruling. We didn't have any other cage, any**
3 **other implants that we can use for those cases, so we**
4 **use one cage behind the other, so-called stacked.**
5 Q. But the implant that you were using that
6 was not commercially available was not a stacked
7 implant, right, it was a longer implant, correct?
8 **A. Later on we got custom implants.**
9 Q. Right.
10 **A. At a later time. And those are the ones**
11 **that Regan's cases came afterwards, so Regan is a**
12 **fellow of McAfee's, so we, the ones I've done are not**
13 **commercially available, the long cage, so we stack**
14 **one behind the other to gain the length. And**
15 **eventually when Regan did it, he used customized**
16 **implants.**
17 Q. Long BAKs, correct?
18 **A. Long BAKs, but I was not aware that he**
19 **published this article.**
20 Q. Okay. Sir, if you would turn to Page 31,
21 the same document we've been looking at, 2020. And
22 it's the bottom of paragraph 60, the first full

1 sentence on the page, top of Page 31, it says:
2 "Having two radiopaque markers also allows a surgeon
3 to see in an anterior to posterior X-ray view
4 whether the implant is askew and the degree to which
5 the implant is askew."
6 Did I read that correctly?
7 **A. Yes, sir.**
8 Q. Now, sir, referring back to the Baccelli
9 implant with the two radiopaque markers in the
10 center, would you also be able to tell whether the
11 implant is askew and the degree to which the implant
12 is askew, using the Baccelli configuration?
13 **A. Counsel, what you point to me are the two**
14 **medial markers on the Baccelli, are these two, am I**
15 **correct?**
16 Q. Correct.
17 **A. This implant is a cervical implant. And a**
18 **cervical implant is done with anterior approach to**
19 **the cervical spine.**
20 Q. Okay.
21 **A. So these two spikes that are put in there**
22 **will allow you to take an AP X-ray but they are not**

1 **in the quote, unquote, AP plane. They are in the**
2 **middle of this implant because this is an anterior**
3 **implant, so I'm trying to understand what you're**
4 **trying to ask me so that I can answer properly.**
5 Q. Okay. If you were to take an X-ray view
6 from the side, not anterior to posterior, would you
7 be able to tell from those markers if the implant is
8 askew and the degree to which the implant is askew?
9 **A. The answer is yes, as long as they were**
10 **true lateral picture.**
11 Q. Okay. Thank you.
12 **A. Thank you for the qualification.**
13 Q. Let's turn to paragraph 76 of your
14 Declaration where you're defining what a person of
15 the ordinary skill in the art is.
16 **A. Yes, sir.**
17 Q. And you generally agreed with Dr. Hynes's
18 definition, correct?
19 **A. Yes, sir.**
20 Q. But where you deviated was adding the bold
21 words, Designing and Testing, correct?
22 **A. Yes, sir.**

1 Q. Why does a person of skill in the art need
2 to have experience, two to three years of
3 experience, designing and testing as opposed to just
4 designing?
5 **A. You can design something because that's**
6 **something that you like to have, and if you don't do**
7 **the testing you don't know how it will really apply**
8 **or don't do enough of what we call accumulation of**
9 **data to be able to make a better judgment.**
10 Q. So if someone designs, someone has two to
11 three years experience designing but not testing, in
12 your opinion that's not a person of skill in the art
13 relevant to the inquiry we are doing here?
14 **A. If someone is designing something, we see a**
15 **lot of design that comes through and unless they**
16 **really have information on it, those designs don't go**
17 **anywhere.**
18 Q. Okay. But it's your opinion that someone
19 who only designs but doesn't test and only has two
20 to three years of experience designing, is not a
21 person of skill in the art, correct?
22 **A. I think this is a very, very unique area,**

1 and in order to design something, the ability to know
2 what you've designed works even if the testing is not
3 by yourself, somebody else is doing the testing, but
4 having the data. That's what's important.
5 And so a person of ordinary skill in the
6 field, that I will recognize, I say this because not
7 to belittle anyone, but we have many, many young
8 surgeons coming out that has some wonderful ideas,
9 but until they begin to be able to make sure that
10 it's tested according to a protocol that whether it's
11 established by FDA or established by the university
12 or by lab, then they don't know whether it's going to
13 work.
14 So you've asked me from before many of the
15 cadaver work that we've done, and rightfully so you
16 asked me because you wanted to know, you know,
17 whether I know what the results are, so even then
18 after testing we have great results, okay. I won't
19 say great, I'll say reasonable results that fit the
20 standard, but when you did not look at all the other
21 parameters of what the clinical occasion use it for,
22 and it doesn't fit all the clinical cases, it may fit

1 **some. So I put this in just to be clear that I feel,**
2 **I know somebody like Dr. Hynes probably has this**
3 **experience, unequivocally, because I read his**
4 **designs, I read his patents, okay. So having seen**
5 **those, I'm not discrediting him, I'm saying he has**
6 **the skills, but I have young people who don't have**
7 **the skills and I think that those individuals for us**
8 **to include as a person ordinary skilled in the art**
9 **wouldn't be proper. They will develop the skill at**
10 **the time. It's just a qualification to make it more**
11 **complete.**
12 Q. Okay. Would there -- in your opinion,
13 would there be some number of additional years of
14 designing that could take the place of having
15 experience testing, so for example, where you say
16 two to three years of designing and testing, is
17 there some number of years of just designing that
18 would suffice to qualify that hypothetical person as
19 a person of skill?
20 MR. AMON: Objection; incomplete
21 hypothetical, speculation.
22 **A. I have a wonderful fellow who has done tons**

1 **of designing, and from his designs the ideas never**
2 **came to fruition, okay. So I don't want to say that**
3 **he's not good or not in the field. I can only say**
4 **that it doesn't, it's like a basic scientist only**
5 **without being able to apply it. So when we are**
6 **talking about implant is an applied science, so to go**
7 **to the applied science, I think having both just**
8 **makes it complete. It's just like somebody who can**
9 **do all the testing but can't do any design.**
10 Q. Okay.
11 **A. It would not come up with any ideas. So**
12 **the combination of the two. I'm not so sure that two**
13 **or three years is what's necessary, but in going**
14 **through a residency, if somebody has been exposed to**
15 **this, the time that they finish residency is**
16 **certainly qualified.**
17 Q. Fair enough. How are you doing, sir,
18 okay?
19 **A. I'm okay.**
20 Q. We'll go a little bit longer then and then
21 we'll break for lunch.
22 MR. AMON: Jeff, the Court

1 Reporter had asked me during the break
2 how long you expected to go after
3 lunch.
4 (Discussion off the record.)
5 EXAMINATION BY MR. SCHWARTZ:
6 Q. Let's turn to the next page, talking about
7 the Synthes SVS-PR. And you refer in paragraph 79
8 to the SVS-PR -- I'll just read it: "The SVS-PR was
9 designed to be an interbody spacer that is inserted
10 using a PLIF (posterior) procedure in a direct
11 posterior-anterior direction in the disc space."
12 Did I read that correctly, sir?
13 **A. Yes, sir.**
14 Q. So it's your understanding that the SVS-PR
15 can be used as a PLIF, correct?
16 **A. Correct.**
17 Q. And what did you derive that understanding
18 from?
19 **A. I've looked at the literature and I've**
20 **looked at the description and I've looked at the**
21 **company's guide, so-called surgical instructional**
22 **guide, and all the labeling for this is that it is**

1 **used as a PLIF implant.**
2 Q. Okay. I'm going to hand you what's been
3 previously identified as MSD 1106.
4 (Handed.)
5 Q. Is that some of the literature that you
6 reviewed for purposes of drawing the conclusion you
7 just mentioned?
8 **A. Yes, I've seen this. Thank you.**
9 Q. Okay. Sir, and you'll notice in this
10 document, just like in the Telamon document we
11 looked at before, there's a reference on the
12 Indications on the bottom of the document where it
13 says: "The vertebral spacer is a vertebral body
14 replacement device intended for use in the
15 thoracolumbar spine-T1-L5" -- I'm sorry, "(T1-L5) to
16 replaced a collapsed, damaged or unstable vertebral
17 body due to tumor or trauma, (i.e. fracture)."
18 Did I read that correctly?
19 **A. Yes.**
20 Q. So the vertebral spacer PR is also a
21 vertebral body replacement device, correct?
22 **A. That's what the paragraph reads.**

1 Q. And so it is also a device as a vertebral
2 body replacement device that could be put in
3 anterior, correct?
4 MR. AMON: Objection;
5 mischaracterizes the document. Go
6 ahead, Doctor.
7 **A. The last sentence?**
8 Q. As a vertebral body replacement device, it
9 could also be put in anteriorly?
10 **A. Yes.**
11 Q. And it can also be put in laterally,
12 correct?
13 MR. AMON: Objection;
14 mischaracterizes the document.
15 **A. There's no mention here of what the**
16 **indication or the approach is.**
17 Q. Correct.
18 **A. So all I've seen of the SVS-PR has been as**
19 **the next page really shows, all of the dimensions and**
20 **so on, are that this is for a posterior PLIF**
21 **approach. So I do not see where this said this is**
22 **anterior implantable or lateral implantable device.**

1 Q. But it is discussed as a vertebral body
2 replacement device, correct?
3 **A. It does say that.**
4 Q. And as we talked about before, vertebral
5 body replacement devices can be put in laterally,
6 obliquely or anteriorly, correct?
7 **A. That is correct. But I've never seen one**
8 **of the SVS-PR as a vertebral body replacement.**
9 Q. Okay. And it is designed in the last
10 sentence, I'll read the sentence. "The vertebral
11 spacers are designed to provide anterior spinal
12 column support even in the absence of fusion for a
13 prolonged period", correct?
14 **A. That's what it says here but that's a big**
15 **stretch. But anyway.**
16 Q. That's what it says?
17 **A. That's what it says.**
18 Q. Fair enough. Sir, if you would turn to
19 Page 81 -- I'm sorry, Page 41, paragraph 81, in your
20 opinion. We're still talking about the Synthes PR
21 device.
22 **A. Yes, sir.**

1 Q. The second sentence says: "It does not
2 appear from the SVS-PR documents that the implants
3 have any other radiopaque markers near the middle of
4 the implant nor would they need to given that this
5 is a PLIF implant and that the pair of markers at
6 the posterior and distal walls would provide the
7 surgeon with all of the requisite information and
8 positioning information for a PLIF procedure."
9 I read that correctly, right, sir?
10 **A. That's correct.**
11 Q. Okay, sir, in the hypothetical, where the
12 SVS-PR is made longer, 41 millimeters, and the
13 surgeon wants to put it in laterally, would that
14 surgeon have a reason to put markers in the middle?
15 MR. AMON: Objection; incomplete
16 hypothetical. Vague as to time.
17 **A. This device has several properties that**
18 **really renders it for a lateral implant to be**
19 **incorrect.**
20 Q. Okay. But that's not my question, sir.
21 My question is, if you make it longer,
22 41 millimeters long, and you want it to put it in

1 laterally, would you have a reason to put two
2 markers in the middle?
3 MR. AMON: Objection; incomplete
4 hypothetical, vague as to time.
5 **A. And listening to your question and trying**
6 **to answer you appropriately, if some, if a surgeon**
7 **choose to do this laterally with a longer implant,**
8 **okay, that surgeon even with a longer implant with**
9 **the properties of this implant that is given,**
10 **presented to me in the SVS-PR implant guide or**
11 **description, because a lot of these other properties**
12 **a surgeon would not choose to do this in the lateral**
13 **approach.**
14 Q. Not my question, sir. My hypothetical,
15 the surgeon is putting it in laterally. And it's
16 41 millimeters long. Would he have a reason to put
17 two markers in the middle?
18 MR. AMON: Same objection.
19 **A. Would he have reason.**
20 **Because is a hypothetical and how would a**
21 **surgeon be able to just put two markers in the**
22 **middle.**

1 Q. By any means of manufacturing, sir.
2 **A. But he can't tell somebody to manufacture**
3 **that because that is not the approved device, it's**
4 **not even something that you can use custom. I'm**
5 **just -- I'm --**
6 Q. Sir, getting, putting aside whether the
7 doctor has a manufacturing means to do it, or owns a
8 manufacturing company that could do it, or whether
9 there is some regulatory prohibition that you
10 testified you're not a regulatory attorney about, in
11 the hypothetical where you have the SVS-PR and you
12 make it 41 millimeters long and the surgeon wants to
13 put it in laterally, would he have a reason to put
14 two markers in the middle?
15 MR. AMON: Objection; incomplete
16 hypothetical, vague as to time.
17 **A. I don't know whether I can speak for**
18 **another surgeon. I will speak for myself, that I**
19 **wouldn't put that implant in.**
20 Q. But hypothetical, if the surgeon is
21 putting the SVS-PR in laterally and he has one
22 that's 41 millimeters long, does he have a reason to

1 put two markers in the middle?
2 MR. AMON: Same objection.
3 **A. We go back to somebody who qualifies and**
4 **who is thinking of safety of his patient, he wouldn't**
5 **want to do one without having the markers in the**
6 **middle.**
7 Q. Thank you, sir. In the last sentence that
8 goes from paragraph 41 to 42, I'll read it for the
9 record. "Inside" -- strike that.
10 "Indeed, the SVS-PR has a side aperture
11 often referred to as a visualization window in the
12 medial plane of the implant. These windows are
13 generally designed to help a surgeon visualize bone
14 healing/fusion post-operatively so such
15 visualization windows should not be obstructed by a
16 radiopaque marker passing through."
17 Did I read that sentence correctly?
18 **A. That's correct.**
19 Q. Sir, do you believe that a metal wire in
20 that window obstructs the ability of a surgeon to
21 visualize the bone healing?
22 **A. My statement here is merely to imply that**

1 **any additional obstruction is not beneficial for**
2 **something that doesn't serve a purpose. So if**
3 **something doesn't serve a purpose, then you have to**
4 **make the educated and the appropriate decision. So**
5 **it isn't to say you should not. It's just merely to**
6 **say it is not beneficial to ask something that**
7 **doesn't serve a purpose.**
8 Q. So you're not saying that a single wire
9 across this visualization window obstructs the
10 surgeon's ability to visualize the bone healing?
11 **A. I didn't say is not. I just say that your**
12 **preference would be not to put anything unless is**
13 **really going to serve a purpose.**
14 Q. Okay. Sir, I'll ask the question this
15 way.
16 Does a single wire in that visualization
17 window of the SVS-PR obstruct a surgeon's ability to
18 visualize bone healing?
19 MR. AMON: Objection; asked and
20 answered.
21 **A. Is just better not to put something unless**
22 **it's going to serve a purpose.**

1 Q. Sir, you have windows in your house?
2 **A. I have windows in my mouse.**
3 Q. Do any of those windows have dividers in
4 them?
5 MR. AMON: Objection; relevance.
6 **A. It depends on which house.**
7 Q. Any house.
8 **A. You asked me if I have a house.**
9 Q. Sir, have you ever seen a window that has
10 a divider in it?
11 **A. Yes.**
12 Q. Can you still see out that window?
13 **A. But it does obstruct the view.**
14 Q. To the width of the divider?
15 **A. It just obstructs the view.**
16 Q. But you can still see out the window?
17 MR. AMON: Objection;
18 argumentative.
19 **A. If it serves a purpose there, then I see**
20 **that it makes sense. If it doesn't serve the purpose**
21 **to have something that obstructs the view, doesn't**
22 **benefit.**

1 Q. Can you see out a window that has a
2 divider?
3 MR. AMON: Objection; asked and
4 answered, argumentative.
5 **A. As I've stated, Counsel, it just obstructs**
6 **the view. If it's not necessary I wouldn't put it**
7 **in.**
8 Q. Is the middle marker unnecessary?
9 MR. AMON: Objection; incomplete
10 hypothetical.
11 **A. Can you qualify that?**
12 Q. Are the markers in the center of the
13 implant that's claimed in the '156 patent
14 unnecessary?
15 **A. The '156 patent, the claims are having the**
16 **middle marker is there to serve a purpose. And the**
17 **purpose is to allow you to align the implant and to**
18 **let you know that you are not in any way going to**
19 **have any potential obliquity and perhaps could cause**
20 **harm to the patient. So those markers are put there**
21 **with the defined reason as I said, it has a strategic**
22 **indication, so they are necessary.**

1 MR. AMON: Mr. Schwartz, is this
2 a good time to take a break?
3 MR. SCHWARTZ: Sure. This lunch
4 break?
5 MR. AMON: Yeah.
6 MR. SCHWARTZ: How much time do
7 you think you need? Off the record.
8 (Discussion off the record.)
9 (Proceedings adjourned for luncheon
10 recess at 1:44 p.m..)
11
12 (Change of reporters occured after recess
13 from MARITA PETRERA to PAMELA PALOMEQUE.)
14
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1 EXAMINATION BY MR. SCHWARTZ:
2 Q. Okay, sir, we're back on the record and we
3 are going to continue on in your expert report to
4 facilitate some of this discussion. Since we're
5 getting into a new prior art reference, I'm going to
6 hand it to you and it's already been marked. It's
7 MSD 1005, which for the record is the Michelson
8 patent 5,860,973 also referenced as Michelson '973.
9 I take it, sir, that is the Michelson '973
10 that you opined on in your Declaration at paragraph
11 90 and thereafter? That would be page 45 of --
12 **A. Thank you. Make it easy for me.**
13 Q. -- Exhibit 2020 in the 506 matter. I'm
14 just asking if that is the Michelson '973?
15 **A. I'm sorry, yes. Yes, it is, sir. I'm**
16 **sorry.**
17 Q. No problem, sir. So if you would, sir,
18 look at page 46, the last part of paragraph 90.
19 I'll read that last sentence for the record: "Based
20 upon my knowledge and experience in spine surgery
21 (including my personal experience using lumbar
22 implants and thoracic implants), I believe that a

1 person of ordinary skill in the art in March 2004
2 (and even today) would recognize that Michelson
3 proposes implants in which the width (or diameter in
4 the case of the dowel designs) is quite large even
5 compared to the largest dimension (the length),
6 thereby providing an implant that is both long and
7 wide to fulfill Dr. Michelson's intended purpose of
8 an oversized spinal implant."
9 Did I read that correctly, sir?
10 **A. Yes, sir.**
11 Q. Sir, what I'm wondering is for purposes of
12 your opinion, about the width of Dr. Michelson's
13 implant, whether or not you took into consideration
14 the narrow embodiment that is taught in the '973
15 patent?
16 **A. Can you clarify that for me? How?**
17 Q. I'll say it again, sir. If you look in
18 the '973 patent -- we can take it in order -- figure
19 19 or figure 18 -- and I'm just making a passing
20 reference just to this, and then figure 19 which is
21 at the bottom of that page and shows three modular
22 implants in the intervertebral space.

1 **A. Yes, sir.**
2 Q. And then turn to column 10, beginning at
3 line 48 which refers to those figures I just pointed
4 you to. So I am referring to the discussion from
5 line 48 to about line 59 where it's discussing that
6 alternative embodiment that has a narrower width
7 such that more than one spinal fusion implant 1000
8 may be combined in a modular fashion for insertion
9 within the disk space.
10 Do you see that discussion, sir?
11 **A. Yes. I'm just reading that right now, sir.**
12 Q. Okay. I'll let you read that and you let
13 me know when you're ready to -- for a question.
14 **A. (Witness complies.) Yes, sir.**
15 Q. Okay, sir. So that conclusion that you
16 made at the end of paragraph 90 where you're talking
17 about the width that Dr. Michelson proposes as being
18 quite large, did you take into consideration the
19 narrow embodiment that I just pointed you to?
20 **A. I take -- I understand what**
21 **Dr. Michelson -- and correctly what he's trying to do**
22 **is to gain as wide a weight-bearing surface as he**

1 **can, so I'm looking at these, as he says modular,**
2 **they're modular meaning that they're individual**
3 **pieces that you add on to gain the full width of what**
4 **he will like to get.**
5 Q. But he does disclose a narrower width for
6 a spinal fusion implant, correct?
7 **A. He does disclose a modular unit that he --**
8 **that he so calls stacks together to make it -- to**
9 **achieve what he has purported to be a -- his goal is**
10 **to make it a wide implant. That's what he wanted to**
11 **do so that's what he purported, so the individual**
12 **ones, that he adds them together to make sure they**
13 **are an oversized spinal implant for translateral**
14 **insertion.**
15 Q. Well, he does say may be combined,
16 correct?
17 **A. In his abstract what he says: "Oversized**
18 **spinal implant for translateral insertion into the**
19 **disk space between two vertebrae, a length that is**
20 **greater than one-half of the transverse width of the**
21 **vertebrae and is greater than the depth of the**
22 **vertebrae. The translateral implant of the present**

1 **invention has the height that's greater," et cetera.**
2 **So his goal is to make sure that he**
3 **has a broad surface as he emphasized in his abstract.**
4 Q. But he does say may be combined, correct,
5 sir?
6 **A. He does say that.**
7 Q. So he doesn't say must be combined,
8 correct?
9 **A. Correct.**
10 Q. He doesn't say shall be combined, correct?
11 MR. AMON: Objection; document
12 speaks for itself.
13 **A. That's correct.**
14 Q. And figure 18 is certainly a narrow
15 embodiment of his translateral implant, correct?
16 MR. AMON: Objection; assumes
17 facts not in evidence. Go ahead.
18 **A. As you showed me the figure 18 and the 16,**
19 **17 and 19, it shows the way that he actually implants**
20 **it showing the AP and lateral -- I should say the AP**
21 **and the oblique view to get a better look, so he**
22 **stacks this so you will have it with a triple width**

1 **and we don't have any defined numbers on these here,**
2 **on this page.**
3 Q. But the figure 18 implant that is depicted
4 on sheet 7 of 8 is a narrow width translateral
5 implant, correct?
6 MR. AMON: Objection; vague as to
7 "narrow".
8 **A. From what I read, he is -- he's describing**
9 **one part of his complete implant that he wanted.**
10 Q. So that one part is a narrow width
11 implant, correct?
12 **A. But it is used as a total, that's what his**
13 **intentions are.**
14 Q. But it may be used; we've gone through
15 that?
16 MR. AMON: Counsel, if you could
17 let Dr. Yuan finish his answer,
18 please.
19 Q. Were you done with your answer, sir?
20 **A. He actually states, counsel, in the**
21 **preferred embodiment: The spinal fusion implant has**
22 **a height of 8 and 16 with a preferred height being,**

1 **et cetera; a width in the range of 24 to 32**
2 **millimeters with a preferred width being 26**
3 **millimeter. I apologize.**
4 Q. If you have a patient emergency, sir, we
5 can certainly break.
6 **A. That's okay.**
7 MR. AMON: This is actually maybe
8 more important.
9 THE WITNESS: She got to figure
10 this out without asking me. I'm
11 sorry, I shut it off.
12 MR. SCHWARTZ: No problem.
13 THE WITNESS: My apologies.
14 EXAMINATION BY MR. SCHWARTZ:
15 Q. Were you done with your answer, sir?
16 **A. Yes.**
17 Q. Okay, sir. You just talked about the
18 preferred embodiment. What I'm asking you about is
19 the alternative embodiment, not the preferred
20 embodiment, and I'm just trying to confirm that
21 figure 18 is an embodiment of a narrow width
22 implant?

1 **A. That's correct.**
2 Q. Okay. Thank you, sir. Sir, do you
3 understand the concept of incorporation by reference
4 in a patent? That's why I asked the question, sir.
5 **A. I don't mean to smile but I'm not an**
6 **attorney. I didn't go to law school but would you**
7 **clarify what you would like me to answer to a simple**
8 **surgeon?**
9 Q. Sure, sir. Maybe we'll back up a little
10 bit. For purposes of the opinion that you rendered,
11 did you consider -- before I talk about what it
12 is -- whether or not there was additional
13 information incorporated into the '973 patent by
14 reference?
15 MR. AMON: Objection; vague.
16 Q. I'm just getting at the basis for your
17 opinion now, sir.
18 **A. I know you're going to the basis but the**
19 **language is what I'm trying to -- I'm trying to**
20 **understand.**
21 Q. Let me phrase it a different way then,
22 sir.

1 **A. Please.**
2 Q. When you developed and provided your
3 opinion -- I'm not asking who wrote it -- with
4 regard to the '973 patent, did you read any other
5 document besides the '973 patent itself?
6 **A. I looked at the -- I looked at the other**
7 **patents.**
8 Q. Which other patents?
9 **A. Which is the Telamon, which is SVS-PR, and**
10 **looked at Baccelli, and also looked at the Frey.**
11 Q. But you didn't look at any other Michelson
12 patents?
13 **A. No, I did not.**
14 Q. Okay. Fair enough.
15 **A. Thank you for making it simple.**
16 Q. Are you familiar with Dr. Zdeblick, sir?
17 **A. Yes, I am.**
18 Q. Are you aware of whether or not he
19 implanted a Michelson '973 -- let me strike that.
20 In your sentence at the end of paragraph
21 92, you say: "However, it is my understanding that
22 the implants illustrated in Michelson '973 have

1 never been commercialized and have never been
2 inserted in a live human patient."
3 **A. That's as best as I know, yes, sir.**
4 Q. Are you familiar with Dr. Zdeblick's work
5 in implanting large threaded fusion cages?
6 **A. I know -- I know Dr. Zdeblick. I'm not --**
7 **I don't have any information what he's implanted.**
8 Q. Okay. So you don't know one way or the
9 other what Dr. Zdeblick has done as far as lateral
10 implantations?
11 **A. That would be accurate.**
12 Q. Are you familiar with the Medtronic
13 Butterfly implant?
14 **A. There are so many names. If you show it to**
15 **me, I would be able to try to answer your questions.**
16 Q. I will do that.
17 MR. SCHWARTZ: This will be MSD
18 1021.
19 (MSD Exhibit 1021, Medronic
20 Sofamor Danek Butterfly Fusion System
21 Surgical Technique brochure, marked
22 for identification, this date.)

1 Q. Okay, sir, for the record I have handed
2 you a document marked MSD 1021 which I will
3 represent for the record is a brochure describing
4 the Medtronic Sofamor Danek Butterfly fusion system.
5 Have you ever seen that document before, sir -- I'm
6 sorry, have you ever seen any information about the
7 Butterfly fusion system before?
8 **A. No, I've not.**
9 Q. Okay. So fair to say when you opined that
10 the Michelson '973 had never been commercialized,
11 you certainly didn't consider the Butterfly which
12 you've now indicated you've never seen before?
13 **A. That's correct.**
14 Q. Okay. If I were to represent to you that
15 that product was commercialized, would that change
16 your opinion?
17 MR. AMON: Objection; assumes
18 facts not in evidence.
19 **A. I'm looking at the Butterfly. Dr. Zdeblick**
20 **designed a Z plate, which is a lateral lumbar**
21 **anterior fixation plate, and actually when he**
22 **designed a Z plate, he was taking the concept from**

1 **one of my ideas of using two screws at each vertebral**
2 **level. So he, again, was a fellow of Dr. McAfee, so**
3 **that's how the family tree goes.**
4 Q. Okay.
5 **A. So I have not seen him using the Michelson**
6 **component into a disk space, so when you ask me about**
7 **the Butterfly, I know about a Z plate but I've not**
8 **seen him using this cage in the vertebral space.**
9 Q. I understand, sir. All I was asking was
10 does that change your conclusion that the Michelson
11 '973 has never been commercialized?
12 MR. AMON: Objection; assumes
13 facts not in evidence.
14 **A. This cage that is put in here was not**
15 **intended to be just a cage.**
16 Q. Okay, sir.
17 **A. Okay. So my comment was not a stand-alone**
18 **cage. I haven't seen this either but -- I haven't**
19 **seen either one but here looking at what you just**
20 **showed me, this is really meant to give you better**
21 **fixation of the segment, so what he has is something**
22 **that he can put in and then attach to a fixator**

1 **device laterally. So this is new to me.**
2 Q. Fair enough. So it wasn't considered as
3 far as your opinion was presented?
4 **A. That's correct.**
5 Q. Sir, I'd like to turn back to the OLIF
6 Procedure Manual for a moment. It's in your stack
7 here, marked as MSD 1020. And what I'm specifically
8 curious to get your opinion on, sir, if you turn to
9 figure 4 which is on page number 2 -- well, on the
10 upper left-hand column it's identified as page
11 number 2. It's actually the fourth page of the
12 document. You see figure 4 on the bottom there?
13 **A. Yes.**
14 Q. There's that triangle that's identified as
15 the OLIF 25 trajectory?
16 **A. Yes.**
17 Q. So that's apparently at least one space
18 where Dr. Hynes suggests approaching the vertebral
19 space from the anterior or oblique into the
20 vertebral interdiskal space?
21 MR. AMON: Objection; the
22 document speaks for itself,

1 speculation.

2 **A. I've seen this approach, as we talked about**

3 **before. The soft tissue approach is using that**

4 **space, but once you get to the dock on that space,**

5 **then all the implants that you're putting in, you're**

6 **literally moving implant posteriorly. So also you**

7 **have commented on this in the past. This is really**

8 **attempting to go in at a retracted psoas, so the**

9 **ultimate implant is implanted totally translateral.**

10 **So the approach in the drawing is telling you that's**

11 **where you first dock.**

12 Q. So is it your understanding that it is

13 safe to approach following that triangle?

14 MR. AMON: Objection; incomplete

15 hypothetical.

16 MR. SCHWARTZ: It's not a

17 hypothetical at all.

18 MR. AMON: It is but --

19 **A. This is an approach that is proposed by**

20 **Dr. MacMillan, I know very well, and Dr. MacMillan at**

21 **the University of Florida, okay, is one who is a very**

22 **close friend and also a fellow of mine, so I know his**

1 **approach well. It's an approach that a proposed --**
2 **but this is not too different -- this is not too**
3 **different than what we used to do as an open, of**
4 **going down and then retracting the psoas, but if the**
5 **psoas is very, very big, then in this approach you**
6 **actually cannot see the nerves so that's the reason**
7 **why it just did not become very popular approach for**
8 **surgeon training.**
9 **So it's an approach that you can**
10 **approach the spine but once you do approach the spine**
11 **at the L4-5, there is still other challenges.**
12 Q. But you can approach the spine in that
13 direction following that triangle?
14 **A. You can approach the spine.**
15 Q. Thank you, sir. Sir, if you would turn to
16 paragraph 106.
17 **A. Of which document?**
18 Q. I'm sorry, the same Declaration that we've
19 been going through, deposition of -- I'm sorry,
20 Declaration of Hansen A. Yuan, Exhibit 2020, case
21 IPR2013-506?
22 In fact let's just go back but we'll stay

1 in that document.

2 **A. Yes, sir.**

3 Q. In fact let's move on to a new document.

4 Have I already handed you your Declaration from the

5 507 matter?

6 **A. Yes, I have that.**

7 Q. Okay. Let's go to that. We're moving

8 right along.

9 **A. That's good.**

10 Q. Only two more Declarations to go. Let me

11 ask you this question so that we avoid duplicating

12 effort. For those opinions that you state the same,

13 from one Declaration to another, and there are a

14 number of them, I'm trying to avoid asking the same

15 questions over and over for the exact same

16 sentences. Is it fair to say that the answers

17 you've given me this morning and this afternoon as

18 they relate to the same statements, the answers are

19 the same?

20 **A. The only difference would be they're**

21 **referring to a different so-called set of claims.**

22 Q. Fair enough. But if the question didn't

1 have a predicate of having to do with a specific
2 claim, the answer is the same, so I don't have to
3 keep asking the same sentence from one Declaration
4 to another? I'm just trying to save time.
5 **A. I understand what you're trying to do and**
6 **so am I, but I just don't want to miss something**
7 **because then what my testimony would not be accurate.**
8 Q. I understand that, sir.
9 **A. So that's all I want to suggest.**
10 Q. Okay. I guess we'll take it in turn as
11 the clock allows. Let's move, if you would, to
12 paragraph 52 in Exhibit 2020 of the case number 507,
13 that last sentence that spills over from page 25 to
14 26.
15 MR. AMON: Sorry, Doctor, you're
16 on page 25, page 52?
17 MR. SCHWARTZ: I'm sorry, yes,
18 page 25, paragraph 52.
19 Q. That last sentence that spills over from
20 25 to 26, where you talk about the forces exerted on
21 the implants, aren't the forces on the implant
22 identical once it's inserted regardless of the

1 approach?

2 **A. Counselor, actually the answer is no.**

3 Q. Okay.

4 **A. What I would try to clarify a little bit**

5 **would be if you did an anterior implant, you would**

6 **cover a much broader surface area and the forces that**

7 **exerted are -- because you would actually put in a**

8 **device that's really larger because it can distract,**

9 **put it in, and let it impact. Now the forces loaded**

10 **on that implant is going to be less because some of**

11 **the forces are pushed posteriorly.**

12 Q. I'm sorry, are you talking about a

13 different implant because of the approach?

14 **A. No, from a different approach you will put**

15 **in different implants.**

16 Q. Okay. My question -- maybe I wasn't clear

17 then, sir. What I'm asking then for the exact same

18 implant, once it's in the intervertebral space it's

19 experiencing the same loads regardless of how it got

20 there?

21 MR. AMON: Objection; incomplete

22 hypothetical, assumes facts not in

1 evidence.

2 **A. Again, actually the answer is no. Let's**

3 **take an implant that we put in, say, from**

4 **posteriorly. You put in a posterior implant, a PLIF**

5 **implant. Once you put that implant in -- because a**

6 **PLIF implant that you put in -- now you're talking**

7 **about the same implant, all right? That implant that**

8 **you're putting in has a lordosis that's in the front.**

9 **So the load that's on that implant is**

10 **transferred posteriorly, appropriately, but when you**

11 **take that same implant and you put it in laterally,**

12 **the load that's on the implant is no longer**

13 **transferred posteriorly. The load is being**

14 **transferred laterally because the front end of the**

15 **implant is bigger.**

16 Q. Is that because you're now putting it in a

17 different orientation?

18 **A. Correct, from a different approach but the**

19 **same implant.**

20 Q. If you put in the same implant so that it

21 results in the same orientation in the disk space

22 regardless of how it got there, aren't the loads the

1 same?
2 MR. AMON: Incomplete
3 hypothetical.
4 **A. Just a little bit more clarification. So**
5 **give me an example of which implant so we will be**
6 **exact.**
7 Q. Sure. Let's start with the BAK. You have
8 a lot of experience with that and you can put that
9 implant in from the posterior side or you can put
10 that implant in from the anterior side, correct, the
11 same implant?
12 **A. Okay.**
13 Q. So now you put it in posteriorly and you
14 place it in the disk space. You put it in
15 anteriorly. You place it in the exact same space in
16 the disk space. Doesn't it have the same loads
17 working on it once it's in the space?
18 **A. Again, to qualify that, because you put it**
19 **in posteriorly, you are not going to distract the**
20 **space when you're putting it in because you can only**
21 **put in a smaller implant.**
22 **So take the same small implant. You**

1 **put it from anteriorly. You have to drill the**
2 **cortical rim from the front and also you have to take**
3 **away some of the anterior longitudinal ligament. You**
4 **have to cut the anterior longitudinal ligament. When**
5 **you put that cage in, now when you do it from the**
6 **front, you are going to be able to distract the space**
7 **more because the anterior longitudinal ligament is**
8 **partially cut, so now the load that is in there**
9 **actually is not the same.**
10 Q. And how much would you distract putting it
11 in from the front?
12 **A. From the anterior portion? You would**
13 **distract so that you can literally almost correct the**
14 **lumbar lordosis, but if you're going to put a cage in**
15 **from the back, you would rely on the implant to do**
16 **the distraction for you.**
17 Q. Okay. And do you have an estimate of how
18 much in millimeters, for example, you would
19 distract --
20 MR. AMON: Objection; spec --
21 Q. -- or a range?
22 MR. AMON: Objection;

1 speculation.
2 **A. It depends here, and I'm not trying to take**
3 **a long road. I'm trying to get there. If you have a**
4 **tall disk, then you're not going to distract very**
5 **much at all but you can't put too big of an implant**
6 **in anymore. So if it's a collapsed disk, then you**
7 **can distract almost a couple millimeters.**
8 Q. So --
9 **A. So it really varies with other variable,**
10 **counselor. That's the reason why I'm taking this**
11 **long route to get there.**
12 Q. So a couple of millimeters it could be
13 distracted?
14 **A. It could be.**
15 Q. 10 millimeters unusual?
16 **A. 10 millimeters for --**
17 Q. 10 millimeters to distract unheard of?
18 **A. To distract 10 millimeters?**
19 Q. Mm-hmm.
20 **A. You can't distract 10 millimeters.**
21 Q. You can't distract 10 millimeters with a
22 collapsed disk?

1 **A. No.**

2 Q. Why not?

3 **A. You can distract 10 millimeters if you're**

4 **going to take out the whole disk space, like with an**

5 **anterior cage but not with a BAK.**

6 Q. Okay. So you can distract 10 millimeters

7 in that circumstance?

8 MR. AMON: Objection;

9 mischaracterizes his testimony,

10 misleading. Go ahead.

11 **A. We are speaking about a BAK cage.**

12 Q. Okay.

13 **A. How much allowed to distract, so that I've**

14 **answered you, but to distract -- if you remove the**

15 **whole anterior longitudinal ligament, you asked me**

16 **whether you can distract 10.**

17 Q. Mm-hmm.

18 **A. If you remove the whole anterior**

19 **longitudinal ligament, you can distract more but I**

20 **wouldn't say 10. I will say you can certainly**

21 **distract more depending on the amount of bone spurs**

22 **and the age of the -- or the amount of eburnation and**

1 **degeneration at that level. The more degenerated it**
2 **is, the harder to distract. So when you use the word**
3 **10, that's very difficult to attain.**
4 Q. What about 5, 5 millimeters of
5 distraction?
6 MR. AMON: Objection; incomplete
7 hypothetical.
8 **A. Again, depends on the -- here now, it**
9 **depends a little more on the degeneration and the**
10 **bone quality because if the bone quality is bad, then**
11 **anything you put in to spread will just collapse the**
12 **bone so you don't want to do that. So it depends on**
13 **other variables. Can you distract up to 5 in a**
14 **patient with good bone from a degenerated disk, the**
15 **answer is yes, you can.**
16 Q. Okay. Thank you, sir. Sir, moving
17 quickly, paragraph 95 of that same document, which
18 is NuVasive 2020 in the 507 case, you say that --
19 are you at 95, sir?
20 **A. Yes, I'm there, sir.**
21 Q. That sentence you say: "Also the implants
22 of Michelson '973 are made of titanium", correct?

1 **A. Yes.**

2 Q. Isn't it correct that titanium is just an

3 example in the Michelson disclosure as opposed to

4 the only material that that implant can be made of?

5 **A. Can you show me where he describes other --**

6 Q. I don't know if you have the '973. Do you

7 have it sitting in your stack, sir?

8 MR. AMON: You should.

9 Q. It should be somewhere over here.

10 **A. It should be one of these.**

11 Q. There it is at the bottom of the stack.

12 **A. But it's here.**

13 Q. Um?

14 **A. I said but it's here.**

15 Q. For the record, again that's MSD 1005.

16 So, for example, if you look at column 6, around

17 line 36, I'll read the sentence. Are you with me,

18 sir, so far?

19 **A. I'm there.**

20 Q. "The translateral implants of the present

21 invention may be made of an artificial material."

22 Correct? I read that correct?

1 **A. Go back to the line one more time, please?**
2 **Which line? 20 --**
3 Q. I'm sorry, it's line 36.
4 **A. Line 36.**
5 Q. Are you there now?
6 **A. Yes, I'm there.**
7 Q. "The translateral implants of the present
8 invention may be made of an artificial material,"
9 correct?
10 **A. Correct.**
11 Q. And then in column 7, line 39, it says:
12 "The spinal fusion implant 199 can be made of any
13 material suitable for human implantation, may
14 comprise fusion-promoting and/or bioactive material
15 to actively participate in the spinal fusion
16 process."
17 Did I read that correctly?
18 **A. That's correct.**
19 Q. So at least there it says "any material
20 suitable for human implantation", correct?
21 **A. Yes.**
22 Q. And then that last sentence of that

1 paragraph starting at around line 42: "The implant
2 199 can be made of a porous and/or mesh like and/or
3 cancellous material or any other material suitable
4 for the described purpose."
5 Did I read that correctly, sir?
6 **A. That is correct.**
7 Q. So is it fair to say that titanium is just
8 one example of a material that the Michelson '973
9 implant can be made of?
10 **A. The '973 at that time -- you're a patent**
11 **attorney, so this is patent, but at that time, all we**
12 **had was titanium. So he does say of any other**
13 **material. Bone is; we have used bone. So in this**
14 **particular case here, he's covering the spectrum but**
15 **we've never seen a -- I've not seen -- better to**
16 **qualify, not anybody. I have not seen a Michelson**
17 **implant made of any other material than metal.**
18 Q. But his description doesn't limit it to
19 titanium, correct?
20 **A. His description here made of a porous, that**
21 **would be -- for it to have the strength would be a**
22 **porous titanium or tantalum. It will be a metal, and**

1 **mesh like again would be titanium at that time, like**
2 **the Harms cage, and cancellous material, that would**
3 **be the so-called window material like the Harms on**
4 **the vertical, and then he does say "any other**
5 **material suitable for the described." So it's really**
6 **more of a metallic material at that time. That's**
7 **what I understand that to mean.**
8 Q. It's not limited to titanium, correct?
9 **A. Correct.**
10 Q. And it's not necessarily limited to metal,
11 correct?
12 **A. These words and these sentences from one is**
13 **in the field at that particular time, that's all we**
14 **had.**
15 Q. Well, at that time you had bone, correct?
16 **A. We had bone. We had bone before that.**
17 Q. And bone is cancellous, correct?
18 **A. No. The bone that we use for cages are all**
19 **cortical. You can't use cancellous. I don't mean to**
20 **correct you but --**
21 Q. No, no, you're the one testifying, sir.
22 Porous materials could certainly include things

1 other than metal, couldn't they, sir?
2 **A. Which ones?**
3 Q. Porous?
4 **A. Ask me that one more time.**
5 Q. Porous materials could include things
6 other than metals, correct, sir?
7 **A. Give me an example.**
8 Q. Coral?
9 **A. Coral. You wouldn't use a coral implant.**
10 Q. Are you saying that -- I'm sorry.
11 **A. We can go there but a coral implant will**
12 **just crumble. It just would not be able to take the**
13 **shear load in the lumbar spine at all. Coral can be**
14 **used as a graft.**
15 Q. Are you unaware of the use of coral
16 implants as intervertebral implants?
17 **A. In 2010, yes. In 2004, no. This one here**
18 **is in 1996. The answer is no.**
19 Q. Okay. What about bovine bone?
20 **A. Bovine bone is readily available and is**
21 **very strong but the American experience with bovine**
22 **bone has been extremely, extremely negative because**

1 **the bovine bone does just not incorporate and it**
2 **basically stays as a dead piece and eventually**
3 **becomes free-floating. So bovine graft is not**
4 **something that became accepted at all.**
5 Q. But it was used?
6 **A. Long before even the -- long before when we**
7 **even be making implants out of our own allograft**
8 **bone.**
9 Q. Okay. Okay. So let's move forward about
10 where you're discussing in the same opinion, your
11 Declaration, the Frey publication which starts on
12 page 50, although I want to get to the discussion on
13 page 51.
14 **A. Yes, sir.**
15 Q. I know you're going to ask for it so I'll
16 get it.
17 **A. Thank you.**
18 Q. I'm handing you what has been previously
19 identified as MSD 1003.
20 (Document handed.)
21 MR. NELSON: I'm good with the
22 old ones. It's the new ones I like.

1 Q. Which is the -- just for the record, sir,
2 that MSD 1003 is the Frey publication that you're
3 opining about?
4 **A. Yes, sir.**
5 Q. Sir, you mention at the bottom of page 51,
6 there is no dispute -- I'll wait until you get
7 there.
8 **A. Okay.**
9 Q. "There's no dispute whether Frey briefly
10 mentions alternative options in which Boomerang
11 implant can be inserted laterally or anteriorly." I
12 read that correctly, right, sir?
13 **A. Yes, sir.**
14 Q. In fact Frey mentions it at least three
15 times, right?
16 **A. I don't know how many times he mention but**
17 **I have it down here he has mentioned it.**
18 Q. That sound about right?
19 **A. I don't know. Unless you can show me all**
20 **three.**
21 Q. Sure. Let's go through them then. If you
22 look on page 11.

1 **A. Of the patent?**
2 Q. Of the patent?
3 **A. This is really a patent application**
4 **publication.**
5 Q. Correct, Frey 550.
6 **A. Page 11?**
7 Q. Page 11 on the top of it, page 61 on the
8 bottom. The 61 includes the figures.
9 **A. Sorry.**
10 Q. So if you --
11 MR. AMON: So if you look at the
12 bottom, it's that page.
13 THE WITNESS: I'm sorry.
14 MR. AMON: No problem, take your
15 time.
16 **A. I'm on page 61.**
17 Q. On the first sentence, I'll read it:
18 "It's also contemplated that disk space D1 can be
19 accessed and prepared for implant insertion using
20 any other known techniques and instruments and other
21 approaches to the disk space such as lateral,
22 anterior, or anterolateral approaches for inserting

1 implant 1000."
2 **A. Yes, sir.**
3 Q. Right. So at least there he's talking
4 about the possibility of putting in this implant
5 laterally, anteriorly, or anterolateral, correct?
6 MR. AMON: Objection; the
7 document speaks for itself.
8 **A. Yes, it does read that.**
9 Q. And then if you turn to the next page, in
10 paragraph 150 at the bottom --
11 MR. AMON: For the record, that's
12 page 62 you're referring to.
13 MR. SCHWARTZ: 62 on the bottom,
14 12 on the top.
15 MR. AMON: What paragraph again,
16 thank you.
17 Q. Paragraph 150, sir, do you see that?
18 **A. Yes.**
19 Q. The last sentence of that paragraph, it
20 says: "It is also contemplated that the disk space
21 D1 can be accessed and prepared for implant
22 insertion using any other known techniques and

1 instruments and other approaches to the disk space
2 such as lateral, anterior, or anterolateral
3 approaches for insertion of implant 1400."
4 Did I read that correctly, sir?
5 **A. That's correct.**
6 Q. So that's two times, right?
7 **A. Two times.**
8 Q. Then if you turn to page 16 on the top, 66
9 on the bottom --
10 **A. I'm there.**
11 Q. -- paragraph 184.
12 **A. Okay.**
13 Q. The second sentence: "However, there are
14 aspects of the inventions described herein that may
15 be utilized or modified for use for a variety of
16 surgical applications, including but not limited to
17 spinal surgery for a -- from a unilateral posterior
18 approach, a lateral approach, an oblique approach,
19 and through laparoscopic or endoscopic instruments
20 from any of a variety of angles or approaches to the
21 spine."
22 Did I read that correctly?

1 **A. Yes.**
2 Q. So at least three times he talks about the
3 possibility of putting it in laterally or
4 anteriorly, right?
5 **A. Right.**
6 Q. Okay, sir, looking at the last sentence of
7 that paragraph in your report -- I'm sorry, not in
8 the patent.
9 MR. AMON: Which paragraph?
10 MR. SCHWARTZ: It's still
11 paragraph 96 but on page 52.
12 Q. Where you say: "Based upon my knowledge
13 and experience in spine surgery, including my
14 personal experience using Boomerang-shaped implants,
15 I believe that a person of ordinary skill in the art
16 in March 2004 would have recognized that any
17 proposed modification to Frey's Boomerang implant,
18 hindering its use in the posterolateral TLIF
19 approach, was contrary to Frey's stated objectives
20 and intended purpose for the Boomerang."
21 Did I read that correctly, sir?
22 **A. Yes.**

1 Q. But he does state at least three times the
2 purpose of putting it in laterally or anteriorly,
3 correct?
4 MR. AMON: Objection; asked and
5 answered.
6 **A. We see the Declaration and we also see the**
7 **brochures for the Frey implant was the Boomerang**
8 **implant. Those are all described as a device for the**
9 **posterolateral disk space approach, so those are the**
10 **approaches I've seen and those are the approaches --**
11 **because of his invention and because of his**
12 **Declaration, that's the approach of the device are**
13 **available and that's how we used them and incised**
14 **them.**
15 Q. In your opinion, sir, are you narrowing
16 the scope of what's taught in the Frey application
17 based on the procedure manual that you looked at for
18 the Boomerang implant?
19 **A. No, I'm not narrowing. I read and I know**
20 **that they describe all these approaches but there was**
21 **no implant available for us to be using.**
22 Q. As far as you know?

1 **A. As far as I know, yes, correct.**
2 Q. If there was an implant made that was more
3 than 40 millimeters long, would that change your
4 conclusion?
5 MR. AMON: Objection; assumes
6 facts not in evidence, incomplete
7 hypothetical.
8 **A. To follow your question, to assume is more**
9 **than 40 millimeters in length, from which approach**
10 **would you be putting it in?**
11 Q. Laterally or anteriorly or obliquely.
12 **A. If it's more than 40 millimeter long, then**
13 **the width of this implant would be also a lot wider,**
14 **so that implant would be extremely difficult to do it**
15 **through the approach that we talked about**
16 **posterolaterally because the space, the dimension**
17 **that is there, requires that you need to remove more**
18 **bone and then you also have to key it into a space**
19 **where the nerve has to be retracted. So if it's**
20 **longer and it becomes wider, that approach certainly**
21 **would be not a feasible approach.**
22 Q. Not feasible to put in a concavoconvex

1 implant that's longer than 40 millimeters?
2 **A. A Boomerang implant by Frey, of his design,**
3 **that's what you're describing to me, so I'm following**
4 **that train of thought.**
5 Q. Okay.
6 **A. So a Boomerang longer and Boomerang wider,**
7 **okay, to put in through a posterolateral approach**
8 **certainly would be not optimum at all because of the**
9 **sides would be compromised because of retraction of**
10 **nerves that are necessary.**
11 **So the TLIF actually has made a space**
12 **bigger than you do a PLIF. A PLIF would be narrower.**
13 **A TLIF gives you a little more room but the room it**
14 **gives you certainly is not extra, extra wide that you**
15 **can go bigger than what the dimension of the**
16 **Boomerang was designed for.**
17 **The second thing is that if you're**
18 **going to make an implant that is going to be a longer**
19 **and therefore wider, according to what we see as his**
20 **claims are, then we are going to have trouble putting**
21 **that in from a lateral approach also because the**
22 **width is going to be wider to get to the certain**

1 **length.**

2 Q. What are you referring to --

3 **A. Finally --**

4 Q. I'm sorry, sir.

5 **A. And finally, going to the anterior**

6 **approach, you wouldn't want to be putting in an**

7 **implant that has a -- that you can put in a bigger**

8 **implant of a surface area because you're removing the**

9 **anterior longitudinal ligament. So to put in that**

10 **implant either at 40 or under 40 or whatever the size**

11 **it is, but to go over 40, to seat it on the rim**

12 **certainly would not be optimum because the chance of**

13 **it dislodging.**

14 **And so to put it into the disk, you**

15 **will like to have more coverage and that implant does**

16 **not have the full coverage. That implant is designed**

17 **to leave the anterior longitudinal ligament intact,**

18 **to allow you to have the stability that it is**

19 **designed for.**

20 **So there are other parameters. So**

21 **even though this description that you can use these**

22 **various approaches, the implant design would have to**

1 **be further modified to accommodate.**
2 Q. Further modified in what way?
3 MR. AMON: Objection; calls for
4 speculation. Go ahead.
5 MR. SCHWARTZ: He's the one that
6 opened the door.
7 **A. Do you have an hour for me to go through**
8 **one by one? I can.**
9 Q. Do you have an hour, sir?
10 **A. Okay. If you have that implant and you**
11 **want to design it for the lateral approach, you have**
12 **to modify it both in length and also modify it in**
13 **width. You do not want the Boomerang because a**
14 **Boomerang will sit on the rim, if it's going to sit**
15 **on the rim.**
16 **Otherwise, if you're going to put it**
17 **in across a lateral approach, you're not going to**
18 **allow you to be able to be the weight-bearing at the**
19 **width of the Boomerang as we see it. The length and**
20 **the width, the ratio will become an issue.**
21 **To do it from the front is just not**
22 **the optimal implant and to do it through a TLIF, as I**

1 **said, it's something of the size that we have now are**
2 **made to fit and the approach and is safe. To make it**
3 **longer and, therefore, any way wider at all, the**
4 **length and the width would be a challenge to be able**
5 **to put into the space and to rotate.**
6 Q. But you certainly can --
7 **A. Cannot.**
8 MR. AMON: Dr. Yuan, let
9 Mr. Schwartz ask his question, please.
10 Q. You can certainly make a Frey implant
11 that's over 40 millimeters long and fit it in the
12 interdiskal space; correct?
13 MR. AMON: Objection, incomplete
14 hypothetical. Go ahead.
15 **A. For which approach?**
16 Q. Any approach?
17 **A. (Shakes head). I disagree.**
18 Q. So under no condition can you put a
19 Boomerang-shaped implant into a disk space that's
20 over 40 millimeters long?
21 MR. AMON: Objection, asked and
22 answered.

1 **A. Let me go specifically, as you do, one step**
2 **at a time, I perceive your question. To do a TLIF**
3 **approach, to build a Boomerang implant that's going**
4 **to be longer than 40 millimeter in length, okay, and**
5 **the width to accommodate that would be an implant**
6 **that's going to be potentially risk to the nerve and**
7 **also cause the inability to be implanted and to**
8 **rotate.**
9 Q. But it can be done?
10 **A. I'm a surgeon. I'm just trying to tell you**
11 **that it is not an implant that you will want to do it**
12 **because it will do harm to a patient. So if you are**
13 **asking me can it be done? The answer is I wouldn't**
14 **do it.**
15 Q. Okay.
16 MR. AMON: Dr. Yuan, are you
17 doing okay?
18 THE WITNESS: I'm okay.
19 MR. SCHWARTZ: Let's mark this as
20 MSD 1031.
21 (MSD Exhibit 1031, European
22 Patent number EP 1 290 985 A2, marked

1 for identification, this date.)
2 EXAMINATION BY MR. SCHWARTZ:
3 Q. So what I've handed you, for the record,
4 is a document identified as MSD 1031. It's a
5 European patent application 1 290 985 A2. Did I
6 read that correctly, sir?
7 **A. Yes.**
8 Q. I wouldn't expect that you're necessarily
9 familiar with this document but what I'd like to
10 point you to is the last page, figure 19. You see
11 that Boomerang-shaped implant, sir?
12 **A. Yes, I do.**
13 Q. And that implant is pretty much going from
14 one end to the other of that vertebral body,
15 correct?
16 MR. AMON: Objection; the
17 document shows what it shows.
18 **A. We're looking at a banana-shaped implant.**
19 **I wouldn't call it Boomerang. Boomerang would bring**
20 **it back to what you're talking about. This is a**
21 **banana-shaped implant. That is not the Boomerang**
22 **implant that we're referring to in Frey. Do you**

1 **agree?**

2 Q. I'm sorry, sir, I asked you the question.

3 **A. But I'm trying --**

4 Q. Is that concavoconvex implant that goes

5 from one end of the transverse width of that

6 vertebral body to the other?

7 MR. AMON: Objection; outside the

8 scope.

9 **A. I'm looking at a picture that you showed**

10 **me, Counsel, which is what we will just term in**

11 **general a banana-shaped implant.**

12 Q. Fair enough, sir.

13 **A. So we won't use the word Boomerang implant**

14 **because there's a name applied to what we've been**

15 **discussing, just to be exact. I don't want to be --**

16 Q. Banana-shaped is fine with me, sir. Is

17 that a banana-shaped implant that goes from one side

18 of the transverse width of the vertebral body to the

19 other?

20 **A. This one illustrates a banana-shaped**

21 **implant in a vertebral body, a drawing. There is no**

22 **dimension.**

1 Q. I understand. So in a -- in a large adult
2 male, L4 to L5, wouldn't that implant be greater
3 than 40 millimeters long?
4 MR. AMON: Objection; outside the
5 scope, speculation. Dr. Yuan --
6 MR. SCHWARTZ: Coaching the
7 witness.
8 MR. AMON: That's fine, you can
9 accuse me all you want. Take all the
10 time you need to review the entire
11 document, Dr. Yuan.
12 **A. This drawing here of what they're designing**
13 **to put an implant in, would make you, if in the lower**
14 **lumbar, absolutely transpsoas.**
15 Q. That's fine, sir.
16 **A. Let me qualify a couple more things just**
17 **so -- if this is done, not only transpsoas but this**
18 **is going to be done totally along the path which is**
19 **the wrong location, both from your anterior oblique**
20 **approach that you showed me that your KOL, key**
21 **opinion leaders, showed of the anterolateral which**
22 **has a space to approach the spine, which I agree with**

1 **you.**

2 **This approach that you just showed me**

3 **here would allow you to impale the whole nerve plexus**

4 **so it's not in the lower lumbar and this approach**

5 **would not be used in the upper lumbar because you**

6 **will have visceral structures. You would have**

7 **kidneys; you would have ribs, if you're going to go**

8 **in the thoracic, and then if you're in the upper**

9 **lumbar, you would have kidney; you're going to have**

10 **the spleen.**

11 **So this is a wonderful drawing. It's**

12 **a great design drawing but it doesn't make any sense**

13 **at all on how you would implant through this**

14 **approach.**

15 Q. Turning to the prior page, figure 17, does

16 that figure look to you like it's the lower lumbar

17 portion of the spine?

18 **A. Yes.**

19 Q. Okay. Thank you, sir. No more questions

20 on that document.

21 Sir, are you familiar with a product

22 marketed as the Guided Lumbar Interbody Fusion

1 Device?
2 **A. Guided lumbar fusion device. Can you tell**
3 **me a little more about that?**
4 Q. I can do more than tell you, sir. I will
5 show you.
6 **A. Thank you.**
7 MR. SCHWARTZ: Mark this as MSD
8 1023.
9 (MSD Exhibit 1023, Alphatec
10 Guided Lumbar Interbody Fusion Device,
11 marked for identification, this date.)
12 Q. Are you familiar with that device, sir, as
13 indicated on MSD 1023?
14 MR. AMON: Dr. Yuan, take all the
15 time you need to review the document.
16 Q. If you're not familiar with it, just say
17 you're not familiar with it and we can move on?
18 **A. May I ask a question? "Familiar" meaning**
19 **do I know about this or --**
20 Q. At the time you were giving your testimony
21 that's memorialized in your Declaration, were you
22 aware of this product?

1 **A. I'm aware of this product.**
2 Q. Okay. Is it fair to say that that's a
3 banana-shaped implant?
4 **A. It isn't a banana-shaped implant. This is**
5 **a lateral implant. A banana-shaped implant would be**
6 **one that the -- this isn't a true -- it's a true**
7 **lateral implant approach from, quote, unquote, a**
8 **guided lumbar interbody approach by Alphatec. I'm**
9 **well-aware of this. It's a totally lateral implant**
10 **but it's a -- this drawing here --**
11 Q. Are you aware, sir, that NASS
12 characterizes that as a posterior implant and
13 procedure?
14 MR. AMON: Objection; assumes
15 facts not in evidence.
16 MR. SCHWARTZ: I'm asking if he's
17 aware. How could it be assuming facts
18 not in evidence?
19 MR. AMON: Because you're
20 testifying that's what the facts are.
21 It's assuming a fact.
22 **A. I'm a past president of NASS so I know NASS**

1 **very well. This approach here is a, how they call a**
2 **posterolateral approach. That's why they may call it**
3 **posterior, which is not correct. It's a circular**
4 **guided path going down to the vertebral body and**
5 **access for stabilization of all of this is maintained**
6 **from a posterior point to maintain it as stable so**
7 **you can basically make the move without -- without**
8 **sliding, but this is totally and truly a lateral**
9 **approach, but the avenue that you get there is**
10 **through a curvilinear approach. Incision is**
11 **posterolateral and then this will approach the lumbar**
12 **spine totally laterally.**
13 Q. Okay. And that's an implant that's
14 greater than 40 millimeters long, correct?
15 **A. Yes, designed to be.**
16 Q. Okay.
17 **A. What date is this implant?**
18 Q. Sir, if you would, in that same
19 Declaration, 2020 in the 507 matter, on page 60,
20 which is paragraph 108.
21 **A. Page 60?**
22 Q. Right. It's a continuation of paragraph

1 108 from -- starting at page 59.
2 **A. I'm trying to get to where you're reading**
3 **from, Counsel.**
4 Q. Sure. I haven't actually started reading
5 yet. What I'd like to do is read from, six lines
6 from the top, the sentence "even if it were
7 possible."
8 **A. Yes.**
9 Q. Are you with me?
10 **A. Yes.**
11 Q. So it says: "Even if it were possible, a
12 person of ordinary skill in the art in March 2004
13 would understand the unnecessarily increased level
14 of risk of greater morbidity in the patient, less
15 stability in the spine, and increase the chance of
16 damaging the spinal cord or nerves lying near the
17 backside of the spine."
18 Did I read that correct?
19 **A. Yes.**
20 Q. Now, there's no spinal cord in the lower
21 lumbar spine, right, sir?
22 **A. The spinal cord ends at lumbar 1.**

1 Q. Right. So from L2 to S1 there's no spinal
2 cord?
3 **A. Right; those are roots. There should be**
4 **spinal elements.**
5 Q. Sir, I'm going hand you what's been
6 previously identified as NuVasive Exhibit 2012,
7 which is the Boomerang VERTE-STACK PEEK Vertebral
8 Body Spacer. Do you see that, sir?
9 **A. Yes, sir.**
10 Q. So even in this document that you've been
11 relying on, and actually Medtronic hasn't, it
12 characterizes the Boomerang as a VERTE-STACK PEEK
13 Vertebral Body Spacer, correct?
14 **A. Can you say the whole sentence again? I**
15 **missed one portion. I heard it from the back end.**
16 **(Whereupon, the pending question**
17 **was then read back by the Reporter.)**
18 **A. You said that Medtronic hasn't? Apologize.**
19 Q. Let me restate the question. This
20 document characterizes or describes Boomerang as a
21 VERTE-STACK PEEK Vertebral Body Spacer, correct?
22 **A. Yes, correct. Thank you.**

1 Q. And at the back of the document it
2 explains that the Boomerang VERTE-STACK PEEK
3 Vertebral Body Spacer is a vertebral body
4 replacement device, correct?
5 **A. That's what it states.**
6 Q. Now, if you look at the diagrams, you can
7 take any one of them, but perhaps look at the last
8 one, the -- on page 4 of the brochure, at the bottom
9 of the page. You see the implant sitting there
10 inside of that vertebral body, correct?
11 **A. That's correct.**
12 Q. There's certainly space on either side of
13 that implant, correct?
14 **A. Can I qualify, please? Not to challenge**
15 **you but just qualify. We have no information on the**
16 **dimension of the vertebral body. We have no**
17 **dimension of the Boomerang cage that is in this**
18 **drawing. So the question that you just asked, I**
19 **don't know -- for me to answer that would only be**
20 **talking about a drawing with no information.**
21 Q. Okay. Sir, I'm just asking you, is there
22 space on either side of that implant in the

1 vertebral disk space?
2 **A. Not knowing the size of the body, not**
3 **knowing the size of the implant you're using, only in**
4 **the drawing here, which is merely a drawing, for me**
5 **to say that there is space, there is annulus and**
6 **that's where the implant is designed to be implanted.**
7 **What it shows me is an implant is put in the right**
8 **position because it is inside of the annular wall.**
9 **It doesn't tell me any more.**
10 Q. But there's space on the left and right
11 side of that implant, correct, sir?
12 **A. What is "space"?**
13 Q. The vertebral body is larger in its
14 transverse width than the length of that implant,
15 correct?
16 **A. Now you're talking about length of the**
17 **implant. We don't know the dimension of this**
18 **implant. They can make a small one --**
19 Q. Referring to the illustration, sir. I
20 don't know why you're fighting me on this.
21 **A. I'm not fighting.**
22 Q. I'm just pointing to the picture.

1 MR. AMON: Dr. Yuan --
2 Q. In the picture the transverse width of the
3 vertebral body is longer than the length of that
4 implant, correct?
5 **A. I will go back to say that this is an**
6 **illustration. It gives me no information to be able**
7 **to answer you because if you give me the dimension of**
8 **a cage and the dimension of the body, I'm happy to**
9 **answer your question.**
10 Q. Sir, you've been referring to this
11 document all day long. I'm just asking you, is the
12 length of that implant smaller than the transverse
13 width of that vertebral body?
14 **A. Counsel, I like to just answer questions**
15 **that's going to be specific and accurate. If you are**
16 **not going to give me numbers, you want me to just**
17 **give you an assumption, then I will not be doing you**
18 **a favor.**
19 Q. So you can't tell me one way or the other?
20 **A. I can't tell you unless you clarify and you**
21 **give me the reason and information that I need to be**
22 **able to answer you accurately.**

1 Q. I'm just pointing to the illustration,
2 sir, and I'm asking you if the implant is smaller
3 than the transverse width of that vertebral body as
4 reflected in that illustration? It's a simple yes
5 or no question, sir.
6 **A. Again, I will go back to say I'm not a**
7 **lawyer. I'm just trying to be specific and I'm**
8 **trying to be accurate and to testify to the**
9 **information. You give me the information, I will be**
10 **able to answer your question.**
11 Q. Okay, sir. I'm going to hand you what was
12 previously marked as MSD 1113.
13 **A. Thank you.**
14 Q. You'll see, sir -- you're familiar with
15 the Zhou reference, which is MSDS 1113, correct,
16 sir? You discuss it in your Declaration, right?
17 MR. AMON: Mr. Schwartz, before
18 you get into the line of questioning,
19 can you take a break before you get
20 into a line of questioning?
21 MR. SCHWARTZ: I'm in the middle
22 of a line of questioning.

1 MR. AMON: All right.

2 **A. I'm aware of this document.**

3 EXAMINATION BY MR. SCHWARTZ:

4 Q. Okay, sir. So assuming that the

5 statistics reported in this document are accurate as

6 to the geometric sizes of vertebra, you see, sir,

7 where the L4 and L4-5 disk, lower vertebral width

8 for a male, is 55.1 plus or minus 4.1, correct?

9 **A. Can you go to where you're reading this**

10 **from, sir?**

11 Q. Sure. Sir, on page 245, in the center

12 column where it's L4 and L4-5 disk, the LVW, which

13 is the lower vertebral width, for a male, which is

14 the third indication down. The lower vertebral

15 width on average is 55.1 plus or minus 4.1, correct?

16 **A. That's what it states, yes.**

17 Q. So using that number, 55.1 plus or minus

18 4.1 and referring back to the Boomerang, if that

19 vertebral width is 55.1 and the implant length is

20 36, 36 is smaller than 55, right, sir?

21 **A. Yes.**

22 Q. Okay. So there would be a difference of

1 19 millimeters in the width of the transverse -- the
2 transverse width of the vertebra and the length of
3 that implant, correct?
4 **A. The number is correct.**
5 Q. Thank you, sir.
6 MR. SCHWARTZ: Now we can take a
7 break.
8 MR. AMON: Thank you.
9 (3:52 p.m.)
10 (A recess was then taken.)
11 (4:04 p.m.)
12 EXAMINATION BY MR. SCHWARTZ:
13 Q. We're back on the record, sir. You
14 understand you're still under oath, correct?
15 **A. Yes, sir.**
16 Q. I want to start, sir, there were a few
17 places in your Declaration where you talk about this
18 length-to-width proportion for the '334 patent
19 claims being 2.5 to 1; do you recall that?
20 **A. Yes.**
21 Q. Are you taking the -- strike that.
22 Is it your opinion that it's unique to

1 have a 2.5 to 1 proportion of length to width?
2 **A. We've been talking about the length for**
3 **sometime, so the length is important. The width is**
4 **also important because of the space that is**
5 **available. In particular you're doing this through a**
6 **minimally invasive approach.**
7 **In the minimally invasive, why it's so**
8 **important, because the open approach leaves patient**
9 **with tremendous mobility, of having large size**
10 **hernias, and then having the intercostal nerves that**
11 **are damaged. So the minute you go to something that**
12 **didn't cut open the womb, you're slowly dilating the**
13 **womb up, so those neuromas and then the herniations**
14 **disappeared.**
15 **And the other reason for going**
16 **minimally invasive, part of what I'm getting to is**
17 **important, you are really limited anatomically a**
18 **certain width in these lumbar segments so I wasn't**
19 **trying to be smart in pointing out the approach you**
20 **showed me of the European one; that that is okay to**
21 **be done truly straight lateral in the upper lumbar.**
22 **The minute you get down to low lumbar,**

1 when you're doing at L3-4, L4-5 and 5-S1 -- 5-1 you
2 can't do it -- those levels become very dangerous.
3 But with the evolution evolving using monitoring and
4 so on, they got us to go there.
5 The width is extremely critical
6 because of how wide you can get an implant and this
7 is really studied to give you the approach, the
8 average -- the norm that is a good width.
9 Q. You can certainly appreciate that implants
10 that were prior art to the NuVasive patents that
11 we're talking about also had the same proportion of
12 length to width, correct?
13 A. Which one?
14 Q. Well, for example, the Boomerang, it has a
15 2.5 to 1 ratio of length to width, right?
16 A. Can you show me that?
17 Q. Sure, sir, and this is referring to
18 NuVasive Exhibit 2021. You've got a length of 36
19 and a width of 13; right, sir?
20 A. You got a channel you're going to put
21 things through and the channel is a certain dimension
22 and allow you to put in -- the length doesn't matter

1 so much because you're going to be docked; you're
2 ready to go. The width from 13 and if this was 15,
3 okay, then it doesn't fit into this hole.
4 Now, you showed me this document here,
5 which is a Medtronic document, and the NuVasive
6 brought this document out. I look at the width, so
7 for what I, as a surgeon, have to do is not looking
8 at that width. I'm looking at the total width
9 because I have to, because that's the slot that I got
10 to put it down.
11 So if I'm going to put this width in,
12 in a curved dimension, then a short channel, then I
13 can really make the turn, is okay, but the minute I
14 have to go in straight to get both anterior and the
15 two posterior PEEKs into the slot, then it's going to
16 be tight.
17 So same thing I'm looking at, it has
18 to go through an annulotomy incision where I
19 retracted the nerve and now my retractor is docked at
20 a certain width. To add 2 more millimeters, or
21 whatever, is going to be something difficult to
22 implant, so it is a straight implant. If it was

1 **going to be laterally curving in, then that would be**
2 **fine.**
3 Q. Okay. But it does physically have a
4 2.5-to-1 width and even if you take into account the
5 additional curvature, it likely meets the 2.5 to 1
6 as well?
7 **A. It doesn't. 36, let's assume this is a**
8 **36 millimeter length. Here it is called the width**
9 **because -- we both understand?**
10 Q. Sure. We're talking about length.
11 **A. Right. So then you take the 13 and you add**
12 **2 more millimeters to go down the channel, it's no**
13 **longer 13; it's 15.**
14 Q. So that's pretty darn close to 2.5 to 1,
15 isn't it? 15 would make it -- two and a half times
16 15 is --
17 **A. Do the math. You know the math. You're**
18 **not asking me. I know you know the answer.**
19 Q. 37 and a half.
20 **A. Okay.**
21 Q. So it's pretty darn close to 2.5 to one?
22 **A. As you and I say in the trade, close but no**

1 **cigar.**
2 Q. Does the Telamon meet the 2.5 to 1?
3 **A. The Telamon certainly does but in the**
4 **Telamon, we don't have implant of the length that**
5 **we're referring to, and by the time you get it to the**
6 **length, as you say, you modify to any length, any**
7 **width, so if you assume that, you can do anything and**
8 **then you don't have to have patents, don't need**
9 **inventions.**
10 Q. Thank you, sir.
11 **A. Thank you.**
12 Q. I'm going to turn back in your report and
13 this is the 507 report, Exhibit 2020, to page 67.
14 **A. Yes, sir.**
15 Q. You see that figure in the middle of your
16 report?
17 **A. Yes.**
18 Q. And you represent that image as being a
19 Telamon implant elongated to a length slightly
20 greater than 40 millimeters, correct?
21 **A. Yes.**
22 Q. And how do you -- how do you get that that

1 image is of an implant slightly greater than 40
2 millimeters?
3 **A. Your question one more time? How did I get**
4 **there?**
5 Q. How do I know that that implant is
6 slightly greater than 40 millimeters?
7 **A. Okay. Let's go back and look at the depth**
8 **of the vertebral body. The depth of the vertebral**
9 **body as you showed me on the Zhou article.**
10 Q. Um-hum.
11 **A. What is the average anterior posterior**
12 **dimension in a male? You know the document well.**
13 Q. I don't have it memorized, sir.
14 **A. Yes, you do. I know you do.**
15 Q. For the record we're referring to MSD 1113
16 the Zhou article, Z-H --
17 **A. Zhou.**
18 Q. Zhou. So we're talking about the -- I
19 should give you that copy. Which dimension, using
20 Zhou, is the depth that we're referring to here?
21 **A. I don't know. I would just say that he's**
22 **done these studies so I can say we can look up the**

1 **depth.**

2 Q. Okay. It appears that you've got a --

3 you've got a spinal canal depth that's defined and

4 you've also got an upper vertebral depth and a lower

5 vertebral depth, correct, sir? So if you use the

6 lower vertebral depth of a male, L4-L5, that's 38.6

7 plus or minus 3.4; right, sir?

8 **A. Which one are you at?**

9 Q. I'm sorry, the middle column on LVD for a

10 male is 38.6 plus or minus 3.4, correct, sir?

11 **A. LVD --**

12 Q. Lower vertebral depth.

13 **A. Okay.**

14 Q. Well, using that as a starting point, 38.6

15 plus or minus 3.4?

16 **A. Okay.**

17 Q. Doesn't it look like that implant is

18 bigger than 40 from your diagram?

19 **A. Again, there's no numbers on the implant.**

20 Q. I understand.

21 **A. So it's just an illustration, just what you**

22 **tried to tell me, so I wouldn't use that to say**

1 **that's accurate. I would merely say rather that's a**
2 **risk of it protruding through the front, but if we're**
3 **looking at these numbers here, you would definitely**
4 **break through the anterior rim; that's all it's meant**
5 **to.**
6 Q. Understood, but for purposes of me
7 understanding your diagram, right, this is your
8 report, I have to assume that's something that you
9 endorse. The amount that that implant extends out
10 would at least not be representative of how much a
11 40 millimeter implant would stick out on a male at
12 the L4 level, correct, sir? It would be less than
13 that.
14 My point is you would have a little more
15 space. It might stick out but it wouldn't stick out
16 that much.
17 **A. Now I will use your language again,**
18 **Counsel. The word up here say elongated to a length**
19 **slightly greater. What is slightly and what is**
20 **greater?**
21 Q. Your language, sir.
22 **A. Correct, so it's my language. It didn't**

1 **say slightly shorter. It didn't say slightly less.**
2 **It didn't say 40 millimeters, so when you say**
3 **slightly greater, the key that I'm trying to imply is**
4 **that it protrudes anteriorly of the disk space.**
5 Q. Okay. I'm just trying to get an
6 understanding of the proportions of this figure
7 because it's somewhat dramatic.
8 **A. It's meant to show that in the average**
9 **male -- and doing spinal fusion at L4-5 level, 70 to**
10 **80 percent of the patients with degenerative**
11 **spondylolisthesis are females.**
12 Q. I appreciate that, sir.
13 **A. And it's only to dramatize the point.**
14 Q. So is it fair to say that for a male at
15 the L4-5, the implant would not stick out that much
16 if it's slightly greater than 40?
17 MR. AMON: Objection; incomplete
18 hypothetical, go ahead.
19 **A. If you take the average male and you**
20 **don't -- you add this to the upper limit, it will**
21 **stick out that far. If you take the average male and**
22 **you use the bottom, then it won't.**

1 Q. So, for example, to your point, 38.6 plus
2 3.4 is 42 millimeters, correct, sir?
3 **A. Yes.**
4 Q. So that would be bigger than a slightly
5 greater than 40 millimeter implant; correct, sir?
6 **A. Did you say it's my words? My words from**
7 **40 to 42, as you say, is only slightly bigger, if I**
8 **paraphrase your terminology accurately. You have**
9 **used that word.**
10 Q. Okay, sir. So let's do this. If you're
11 inserting a 41 millimeter implant, correct,
12 41 millimeters, and you use the upper end of the
13 average, which would be 42 millimeters in depth, the
14 41 millimeter implant would not stick out, correct?
15 **A. This is just to show that whenever you have**
16 **to penetrate the anterior rim, penetrate the anterior**
17 **longitudinal ligament in any patient, the chance of**
18 **you perforating, protruding through is extremely**
19 **high. That's what it's supposed to show.**
20 Q. I understand, sir.
21 **A. And I respect your position, I understand,**
22 **but any amount of protrusion through the anterior**

1 **wall is risky in terms of safety, so this is just**
2 **merely meant as an illustration.**
3 Q. I understand, sir. But you agree that 41
4 is less than 42, right?
5 **A. To be fair, take a middle range. Why pick**
6 **the lower? I didn't even pick a female. I picked a**
7 **male and 70 percent of the patients we're operating**
8 **on is females. Do we want to look at a female?**
9 Q. Actually, sir, I'd like to stick with my
10 hypothetical. I would like to stick with mine.
11 At the outer range male where it's
12 42 millimeters in depth, 41 is less than 42, right,
13 sir?
14 MR. AMON: Objection;
15 mischaracterizes the document.
16 **A. As we said, if we want to be fair, we pick**
17 **the average of a male and pick an average of a**
18 **female.**
19 Q. Sir, can we stick with my hypothetical for
20 these questions?
21 **A. I think you like me to answer and give you**
22 **honest answer but for me to agree to something that**

1 **the -- you are -- you're not trying to deviate but**
2 **you're trying to channel into a question mode that is**
3 **not the norm. I'm only asking for the norm.**
4 Q. I understand, sir but --
5 **A. Stay with the norm.**
6 Q. -- take it one step at a time because I'm
7 running out of time and I know counsel is going to
8 tell me I'm out of time pretty soon here. So rather
9 than spending a lot of time with your hypotheticals,
10 if you'd stick to mine, I'd appreciate it.
11 **A. I'm willing to stick to a hypothetical but**
12 **make it fair and make it the norm.**
13 Q. I see. So but my hypothetical, the outer
14 range male, a depth of 42 millimeters; 41 is less
15 than 42, correct?
16 **A. I would answer that if this would be the**
17 **norm.**
18 Q. Okay, sir, and you agree that this
19 illustration is an exaggeration, at least in the
20 context of a male at the L4-L5 level, correct?
21 **A. But not for a female.**
22 Q. Fair enough. For a male at the L4-5

1 level, this illustration is an exaggeration of the
2 relative dimensions.
3 **A. For a female, this more than demonstrates**
4 **the correct accuracy.**
5 Q. Fair enough, sir. For a male, at the L4-5
6 level, the implant in relationship to the size of
7 the vertebra is an exaggeration of its length
8 relative to the size of the vertebra, correct?
9 **A. For a male on the upper limits of the norm,**
10 **the norm, it will be sticking out.**
11 Q. I'm not asking you about sticking out now,
12 sir. I'm just asking you the relative size of the
13 implant compared to a male, at the L4-5 level, if
14 you take 38.6 compared to your slightly greater than
15 40 implant, that implant is an exaggeration of the
16 relative size of the implant compared to the
17 vertebra, correct?
18 **A. You take 38.6 and go up to 41, as you use a**
19 **number, that implant will be sticking out.**
20 Q. And again, sir, I'm not asking if it's
21 sticking out. What I'm asking is, the relative size
22 of this implant compared to the size of the outline

1 of that vertebral body is an exaggeration of the
2 size of that implant compared to the size of the
3 vertebra, correct?
4 **A. Not if this is a norm of an adult male. It**
5 **will be protruding as illustrated.**
6 Q. Sir, you're showing an implant that's
7 protruding 30 percent beyond the rim of that
8 implant; fair characterization, roughly?
9 **A. I'm showing here just an illustration to**
10 **demonstrate the point of protrusion.**
11 Q. I understand that, sir. I'm just asking
12 about the relative size.
13 **A. So unless we're going to pick a norm and be**
14 **fair in the question, then I can answer you honestly**
15 **and appropriately. For you to pick what suits you**
16 **but not the norm and then asking me to agree to you,**
17 **I cannot.**
18 Q. Sir, I'm allowed to ask hypotheticals and
19 I'm entitled to an answer to those hypotheticals.
20 So let's start with that as the basis for the
21 question.
22 Basis of the question is an average male

1 with a depth at average of 38.6 and a 41 millimeter
2 implant is not going to protrude 30 percent of its
3 length, correct?
4 **A. That's correct.**
5 Q. Thank you, sir.
6 **A. Thank you.**
7 Q. Whew.
8 MR. SCHWARTZ: Sir, I'm going to
9 mark this as MSD 1052.
10 (MSD Exhibit 1052, diagram,
11 marked for identification, this date.)
12 Q. Sir, I've handed you --
13 MR. AMON: Could I have a copy,
14 Counsel?
15 MR. SCHWARTZ: It's the exact
16 replica of the figure that's in his
17 report.
18 MR. AMON: It's been blown up?
19 MR. SCHWARTZ: I'll get you a
20 copy.
21 MR. AMON: Thank you.
22 MR. SCHWARTZ: Can I see it for a

1 second, sir?
2 THE WITNESS: Oh, sure.
3 (Document handed.)
4 MR. AMON: This was marked as
5 1032?
6 MR. SCHWARTZ: 1052.
7 EXAMINATION BY MR. SCHWARTZ:
8 Q. You've been handed what's been identified
9 as MSD 1052.
10 **A. Thank you.**
11 Q. Can we agree that's a proportionate
12 representation of the figure that's in your report?
13 **A. Yes.**
14 Q. Okay, sir, I'm going to hand you cut-out
15 of that exact implant which I invite you to put on
16 top of it to compare the size. Is it the same size,
17 sir?
18 **A. Yes.**
19 Q. Okay, sir.
20 **A. Sorry.**
21 Q. No. Now, sir, isn't it fair to say that
22 even with your exaggerated implant, it will fit

1 within that disk space?
2 **A. Would you want a spine surgeon to do the**
3 **case on your back with that implant?**
4 Q. I'm not asking you that question, sir.
5 I'm asking you does it fit within the disk space?
6 **A. It doesn't.**
7 Q. It's within the circumference of that disk
8 space, sir?
9 **A. But if you look at this, posteriorly you**
10 **are invading the spinal canal with that implant**
11 **because the implant that we're putting in here is**
12 **right in the space, and you're looking anteriorly.**
13 **You've already penetrated all the annular ligaments**
14 **and actually abutting against the vein.**
15 Q. Is it within the circumference of the
16 vertebral body?
17 **A. No, just protruding. I would not do that**
18 **case that way.**
19 Q. I'm not asking if you would do the case.
20 I'm asking you does it fit within the circumference
21 of the vertebral body?
22 MR. AMON: Asked and answered.

1 **A. It is sitting on the rim and it's just**
2 **protruding and it's dangerous.**
3 Q. So it's sitting on the rim. Where is it
4 protruding?
5 **A. This is the vena structure and that's**
6 **protruding, and that posteriorly is already in the**
7 **spinal canal because the spinal canal comes down**
8 **below.**
9 Q. Well, sir, the spinal canal is over here,
10 right?
11 **A. No, no, that's where the nerves are.**
12 **That's where the nerve structures are sitting, right**
13 **in this whole space here. This is where your**
14 **entrance point. No surgeon would leave the corner**
15 **sticking out there.**
16 Q. Okay, sir. How about pointed in the other
17 direction?
18 MR. AMON: Can I have a copy of
19 that one please, Mr. Schwartz?
20 MR. SCHWARTZ: You want to take a
21 break and make a copy? Want to take a
22 break? We can take a break and make a

1 copy. I'm trying to move this along.
2 MR. AMON: No need to raise your
3 voice, Mr. Schwartz.
4 MR. SCHWARTZ: I'm not raising my
5 voice, Counsel.
6 MR. AMON: We'll get a copy at
7 the next break.
8 **A. In an oblique implant, you don't want the**
9 **implant sitting on the rim of the vertebral body.**
10 **That's the reason why an implant of the size and this**
11 **dimension that you're talking about cannot be used.**
12 EXAMINATION BY MR. SCHWARTZ:
13 Q. But, sir, does it sit within the
14 circumference?
15 **A. First of all, we don't know the dimension**
16 **of this vertebral body and, secondly, we don't know**
17 **here what the length is that we are measuring.**
18 Q. I'm just working from your picture, sir.
19 **A. My picture is an illustration. I don't**
20 **have any numbers there to show that.**
21 Q. I understand.
22 **A. As I said to you, it's an illustration**

1 **showing when a cage is too long, it will stick out**
2 **through the anterior vertebral body, and whenever you**
3 **have to take down the annulus at an oblique angle**
4 **approaching from anywhere, posterior, posterolateral,**
5 **there is risk.**
6 Q. Does it fit within the circumference, sir?
7 **A. It sits on the rim.**
8 Q. It's on the rim. It's not protruding.
9 **A. One corner is very close.**
10 Q. Very close but not protruding?
11 **A. Very close.**
12 MR. SCHWARTZ: Thank you, sir.
13 Why don't we take a short break so we
14 can make copies of this picture.
15 MR. AMON: Why don't we keep
16 going?
17 MR. SCHWARTZ: Why don't we take
18 a short break to make copies of this
19 picture.
20 (Whereupon, there was a pause in
21 the proceedings.)
22 MR. SCHWARTZ: This is MSD 1032,

1 sir, I've handed you again just. So
2 we're clear, MSD 1032. Counsel, your
3 copy.
4 MR. AMON: Thank you. And we
5 should mark this second one MSD 1053?
6 (MSD Exhibit 1053, diagram,
7 marked for identification, this date.)
8 EXAMINATION BY MR. SCHWARTZ:
9 Q. The second one, sir, as we talked about is
10 the implant that was sitting on the ground. And now
11 I'm going to hand you what's going to be marked as
12 MSD 1054.
13 (MSD Exhibit 1054, diagram,
14 marked for identification, this date.)
15 Q. On MSD 1054, you see that implant, at
16 least in your report, was slightly greater than
17 40 millimeters, is within the translateral width of
18 the implant but just barely so, right?
19 **A. By this drawing, which we have no proper**
20 **delineation of size, as the illustration, yes.**
21 Q. Okay. And it's fair to say, referring
22 back to Zhou, which you have in front of you, that

1 the lower vertebral width of a male at L4-L5 is 55.1
2 plus or minus 4.1, correct?
3 **A. That's correct.**
4 Q. So this implant that we've been playing
5 with that spans almost the entire transverse width
6 of the vertebra, if this were a male at L4-L5 would
7 be pretty close to 55 millimeters long, right, sir?
8 MR. AMON: Objection,
9 speculation, incomplete hypothetical,
10 assumes facts not in evidence.
11 MR. SCHWARTZ: And coaching the
12 witness.
13 **A. As I've said, we don't have dimension,**
14 **accurate dimension on the illustration. So having**
15 **accurate dimension on this, then that would be**
16 **meaningful but I would agree with you on the**
17 **illustration. What you're showing here is an**
18 **illustration of the cage that you cut out the size of**
19 **a 40 plus sits within the vertebral space.**
20 Q. And if that were a male at L4-L5, that
21 implant would be at least 50 millimeters long,
22 right, sir?

1 **A. Once more, if this was --**

2 Q. If this was a male at L4-L5, that implant

3 would roughly be about 50 millimeters long, right?

4 MR. AMON: Objection; incomplete

5 hypothetical, speculation, assumes

6 facts not in evidence.

7 **A. I can't say that because there's no marking**

8 **for me to be able to measure the length. I can only**

9 **say that this is shorter than the full transverse**

10 **width.**

11 Q. But only slightly so, right, sir?

12 **A. We're back to your slightly and to my**

13 **slightly again, so when we say slightly, is this**

14 **4 millimeter slightly or 5 millimeter slightly?**

15 Q. What do you think, sir --

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

17 Q. -- 4 or 5?

18 **A. I think for you and I to guess 4 or 5**

19 **millimeters shorter, it be totally a guess. It**

20 **wouldn't --**

21 Q. If it's 4 or 5 millimeters shorter, and in

22 a male at L4-L5, that would make that implant about

1 50 millimeters long; right, sir? I'm just trying to
2 get to relative sizing.
3 **A. I like to give you relative sizing but I'm**
4 **trying to understand why you're taking this path of**
5 **questioning. I'm trying to understand you so I can**
6 **answer you better.**
7 Q. Fair enough, sir. If we go back to the
8 prior figures, 1053, where we said that it was
9 sitting on the rim and not protruding, that same
10 implant --
11 **A. Wait, wait, wait. We say this one here is**
12 **just breaking through the annular wall. I said**
13 **sitting on the rim anterior, is just protruding,**
14 **that's what it shows, and if you say the space, yes,**
15 **there's space but here there's no space; it's**
16 **protruding, and then posteriorly the corner is at a**
17 **risky location because it is in the posterior through**
18 **the posterior annular wall.**
19 Q. Okay, sir, proportionately speaking on a
20 male, L4-L5, with an implant that goes the entire
21 transverse width, it would be bigger than
22 41 millimeters long; correct, sir? It would be

1 closer to 50 millimeters long?
2 **A. Ask that one again.**
3 Q. The point I'm trying to make, sir, is that
4 this length is not, proportionately speaking, for a
5 male, L4-L5, 41 millimeters, it's something much
6 larger than that; is that a fair estimate?
7 **A. I don't have a length of this and I'm not**
8 **purporting it to be anything. You are purporting it**
9 **to be a certain length.**
10 Q. Sir --
11 **A. You're the one who proved to me that on**
12 **your first, I'm sorry, illustration which is 1052,**
13 **that this thing here, according to you, okay, is way**
14 **longer than just 40 plus.**
15 Q. I'm sorry, finish you sentence, sir.
16 **A. And now you're asking me to take that**
17 **length again. I agree with you that this thing here**
18 **is just an illustration. It is not meant to be**
19 **anything, so even if this just slightly protruding,**
20 **let's take it back to only -- take away 4, 5**
21 **millimeters, that implant there is still risky.**
22 Q. Fair enough, sir. I'm not asking you

1 about risk and so that's somewhat nonresponsive to
2 my question. Let's try it this way.
3 **A. I want to be responsive, Counselor.**
4 Q. A 41 millimeter long implant placed
5 diagonally on an L4-L5 male would fit within the
6 circumference of that male's disk space?
7 **A. We've shown that in the drawing, if this is**
8 **correct --**
9 Q. Sir, I think we got to the point that that
10 implant is a exaggeration. I'm trying to ask you
11 generally, a 41 millimeter implant laying in the
12 disk space diagonally of an average male at the
13 L4-L5, which has an average width of 55.1 and an
14 average depth of 34.6, 41 millimeters would fit well
15 within that circumference, correct?
16 **A. That's correct.**
17 Q. Thank you, sir.
18 **A. That was easy. Why didn't you ask that**
19 **first?**
20 Q. There you go.
21 MR. SCHWARTZ: We're going to
22 mark this MSD 1028.

1 (MSD Exhibit 1028, US Patent
2 number 7,815,682, marked for
3 identification, this date.)
4 EXAMINATION BY MR. SCHWARTZ:
5 Q. Sir, I've handed you what's been
6 identified as MSD 1028, which I'll represent for the
7 record is US patent number 7,815,682 and this is a
8 patent that at least on the face of it indicates is
9 assigned to NuVasive, correct, sir?
10 MR. AMON: Take your time to
11 review the document, Dr. Yuan.
12 Q. I'm just asking if it's assigned to
13 NuVasive according to the face of the patent, sir?
14 **A. Yes, it says that.**
15 Q. If you would, sir, turn to page -- column
16 4?
17 **A. I haven't seen this document before.**
18 Q. I understand, sir. I'd like to ask you a
19 specific question with regard to the specific
20 dimensions of this implant. I'm not sure you need
21 to study the document to answer the question. If
22 you think you do when I ask you the question, let me

1 know that.
2 **A. Okay. What would you like me to look at,**
3 **sir?**
4 Q. I'd like you to look at column 4 and lines
5 43 to 45. You see there, sir, that there's a
6 description of the dimensions of this implant as
7 being between 20 and 45 millimeters long, right,
8 sir, the length ranging between 20 and 45
9 millimeters?
10 **A. Just a minute.**
11 Q. Sure.
12 **A. Okay, sir.**
13 Q. So it shows that this implant is described
14 as having a length ranging from 20 to 45
15 millimeters; correct, sir?
16 **A. That's this implant 10?**
17 Q. Correct.
18 **A. Yes.**
19 Q. And that implant is a banana-shaped
20 implant, right, sir?
21 **A. Yes, that's what we call banana shape.**
22 Q. We can move on unless you want to look at

1 that some more.
2 (MSD Exhibit 1029, US Patent
3 number 8,623,088, marked for
4 identification, this date.)
5 Q. Sir, you've been handed a document
6 identified as MSD 1029. I'll represent for the
7 record that this is United States patent 8,623,8 --
8 088?
9 **A. That's correct.**
10 Q. This is another patent assigned to
11 NuVasive, correct?
12 **A. That is correct.**
13 Q. If you would, sir, turn to column 5 and
14 ask a very similar question.
15 MR. AMON: I'll just object to
16 this entire line of questioning as
17 irrelevant, beyond the scope.
18 Q. Column 5 --
19 **A. Yes.**
20 Q. -- at about line 35. You see, sir, it
21 describes a length ranging from between 25 and 45
22 millimeters?

1 MR. AMON: Objection; beyond the
2 scope and relevance.
3 **A. That's correct.**
4 Q. And you see, sir, for example in
5 figure 13, this is an implant that's inserted by I
6 think what you described as a posterolateral
7 approach; is that fair to say?
8 MR. AMON: Objection; assumes
9 facts not in evidence. Dr. Yuan, if
10 you need to review the document to
11 answer that question, go ahead.
12 MR. SCHWARTZ: If you'd like more
13 time to coach the witness, I'll
14 object.
15 Q. I think you answered the question and said
16 that's correct. Right, sir?
17 **A. Looking at the illustration this appears to**
18 **be a bilateral posterolateral approach which is not a**
19 **good thing.**
20 Q. Okay, sir. Thank you. You say it's not a
21 good thing. Do you think that NuVasive would
22 describe in a patent application something that they

1 thought was unsafe?
2 MR. AMON: Objection; beyond the
3 scope, speculation.
4 **A. I wouldn't know what NuVasive would be**
5 **thinking about. I'm only looking at it from a**
6 **surgical point of view and I'm not seeing this device**
7 **marketed because this requires a bilateral TLIF**
8 **approach.**
9 MR. SCHWARTZ: Mark this as 1030.
10 (MSD Exhibit 1030, MAS TLIF
11 brochure, marked for identification,
12 this date.)
13 Q. Sir, I've handed you what's been marked as
14 MSD 1030. As you just mentioned, that you had not
15 seen this marketed, and I realize that suggests that
16 you're not familiar with this document; is that
17 correct?
18 **A. That's correct.**
19 Q. Is it fair to say, if you turn to page 6,
20 where it says what implants are used --
21 **A. There's no page on this.**
22 Q. I understand. It's the sixth page. On

1 the top it says what happens during surgery. On the
2 bottom it says what implants are used. Do you see
3 it, sir?
4 **A. Yes.**
5 Q. On the bottom, does that appear to be a
6 very similar implant to what we just looked at in
7 MSD 1029?
8 MR. AMON: Objection; beyond the
9 scope, speculation.
10 **A. I'm not familiar with this implant so --**
11 Q. I'm just asking if it looks the same or
12 similar to what's represented, for example, in
13 figure 11 of MSD 1029?
14 **A. That's a single implant, that's correct.**
15 Q. All right. Thank you, sir.
16 (MSD Exhibit 1018, "Medtronic
17 VERTE-STACK PEEK Stackable Corpectomy
18 Device Surgical Technique", marked for
19 identification, this date.)
20 Q. Thank you, sir. You've been handed a
21 document identified as MSD 1018. I'll represent for
22 you that this is the Medtronic Sofamor Danek PEEK

1 Stackable Colpectomy Device Surgical Technique. Do
2 you see that, sir?
3 **A. Yes.**
4 Q. So this describes -- as a person of skill
5 in the art what is it your impression that this
6 document describes?
7 **A. This illustrates a modular stackable cage**
8 **that is used for a colpectomy, horizontal,**
9 **multiple-level colpectomy.**
10 Q. Have you ever used the VERTE-STACK system,
11 sir?
12 **A. I have used something from Medtronic of a**
13 **so-called stackable but I don't know this is**
14 **VERTE-STACK and the material is made out of PEEK. I**
15 **don't know whether the name is a VERTE-STACK.**
16 Q. If you could, sir, turn to what appears to
17 be page 6, step 5 that talks about device insertion
18 and placement.
19 **A. Yes, sir.**
20 Q. You see there, sir, it describes the
21 VERTE-STACK device and I'll read the sentence:
22 "Where you thread the inserter rod into the

1 appropriate hole on the center device for the
2 approach used (anterior, oblique or lateral)."
3 Did I read that correctly, sir?
4 **A. Yes.**
5 Q. So is it fair to say that this device, the
6 VERTE-STACK device is designed for an anterior,
7 oblique, or lateral approach?
8 **A. Yes.**
9 Q. That's all I have on that. One last
10 question about the VERTE-STACK system, sir. You see
11 on the last page the important information on
12 VERTE-STACK's spinal system? The last page. I'm
13 sorry, sir, the second-to-last page where it talks
14 about important information on the VERTE-STACK
15 system, that page?
16 **A. Yes, I'm looking at the page.**
17 Q. Okay, sir. You see the first sentence
18 says: "The VERTE-STACK spinal system is intended
19 for a vertebral body replacement to aid in the
20 surgical correction and stabilization of the spine."
21 Did I read that correctly?
22 **A. Correct.**

1 Q. So VERTE-STACK is a vertebral body
2 replacement, correct, sir?
3 **A. Yes.**
4 Q. Thank you. Backing up, sir, to the
5 discussion of the Frey reference and actually the
6 Boomerang implant, have you actually used the
7 Boomerang?
8 **A. Yes, I have.**
9 Q. Do you know when you first started using
10 it?
11 **A. I couldn't tell you a date. Offhand I**
12 **couldn't even tell you how many times I've used the**
13 **Boomerang itself. I've done many TLIFs, and the**
14 **Boomerang is one of them that I've used.**
15 Q. So the only way you've put it in is as a
16 TLIF?
17 **A. Yes. That's what the brochure directs us**
18 **and that's what the guide is designed for.**
19 MR. SCHWARTZ: Mark this as MSD
20 1017.
21 (MSD Exhibit 1017, 1/5/2010 NASS
22 memo re: Lateral Interbody Fusion

1 (XLIF, DLIF) of the Lumbar Spine,
2 marked for identification, this date.)
3 EXAMINATION BY MR. SCHWARTZ:
4 Q. Sir, have you seen this document before,
5 MSD 1017?
6 **A. No, I've not seen this before but it comes**
7 **from NASS. Can I read it?**
8 Q. You may read it, sir.
9 **A. Thank you.**
10 Q. Admittedly I'm running out of time.
11 Unfortunately it's only four pages long.
12 **A. (Witness reads.) Should I read it all or**
13 **you want to ask something?**
14 Q. I was ready to ask questions about it but
15 you wanted to read it.
16 **A. I don't want to -- maybe you want -- I**
17 **don't want to waste your time.**
18 Q. That sounds great, sir.
19 **A. If I need to read it, I will.**
20 Q. Okay, sir. I'm referring primarily to the
21 conclusions that appear to be presented at the
22 bottom of page 3 and those bullet points.

1 **A. You would pick the tail end that I haven't**
2 **read.**
3 Q. Sorry, sir. And I guess, going to the
4 second-to-last bullet, it says: "XLIF and DLIF
5 should be coded and reimbursed as an ALIF"; is that
6 correct?
7 **A. Yes.**
8 Q. XLIF and DLIF are both what we've been
9 discussing earlier today as transpsoas lateral
10 procedures, correct, sir?
11 **A. Correct.**
12 Q. So the NASS apparently indicates at the
13 next sentence: "The technical execution and
14 surgical principles of LIF are sufficiently
15 analogous to, if not a variation of, ALIF," correct?
16 **A. Mm-hmm, yes.**
17 Q. So NASS has come to the conclusion that a
18 transpsoas -- strike that -- a transpsoas lateral
19 approach is analogous to, if not a variation of,
20 ALIF, correct?
21 MR. AMON: Objection, the
22 document speaks for itself.

1 **A. NASS here is trying to get reimbursement**
2 **for the doctors so they are -- the reimbursers will**
3 **reimburse for an ALIF and to take a quote unquote**
4 **newer -- not an approach. We say the approach has**
5 **been there a long time but to take an evolving**
6 **technology that is beneficial to the patient, they**
7 **are trying to get approval so both Medtronic and**
8 **NuVasive gets reimbursed also. So that's what these**
9 **are, claims here just say reimburse as ALIF.**
10 Q. And --
11 **A. That's all it's meant for.**
12 Q. And that's being used so that insurance
13 companies will reimburse for that procedure, right,
14 sir?
15 **A. That's what it's intended for.**
16 Q. And certainly NASS is not intending to
17 commit insurance fraud; they're trying to tell the
18 truth?
19 MR. AMON: Objection; speculation
20 as to what NASS is trying to or not
21 trying to do.
22 Q. You can answer.

1 **A. NASS is a multi-disciplinary spine**
2 **organization that's trying to make sure patients that**
3 **need care gets the best care. As you and I have been**
4 **discussing today, the evolution of spinal procedure**
5 **has gone from wide open to less open to minimally**
6 **invasive, giving you better outcome for the patient**
7 **and faster recovery.**
8 **NASS's point here is to say that when**
9 **you do an XLIF or DLIF, the procedure is as demanding**
10 **as that of an ALIF. That's all they're trying to**
11 **say.**
12 Q. What they're saying though is that it's
13 analogous to, if not a variation of ALIF.
14 **A. It allows you, because of difficulty, the**
15 **time amount and the training of the surgeons, okay,**
16 **it's analogous to that of an ALIF so the**
17 **reimbursement can be coded as an ALIF. This has**
18 **nothing to say about anything technical. This is**
19 **merely a description of an approach to the spine that**
20 **is better than a big open procedure or a**
21 **laparoscopic, which is risky.**
22 Q. Well, sir, isn't it because of the fact

1 that the implant is basically sitting in the same
2 place, too, from an ALIF?
3 **A. Not at all.**
4 Q. It's sitting in the anterior portion of
5 the space, right?
6 **A. So does the PLIF cage. It clearly says, in**
7 **the last sentence, if you read, that it's not.**
8 Q. Well, actually the last sentence -- I'm
9 sorry, which last sentence are you referring to, the
10 last sentence in that bullet or the next bullet?
11 **A. "XLIF and DLIF, which are anterior**
12 **procedures, should not be confused with posterior**
13 **procedure" --**
14 Q. Right.
15 **A. -- "that have similar sounding names, such**
16 **as TLIF, PLIF and GLIF."**
17 Q. Right. So it's saying XLIF and DLIF are
18 anterior procedures?
19 **A. It's just saying that it's a lateral**
20 **approach, transpsoas to the vertebral body, and they**
21 **want it to be reimbursed as that of an ALIF because**
22 **of the technical difficulty, and the training**

1 **required for the surgeons, it's beneficial to the**
2 **patient. So it is meant to -- it is really meant to**
3 **benefit the patient of able to get a procedure and be**
4 **reimbursed.**
5 Q. While being accurate in their discussion
6 to the insurance company, correct?
7 MR. AMON: Objection; the
8 document speaks for itself.
9 **A. It didn't say anything about accurate to**
10 **the insurance company. It just merely said that you**
11 **are using an approach that is safe and it benefits**
12 **the patient.**
13 Q. Okay, sir, but I thought we got to the
14 point where the purpose of this was to make sure
15 that the surgeon was reimbursed, correct?
16 **A. And the company manufacturing it is**
17 **reimbursed, but the purpose, when NASS does allow**
18 **things, is to make sure it benefits the patient**
19 **first.**
20 Q. I understand that, sir.
21 **A. That's its one and only purpose. By not**
22 **being approved, not having a code, then the patient**

1 **don't benefit.**

2 MR. AMON: Mr. Schwartz, I'm

3 pretty sure we've over time so I don't

4 know if you want to wrap it up.

5 Q. The entities that are reimbursing are the

6 insurance companies, correct? The insurance

7 companies are the ones paying for these procedures,

8 at least in part? I didn't want to ask a compound

9 question by saying other entities. So the insurance

10 companies are reimbursing at least in part, right?

11 **A. What do you mean by "in part"?**

12 Q. As opposed to other entities. Let me

13 strike the question.

14 Reimbursement is done by either the

15 insurance companies, the government, or an

16 individual like the patient, correct?

17 **A. Correct.**

18 Q. Okay. And so certainly when NASS is

19 issuing this kind of a statement, it's for the

20 purpose of getting the insurance company or the

21 government to pay for that surgery, correct?

22 MR. AMON: Objection; asked and

1 answered.

2 **A. NASS is doing this mainly because of the**

3 **patients are not covered of whatever insurance they**

4 **have or they have a self pay. They will not get this**

5 **procedure which is beneficial to them versus a TLIF**

6 **procedure because a TLIF procedure is more painful**

7 **and longer time recovery to a procedure that allows**

8 **the patient to have the procedure done and be up and**

9 **be ambulating and recovering quicker and back to**

10 **activities quicker.**

11 **NASS here is just saying the technical**

12 **procedure that you're doing on the XLIF or a DLIF is**

13 **equivalent in time, skill to that of an ALIF, and you**

14 **are stabilizing, as you said, the anterior column.**

15 Q. Okay. Thank you, sir. We'll wrap up that

16 line.

17 MR. SCHWARTZ: I take it I've run

18 out of time?

19 MR. AMON: I think you're over.

20 Maybe we should ask.

21 THE STENOGRAPHER: Nine minutes.

22 MR. SCHWARTZ: Nine minutes over?

1 THE STENOGRAPHER: Yes.
2 MR. AMON: Let's go off the
3 record for ten minutes. I'm going to
4 ask you, are you passing the witness
5 at this point?
6 MR. SCHWARTZ: I have more to ask
7 but I concede that I'm at seven hours,
8 so we've got to decide if we need more
9 time but I know we agreed that this
10 deposition would be 7 hours.
11 MR. AMON: Just like we did with
12 Dr. Hynes.
13 MR. SCHWARTZ: So that's where we
14 are.
15 MR. AMON: So, Mr. Schwartz, are
16 you passing the witness or not?
17 MR. SCHWARTZ: Well, like I said,
18 I have more to ask.
19 MR. AMON: Well, based on our
20 agreement Dr. Yuan has made --
21 MR. SCHWARTZ: Fine. I pass the
22 witness but I'm not done yet, how's

1 that?
2 MR. AMON: Well, can you state
3 for the record that you're passing the
4 witness and you have no further
5 questions at this time?
6 MR. SCHWARTZ: No, I said I pass
7 the witness based on our agreement
8 that it would go seven hours.
9 MR. AMON: Well, then I'll
10 interpret that as saying you're
11 passing the witness and you've
12 completed your direct
13 cross-examination or
14 cross-examination.
15 MR. SCHWARTZ: Okay, and I have
16 not represented that I've completed
17 but I am willing, for today, to live
18 to the agreement of seven hours.
19 MR. AMON: So we'll go off the
20 record then.
21 MR. NELSON: Jeff, could you
22 clarify --

1 MR. AMON: Before we go off the
2 record then, are you going to ask him
3 to clarify the record?
4 MR. NELSON: I can. You have
5 something in mind that I'm not
6 understanding of whether you think
7 you're entitled to more time or not?
8 Could you clarify?
9 MR. SCHWARTZ: Well, sure. We
10 can talk about it in detail if you'd
11 like. I'm not done asking questions.
12 There's three IPRs that are going on.
13 I fully agree and admit that I agreed
14 to seven hours going into this.
15 Now, of course, I had no idea going
16 into this how the questions and
17 answers would go and how much time it
18 would specifically take so there's no
19 way to predict how that would evolve.
20 I think, in fairness, the rules can be
21 read to give me three, seven-hour
22 depositions of Dr. Yuan because we

1 have three procedures going on.
2 That being said, we agreed to
3 seven hours for cross and I'm willing
4 to live with that agreement. I have
5 to go back and decide am I going to
6 ask for another deposition and justify
7 that either to you or to the PTAB, and
8 if we want to talk about it some more,
9 we might want to let Dr. Yuan take a
10 break while we discuss this.
11 MR. AMON: I agree with that.
12 Why don't we let Dr. Yuan take a
13 break.
14 (Whereupon, the witness was then
15 excused.)
16 MR. AMON: Now, Mr. Schwartz, we
17 had an agreement that went both ways
18 where we agreed to be limited to
19 Dr. Hynes to seven hours. We lived by
20 that agreement. And it's a
21 goose-gander situation here where we
22 lived to seven hours; you should be

1 expected and should live to the same
2 seven hour period. If you're now
3 going to renege on the agreement that
4 we had, I'd like to know that now.
5 MR. SCHWARTZ: How am I reneging
6 on the agreement? I just passed the
7 witness to you and I fully agreed on
8 record that I said that I would do my
9 cross for seven hours.
10 MR. AMON: Because you're not --
11 you're attempting to leave open the
12 deposition.
13 MR. NELSON: You're saying --
14 MR. AMON: Let him speak.
15 MR. SCHWARTZ: How is that not
16 living to my agreement that this
17 deposition went for seven hours? I
18 could not possibly predict in advance
19 that I was going to be debating what
20 the meaning of necessary or rational
21 or motivated was to someone who used
22 those words in their Declaration, and

1 we wasted a lot of time going back and
2 forth on that and we wasted time with
3 him reading his own documents, not
4 just new documents, his own documents,
5 before answering questions.
6 Now, I appreciate on the record
7 you advised him to read the documents,
8 so he went ahead and took your advice
9 and read those documents. That all
10 goes into how long this takes.
11 MR. AMON: You don't need to
12 raise your voice, Mr. Schwartz.
13 MR. SCHWARTZ: I'm just answering
14 your question.
15 MR. AMON: You're getting
16 aggressive and it's intimidating me
17 here so to the extent that you need
18 to -- want to have a rational
19 discussion without raising your voice,
20 we can do that but to the extent that
21 you're going to insist on pounding the
22 table --

1 MR. SCHWARTZ: I didn't pound the
2 table.
3 MR. AMON: That was --
4 MR. SCHWARTZ: Mr. Martin, did
5 you see me pound the table?
6 MR. MARTIN: You did not pound
7 the table.
8 MR. AMON: You're going to insist
9 on raising your voice and having a
10 heated discussion, we can end this.
11 To the extent you need to go to the
12 Board, go ahead and do that. As far
13 as I'm concerned, this deposition is
14 closed for purposes of your direct
15 examination of Dr. Yuan.
16 MR. NELSON: Cross.
17 MR. AMON: Cross.
18 MR. SCHWARTZ: So the record is
19 clear, I didn't raise my voice any
20 louder than Mr. Amon just did.
21 MR. AMON: Come on.
22 MR. SCHWARTZ: So let's make sure

1 that the written document accurately
2 reflects that we are generally at the
3 same decibel level.
4 MR. AMON: I disagree with that
5 but that's fine.
6 MR. SCHWARTZ: We agree to
7 disagree.
8 MR. NELSON: So you're going to
9 be done with cross today; you're going
10 to reserve to petition the Board for
11 more days, is that accurate?
12 MR. SCHWARTZ: I agree that I
13 completed my seven hours that we
14 agreed to.
15 MR. AMON: Why don't we take a
16 break.
17 (5:24 p.m.)
18 (A recess was then taken.)
19 (5:47 p.m.)
20 MR. SCHWARTZ: So the record is
21 clear, counsel for NuVasive felt it
22 was appropriate to sit in a conference

1 room with the witness during the break
2 to apparently coach the witness before
3 the redirect begins. So I'm
4 registering an objection, which is
5 plainly against the rules of the
6 Patent and Trademark Office and as far
7 as I'm concerned, this entire redirect
8 should be stricken from the record and
9 it certainly will be if they try to
10 rely on it.
11 MR. AMON: And I would just
12 respond to Mr. Schwartz's statements
13 that the Patent Office has issued case
14 law on this including specifically
15 Focal Therapeutics, Inc. Versus
16 SenorX, Inc, indicating that once
17 cross-examination is completed,
18 defendant counsel is permitted to
19 confer -- let me put it in for the
20 record, the case number, it's case
21 IPR2014-00116. That defendant counsel
22 is permitted to confer with the

1 witness once cross-examination is
2 completed and the witness has been
3 passed.
4 MR. SCHWARTZ: I'm sorry, could
5 you say that again? You can read it
6 from the record or say it.
7 MR. AMON: I can say it. What
8 part do you need?
9 MR. SCHWARTZ: What's the
10 citation?
11 MR. AMON: IPR2014-00116.
12 MR. NELSON: Paper 19.
13 EXAMINATION BY MR. AMON:
14 Q. Dr. Yuan, do you recall Medtronic counsel
15 putting in front of you Exhibit MSD 1107 -- mine has
16 notes, I'd rather not. I'm sorry, let me ask my
17 question again.
18 Dr. Yuan, do you remember Medtronic
19 counsel putting in front of you Exhibits 1107, 1106
20 and 2012 and asking you some questions about those
21 exhibits during your deposition?
22 MR. SCHWARTZ: Objection,

1 leading.

2 **A. I've seen these three.**

3 Q. Okay. And do you recall Medtronic counsel

4 asking you -- let's use as an example 1107 which you

5 have in front of you -- Medtronic counsel asking you

6 questions about the statement in the bottom

7 left-hand corner of page 1, the sentence that reads:

8 "The VERTE-STACK Telamon PEEK Vertebral Body Spacer

9 is a vertebral body replacement device intended for

10 use in the thoracolumbar spine (T1 to L5) to replace

11 a collapsed, damaged, or unstable vertebral body due

12 to tumor or trauma (i.e. fracture)."

13 Do you remember him asking you questions

14 about that sentence?

15 **A. Yes.**

16 Q. And do you remember Medtronic counsel

17 asking you questions about similar statements in

18 Exhibits 1106 and 2012?

19 **A. Yes.**

20 Q. Okay. Dr. Yuan, as a person of ordinary

21 skill in the art, do you understand there to be a

22 difference between a vertebral body replacement

1 device and an interbody fusion device?
2 MR. SCHWARTZ: Objection;
3 leading, form.
4 **A. The interbody fusion device is a device**
5 **that has specific -- specific length, specific width**
6 **because of the different routes of implantation and**
7 **different markers, different than the vertebral body**
8 **replacement which means you're replacing the whole**
9 **segment.**
10 **When you replace the whole segment of**
11 **bone, the vertebral body, that is not the disk. That**
12 **is the vertebral body including a disk, above and**
13 **below. So it's a vertebral body and two motion**
14 **segments.**
15 Q. Let me ask you a fairly simple question.
16 As a surgeon of ordinary skill in the art, would you
17 use the Telamon device reflected in Exhibit MSD 1107
18 as a vertebral body replacement?
19 **A. The Telamon is designed as a PLIF implant**
20 **and the dimensions are way smaller and also the**
21 **leading edge and the trailing edge, the lordotic**
22 **angle is also intended for push approach, not an**

1 **anterior or lateral approach.**
2 Q. From a clinical standpoint could you use
3 the Telamon implant pictured in MSD 1107 as a
4 vertebral body replacement the way you've described
5 that --
6 MR. SCHWARTZ: Objection;
7 leading, form.
8 **A. The Telamon that I'm looking at, MSD 1107,**
9 **that is both illustrated here and also described in**
10 **the -- this brochure by Medtronic is clearly defined**
11 **as a PLIF implant, not a vertebral body replacement.**
12 Q. And when you say "PLIF implant" you mean a
13 PLIF interbody fusion device?
14 **A. That's correct.**
15 Q. Okay. Would your responses be -- well,
16 strike that.
17 Let me take these one at a time. If I ask
18 you to turn now to Exhibit MSD 1106.
19 **A. Yes, sir.**
20 Q. And that is the document referring to the
21 Vertebral Spacer-PR by Synthes, correct?
22 **A. Yes.**

1 Q. You analyzed this document as part of --
2 in forming your opinions in this matter, correct?
3 **A. Yes, I did.**
4 Q. As a surgeon of ordinary skill in the art,
5 in your opinion could the device pictured in MSD
6 1106 be used as a vertebral body replacement device?
7 MR. SCHWARTZ: Objection to form,
8 leading.
9 **A. The device in this illustration and also in**
10 **this brochure is designed as a vertebral spacer, and**
11 **vertebral spacer meaning an interbody spacer because**
12 **of the dimensions and because of the contours, and,**
13 **again, this is designed for a posterior lumbar**
14 **interbody approach, the force of the lordotic angle,**
15 **and also because of the sizing.**
16 Q. Sticking still on MSD 1106, Dr. Yuan, are
17 you aware of a Synthes Vertebral Spacer-AR?
18 **A. Yes.**
19 Q. And do you know what that device -- how
20 that device is different from the Vertebral
21 Spacer-PR?
22 **A. I have not seen one of those devices.**

1 Q. Let me see --
2 **A. I've only read about it in their**
3 **descriptions.**
4 Q. Dr. Yuan, can I ask you to turn to your
5 Declaration in the '334 matter, please. I'll pull
6 that out for you. I believe that's it.
7 If you could turn to page 43 of this
8 document, paragraph 83, and if you could read that
9 entire paragraph to yourself and let me know when
10 you've done that, please.
11 **A. Page 43 --**
12 Q. You can just read it to yourself.
13 **A. Okay. (Witness complies.) Okay.**
14 Q. Dr. Yuan, having read paragraph 83, do you
15 have an understanding as to the difference between
16 the SVS-AR device and the SVS-PR device?
17 **A. Yes.**
18 Q. What is that?
19 **A. SVS-PR is much smaller in dimension and I**
20 **suppose in length and also in width.**
21 Q. Is it your understanding that the SVS-AR
22 is an anterior -- is a device designed for anterior

1 insertion?
2 **A. Yes, it is designed for and that is what is**
3 **stated.**
4 Q. You can put that aside, Dr. Yuan.
5 Dr. Yuan, if I could ask you now turn to
6 the Exhibit NuVasive 2012 which is the Boomerang
7 brochure I think. Right there. And, again, I'll
8 just -- to make sure the record is clear, if you
9 turn to the last page, the back page, do you recall
10 Medtronic counsel asking you questions about the
11 statement on page 6, starting: "The Boomerang
12 VERTE-STACK PEEK Vertebral Body Spacer is a
13 vertebral body replacement device? Do you recall
14 questions about that statement?
15 **A. Yes.**
16 Q. As a person of ordinary skill in the art,
17 do you consider to be the Medtronic Boomerang
18 VERTE-STACK PEEK device a vertebral body replacement
19 device?
20 MR. SCHWARTZ: Objection to form
21 and leading.
22 **A. The Boomerang is intended and designed, as**

1 **illustrated by this brochure, that it really is a**
2 **TLIF approach implant and designed from a**
3 **posterolateral approach and not as a vertebral**
4 **replacement, vertebral body replacement.**
5 Q. And when you say a TLIF device, do you
6 mean a TLIF interbody fusion device?
7 **A. That's correct.**
8 MR. SCHWARTZ: Objection,
9 leading.
10 Q. Now, Dr. Yuan, I want to switch gears a
11 little bit. And do you recall Medtronic counsel
12 asking you questions as to whether -- and I'm going
13 to paraphrase because I don't remember the exact
14 language, but as to whether it would have been
15 obvious for a surgeon to place two medial markers in
16 an implant that was going in laterally? Do you
17 recall those questions earlier today?
18 MR. SCHWARTZ: Objection to form;
19 mischaracterizes prior record.
20 **A. Yes, I recall the question.**
21 Q. Okay. Now, I want to get a little clarity
22 on your response there. Dr. Yuan, is it your

1 opinion that it would have been obvious to a person
2 of ordinary skill in the art before March 29th, 2004
3 for a person to place two medial markers, radiopaque
4 markers in an interbody fusion device that was going
5 in laterally?
6 MR. SCHWARTZ: Objection to form
7 and leading.
8 **A. Before 2004 there was no lateral implant**
9 **that had two markers in the medial plane.**
10 Q. So in your opinion would it have been
11 obvious to a person, prior to March 2004, to place
12 two markers in the medial plane?
13 MR. SCHWARTZ: Objection,
14 leading.
15 **A. Not before the patent came out for the**
16 **correct implant.**
17 Q. What changed after 2004?
18 **A. After the patent, the '334 patent came out,**
19 **and the '156 patent, that's the marker to tell you**
20 **that you need a medial marker and indicated you need**
21 **two markers to get a better control rotation.**
22 Q. Was 2004 the approximate time when the

1 CoRoent XL implant was launched by NuVasive?
2 MR. SCHWARTZ: Objection; form,
3 leading.
4 **A. Yes, after that.**
5 Q. Let met ask one -- hopefully one last
6 question. Going back for a second to the devices
7 that are pictured by MSD 1106, the Synthes VS-PR
8 device, Exhibit MSD 1107 the Medtronic device, and
9 the NuVasive 2012, the Boomerang device, Dr. Yuan,
10 would a surgeon of ordinary skill in 2004 have
11 understood these devices to be vertebral --
12 vertebral body replacement devices?
13 MR. SCHWARTZ: Objection;
14 leading, form, compound.
15 **A. No. A person skilled in the art would not**
16 **have interpreted any of these as vertebral body**
17 **replacements.**
18 Q. In 2004?
19 **A. In 2004.**
20 Q. What about today?
21 MR. SCHWARTZ: Same objections,
22 leading the witness, form.

1 **A. Not today either.**
2 MR. AMON: I have no further
3 questions for Dr. Yuan.
4
5 EXAMINATION BY MR. SCHWARTZ:
6 Q. Okay. Dr. Yuan, we're back on
7 cross-examination.
8 **A. Yes, sir.**
9 Q. You understand you're under oath?
10 **A. Yes, sir.**
11 Q. First off, during the break after my
12 cross-examination, you met with Mr. Amon; right?
13 **A. We were in the same room.**
14 Q. And you were talking to each other,
15 correct?
16 **A. We were talking.**
17 Q. What did you talk about?
18 MR. AMON: I'm going to instruct
19 the witness not to answer that
20 question as calling for work product.
21 MR. SCHWARTZ: So you're not
22 going to let the witness explain what

1 you said to him?
2 MR. AMON: Correct.
3 MR. SCHWARTZ: When you were
4 coaching him before the redirect?
5 MR. AMON: You can characterize
6 it however you want, Mr. Schwartz.
7 EXAMINATION BY MR. SCHWARTZ:
8 Q. Dr. Yuan, these questions that you were
9 presented on redirect --
10 **A. Yes, sir.**
11 Q. -- during the break, did counsel for
12 NuVasive discuss with you this concept of vertebral
13 body replacements?
14 MR. AMON: Again, I'm going to
15 instruct the witness not to answer as
16 calling for work product. Objection,
17 sorry.
18 Q. You're going to take that instruction,
19 sir?
20 **A. Yes, sir.**
21 Q. You're not going to tell me whether or not
22 counsel talked to you about changing your testimony?

1 MR. AMON: Objection;
2 mischaracterizes, assumes facts not in
3 evidence and, again, I'm going to
4 instruct the witness not to answer the
5 question.
6 Q. Sir, you did change your testimony, right?
7 **A. I didn't change my testimony. What was**
8 **stated in here, you asked me was it written here. My**
9 **answer was yes. You didn't ask me was this implant**
10 **actually used, which is what he asked.**
11 Q. Okay, sir, are you aware of all surgeons'
12 use of that product, any of those products you've
13 now talked about on redirect?
14 **A. Ask me that one more time, Counsel.**
15 Q. Are you aware of all uses of those
16 products by all surgeons at any time?
17 **A. As a vertebral body replacement?**
18 Q. All uses, sir. I'm asking you are you
19 aware of all uses of those products that you just
20 testified about on redirect by any surgeon at any
21 time?
22 **A. That is way too broad. I can't answer your**

1 **question in the way that you shouted it out.**
2 Q. So your answer is no; correct?
3 **A. No, sir.**
4 Q. You're not aware?
5 **A. I didn't say no.**
6 Q. So are you aware?
7 **A. You qualify and you tell me specifically**
8 **which --**
9 Q. No, sir, I'm not going to qualify my
10 question. I'm going to ask my question and I'd like
11 to get an answer; okay? Now my question, sir, is --
12 and I'll ask them one at a time -- as to the Telamon
13 represented in MSD 1107, are you aware of all uses
14 by any surgeon at any time of that product?
15 **A. No.**
16 Q. Okay. Thank you, sir. And as to the
17 Vertebral Spacer-PR represented in MSD 1106, are you
18 aware of all uses at any time by any surgeon of that
19 product?
20 **A. No.**
21 Q. And the same for the Boomerang as
22 represented in NuVasive 2012, are you aware of all

1 uses at any time by any surgeon of that product?
2 **A. No.**
3 Q. So you can't state categorically that
4 those three implants have never been used as
5 vertebral body replacements, correct?
6 MR. AMON: Objection;
7 mischaracterizes Dr. Yuan's testimony.
8 **A. What I tried to tell you, what I tried to**
9 **respond to you, Counsel, is to be as accurate as I**
10 **can, but these implants, the sizes, the design are**
11 **designed as vertebral body fusion devices,**
12 **intervertebral fusion devices. None of these to my**
13 **knowledge are used as a vertebral body replacement.**
14 Q. But you don't know for a fact that no one
15 has ever used them; correct, sir?
16 **A. I can tell you to the best of my knowledge**
17 **it has not been used.**
18 Q. But you don't know that as a fact here
19 under oath; correct, sir?
20 MR. AMON: Objection, asked and
21 answered.
22 **A. I'm under oath. I'm answering as**

1 **accurately as I possibly can.**

2 Q. Okay, sir, but you've already testified

3 that you don't know -- you're not personally aware

4 of all uses of these devices, correct?

5 MR. AMON: Objection; asked and

6 answered.

7 **A. We are asking as a vertebral body**

8 **replacement. So the answer is no.**

9 Q. Not my question. I'd appreciate if you'd

10 answer my questions. You were certainly willing to

11 answer your counsel's questions. I'd appreciate the

12 same treatment when answering my questions. You

13 seem to like to fight with me when it comes to

14 answering my questions --

15 MR. AMON: Argumentative.

16 Q. -- but you're cooperating with your

17 counsel when he's asking you leading questions.

18 MR. AMON: Mr. Schwartz, ask a

19 question.

20 Q. I'm going to ask you to please answer my

21 questions that I'm asking you, rather than trying to

22 avoid answering them, give me at least the same

1 courtesy that you showed Mr. Amon; okay, sir?
2 I'm going to ask you again, fresh
3 question: Can you state with absolute certainty
4 that no surgeon has ever used the Boomerang implant
5 as a vertebral body replacement?
6 MR. AMON: Objection; asked and
7 answered for the fourth time now.
8 MR. SCHWARTZ: I never asked that
9 question before.
10 MR. AMON: Yes, you did.
11 MR. SCHWARTZ: No, I didn't.
12 MR. AMON: Read the record back.
13 **A. You have narrowed it down to a vertebral**
14 **body replacement, so the answer I can tell you is I**
15 **can say to the best of my knowledge I know of no**
16 **surgeon having used it.**
17 Q. But to the best of your knowledge you
18 admitted you don't know what all surgeons have done;
19 correct, sir?
20 **A. But you're using all indications. Now**
21 **you're talking about vertebral body replacement.**
22 Q. So you can state with absolute certainty

1 under penalty of perjury that nobody has ever done
2 it?
3 **A. To my knowledge, under perjury, in all**
4 **statements I can say unequivocally the Boomerang, as**
5 **to the sizing and all is stated here has never been**
6 **used as a vertebral body replacement. It does not**
7 **have the size or the dimension, period.**
8 Q. Okay. But you're qualifying your answer
9 in a way that makes it nonresponsive to my question.
10 I'm going to ask the question and I ask you to be
11 responsive to my question; okay?
12 **A. Do my best.**
13 Q. Again, sir, I'm not asking you to your
14 best. I'm asking you as a matter of fact do you
15 have the knowledge; okay? Not asking you to your
16 best. I'm asking you do you have the knowledge.
17 Can you absolutely state that no doctor has
18 ever inserted a Boomerang implant as a vertebral
19 body spacer?
20 **A. I'd like to answer your questions also very**
21 **clearly but you leave the thing in broad**
22 **generalities, so it would be specific if there's a**

1 **Boomerang implant that is demonstrated in front of**
2 **me, this particular implant, these sizes, and all of**
3 **these, then I can answer to you unequivocally nobody**
4 **has ever used it for a vertebral body replacement.**
5 Q. Interesting.
6 **A. It's the truth. It hurts.**
7 Q. Sir, how can it possibly be the truth if
8 you don't know with absolute certainty what all
9 surgeons have done?
10 **A. I am absolutely certain that this**
11 **boomerang, the sizes as shown in this brochure, that**
12 **to the best of my knowledge no surgeon could use this**
13 **as a vertebral body replacement.**
14 Q. And that's to the best of your knowledge?
15 **A. That's what I'm answering as honest as I**
16 **can.**
17 Q. Despite the fact that it's called a
18 vertebral body replacement device; correct, sir?
19 **A. When they're saying a vertebral body**
20 **spacer, it's not a vertebral body replacement.**
21 Q. Okay.
22 **A. Spacer.**

1 Q. Okay, sir, on the last page of the
2 document you just referred to as a vertebral body
3 spacer, back page, last sentence -- actually not the
4 last sentence, it says that: The Boomerang
5 VERTE-STACK PEEK Vertebral Body Spacer is a
6 vertebral body replacement device intended for use
7 in the thoracolumbar spine (T1 to L5) to replace a
8 collapsed, damaged, or unstable vertebral body due
9 to tumor or trauma (i.e. fracture). That's what it
10 says, right?
11 MR. AMON: Objection; document
12 speaks for itself.
13 MR. SCHWARTZ: The document is
14 not talking.
15 MR. AMON: Document reads what it
16 reads, Mr. Schwartz.
17 MR. SCHWARTZ: The document is
18 not reading to me either.
19 **A. They talk about to replace a collapsed,**
20 **damaged, or unstable vertebral body. The sizing here**
21 **cannot be used, just doesn't fit.**
22 Q. But it says it is a vertebral body

1 replacement device; correct, sir? Those are the
2 words on the page.
3 **A. It says it in the Medtronic document here**
4 **but that's not what you can use it for.**
5 Q. That's what it's described as, correct?
6 MR. AMON: Objection; asked and
7 answered at least ten times now.
8 MR. SCHWARTZ: Never used those
9 words in a question before.
10 MR. AMON: Doesn't matter, the
11 substance of the question is the same.
12 EXAMINATION BY MR. SCHWARTZ:
13 Q. You can answer, sir.
14 **A. I've already answered.**
15 Q. So you're refusing to answer my question
16 now?
17 **A. I didn't say I refuse. I've already**
18 **answered the question.**
19 Q. The document describes the Boomerang
20 VERTE-STACK PEEK Vertebral Body Spacer as a
21 vertebral body replacement device, doesn't it, sir?
22 MR. AMON: Objection; asked and

1 answered.

2 **A. This device here, as one skilled in the**

3 **art, in no way can be implanted as a vertebral body**

4 **replacement. It is an interbody spacer.**

5 Q. Despite what the words on the document

6 say?

7 **A. That's correct.**

8 MR. SCHWARTZ: I'm going to mark

9 this MSD 1032.

10 (MSD Exhibit 1032, VERTE-STACK

11 Spinal System 510(k) summary, marked

12 for identification, this date.)

13 EXAMINATION BY MR. SCHWARTZ:

14 Q. Sir, you've been handed a document --

15 MR. AMON: Do you have copies,

16 Mr. Schwartz?

17 (Document handed.)

18 MR. AMON: Thank you.

19 Q. -- identified as MSD 1032. Can you

20 identify that for us, sir?

21 **A. VERTE-STACK Spinal System, 510(K) summary.**

22 **This is document 32.**

1 Q. So this a document that indicates the
2 regulatory approval for the VERTE-STACK Spinal
3 System; is that correct, sir?
4 MR. AMON: Objection; beyond the
5 scope, speculation.
6 **A. Counselor, you showed me another one of the**
7 **VERTE-STACK Stackable Vertebral Body Replacements.**
8 Q. I'm sorry?
9 **A. You showed me another brochure of the**
10 **VERTE-STACK Stackable Vertebral Body Replacement,**
11 **correct?**
12 Q. I'm sorry, sir, I'm asking the questions
13 here, not you.
14 **A. I'm reading this because it tells me**
15 **that -- I understand you ask a question. I'm not**
16 **trying to be combative. I'm just trying to clarify.**
17 **The VERTE-STACK device may be used**
18 **individually or stacked together in order to**
19 **accommodate, because you showed me the VERTE-STACK**
20 **that is stacked together as vertebral body**
21 **replacement for colpectomy. That's what I'm asking.**
22 **You showed me that and I said yes, that is used for**

1 **vertebral body replacement. So that is using the**
2 **name of VERTE-STACK Spinal.**
3 Q. Okay, sir, and the Telamon product on
4 MSD 1107 uses the VERTE-STACK name as well, correct?
5 **A. They do.**
6 Q. And the Boomerang product as identified on
7 NuVasive 2012 uses the VERTE-STACK name as well,
8 correct?
9 **A. That's correct.**
10 Q. Thank you. And if you turn to the last
11 page of that document, MSD 1032, the indications for
12 use for the VERTE-STACK spinal system is a vertebral
13 body replacement device intended for use in the
14 thoracolumbar spine (T1 to L5) to replace a
15 collapsed, damaged, or unstable vertebral body due
16 to a tumor or trauma (i.e. fracture); correct?
17 **A. That is speaking about the stackable**
18 **vertebral body replacement, not talking about any of**
19 **this one here that you're pointing to.**
20 Q. Well, wait a minute, sir.
21 **A. They may call it the same name but it's not**
22 **what you showed me on these so-called illustrations.**

1 Q. Okay. Sir, if we could back up a little.
2 On the first page of MSD 1032 --
3 **A. Yes, sir.**
4 Q. -- if you look at the fourth paragraph
5 under Product Description, actually the third
6 paragraph, I'll read the sentence: "The VERTE-STACK
7 device may be used individually or stacked together
8 in order to accommodate the individual anatomical
9 requirements of the vertebral space created by the
10 colpectomy," correct?
11 **A. That is exactly the other one you showed**
12 **me, of the vertebral body replacement one.**
13 Q. Sir, can you please answer my question?
14 **A. Can't answer if the question is not**
15 **germane.**
16 Q. Sir, can we please stick to my questions?
17 My question is did I read that sentence correctly?
18 **A. That's what it said in this paragraph.**
19 Q. All right. Thank you, sir. So it's true
20 that the VERTE-STACK device can be used
21 individually. It doesn't have to be stacked,
22 correct?

1 **A. The VERTE-STACK can be used individually if**
2 **it's a vertebral body replacement VERTE-STACK. Not**
3 **the Telamon. Not the Boomerang.**
4 Q. Sir, can we please stick to my questions
5 and not your questions.
6 **A. I'm not using my questions.**
7 Q. I'm asking you individually, the
8 VERTE-STACK device may be used individually;
9 correct?
10 **A. Yes.**
11 Q. Thank you. See it goes much quicker if
12 you just answer my question.
13 MR. AMON: There's no need for
14 the sarcasm, Mr. Schwartz.
15 MR. SCHWARTZ: There's no need
16 for coaching the witness, Mr. Amon.
17 MR. AMON: I didn't but you can
18 make that allegation all you want,
19 Mr. Schwartz.
20 MR. SCHWARTZ: But since you
21 won't allow a record to be created as
22 to what was said during your

1 conference, I have no way of knowing
2 that it was not that, and I can't
3 possibly imagine another reason for
4 you to be meeting with the witness
5 before questioning him other than to
6 tell him the questions or the subject
7 matter of the questions so that you
8 can then prepare him to provide the
9 answer that you wanted.
10 MR. AMON: Are you done on the
11 soap box?
12 MR. SCHWARTZ: There's no soap
13 box.
14 (MSD Exhibit 1041, document which
15 states the CoRoent system was approved
16 by the FDA as a vertebral body
17 replacement device (unidentified),
18 marked for identification, this date.)
19 EXAMINATION BY MR. SCHWARTZ:
20 Q. You've been handed a document identified
21 as MSD 1041. I have a very simple question for you.
22 Hopefully this will go quickly. The CoRoent system

1 was approved by the FDA as a vertebral body
2 replacement device, wasn't it, sir?
3 **A. That's what it says here.**
4 Q. Awesome.
5 **A. You're welcome.**
6 Q. Sir, during your direct you talked about
7 whether or not you thought certain things were
8 obvious. Do you recall that testimony during your
9 redirect?
10 **A. No. Maybe you would qualify for me?**
11 Q. You don't remember talking about whether
12 or not something was obvious with Mr. Amon just a
13 few minutes ago?
14 **A. In relationship to what?**
15 Q. Well, I believe some of the questions were
16 in relationship to the placement of markers. Do you
17 recall now that you had some conversations on
18 redirect with Mr. Amon about obviousness?
19 **A. Go ahead and ask your question, Counsel.**
20 **I'll try to answer.**
21 Q. What's your understanding of what
22 obviousness means?

1 MR. AMON: Objection; calls for a
2 legal conclusion.
3 MR. SCHWARTZ: He used the words
4 and you used the words so I'm
5 certainly entitled to know what he
6 meant. He testified to it.
7 MR. AMON: I was paraphrasing
8 your questioning and, again, I'm
9 making an objection for the record.
10 Objection; calls for a legal
11 conclusion.
12 **A. Could you qualify for me what you would**
13 **like me to tell you? I don't want to frustrate you.**
14 **You look frustrated.**
15 Q. I have to admit, sir, that you ask me to
16 qualify the words I use but you freely answered them
17 when Mr. Amon asked them. So I would like for you
18 to explain to me what your understanding was, if
19 any, and if you have no understanding, then just
20 tell me that, when you were asked and answered
21 questions about obviousness.
22 **A. The question that was asked that I answered**

1 **was, was it obvious at the time for somebody skilled**
2 **in the art at a certain date. That was a sentence.**
3 **So you are asking me to qualify the word obvious?**
4 Q. What did you mean by that when you
5 answered that question or what did you understand
6 that word to mean when you answered that question?
7 MR. AMON: Objection; calls for a
8 legal conclusion.
9 **A. May I have my outline?**
10 Q. Okay.
11 **A. I'll try to answer counsel's question.**
12 Q. So the record will reflect, the witness
13 asked Mr. Amon to hand him his cheat sheet or expert
14 report --
15 **A. You have a copy of it also so...**
16 Q. -- to be able to answer my question about
17 obviousness, although apparently he did not need any
18 documentation to be able to answer Mr. Amon's
19 question on redirect about whether or not something
20 was obvious. Go ahead, sir.
21 **A. I'm just trying to use and give you the**
22 **correct answer to the best of my ability. That's why**

1 **I asked for the document, so I will give you the**
2 **meaning that you're looking for.**
3 Q. It's fair to say that you didn't need any
4 documents to answer Mr. Amon's question, right?
5 **A. Counsel, he asked it in a sentence. If you**
6 **asked me in a sentence, I would be able to answer.**
7 **So I'm not a lawyer. I'm just -- I'm a doctor so I'm**
8 **just trying to understand. When you ask a straight**
9 **question, I can answer it, but you are asking me to**
10 **qualify the word obvious so I haven't given you the**
11 **definition of what obvious is.**
12 Q. I'm just asking you what you meant when
13 you answered Mr. Amon's question.
14 **A. I'm going to give it to you. I have to go**
15 **to read a lot of paragraph. You would like me to**
16 **read, because your question to me is law of**
17 **obviousness. So I can read it to all to you,**
18 **Counsel, if you want.**
19 Q. Sir, I find it interesting you didn't need
20 to read anything to answer Mr. Amon's question. I
21 just asked you what did you mean or understand when
22 you answered Mr. Amon's question. You didn't have

1 to refer to any documents to answer his question.
2 Apparently you need to refer to a document to answer
3 mine.
4 MR. AMON: Mr. Schwartz, we can
5 do without --
6 MR. SCHWARTZ: Let me finish.
7 MR. AMON: You're abusing the
8 witness.
9 MR. SCHWARTZ: If that's the
10 case -- I'm not abusing anyone. I'm
11 trying to explain. The witness asked
12 me what an answer was that I wanted.
13 I just want an answer to my question.
14 I don't need you to read from your
15 report. I just want an answer to my
16 question.
17 **A. Because you asked me to give you definition**
18 **of a legal term. I'm just going to give you the**
19 **accurate interpretation that I understand it.**
20 Q. I didn't ask you for a definition of a
21 legal term, sir. All I did is ask you what your
22 understanding of the word was when you quickly

1 responded to Mr. Amon's question.
2 **A. When I responded to him, the question was**
3 **because it was in a sentence and a sentence is**
4 **something that I can respond. If you ask me similar,**
5 **I will be able to respond but if you're asking me to**
6 **give you a definition, I'm not a lawyer, didn't go to**
7 **law school. So you're asking me for the content of**
8 **obviousness so I need to give you a response as best**
9 **I can, as accurate as I can. That's why I'm**
10 **responding to you.**
11 **If you would like me to read you these**
12 **paragraphs to describe it, I can.**
13 Q. Sir, I've simply asked you what your
14 understanding of the word was when you answered the
15 question. That's my question.
16 What was your understanding of that word
17 when you answered his question?
18 **A. Would you like me to tell you?**
19 Q. I would like you to answer my question,
20 sir.
21 **A. Okay, sir. It is my understanding that**
22 **assessing the validity of a US patent based on a**

1 prior art analysis requires two essential steps.
2 First, in an IPR proceeding, one must construe the
3 terms of the patent claims to understand what meaning
4 they would have to one of ordinary skill in the art
5 under the broadest reasonable interpretation that is
6 consistent with the specification. For purpose of my
7 analysis, I've considered Medtronic's proposed
8 construction (Petition at Section III.C), and find
9 that even under Medtronic's proposed constructions,
10 the proposed grounds for rejection are lacking and
11 the '156 patent claims are not obvious.
12 Second, after the claim terms have been
13 construed, one may then assess validity by comparing
14 a patent claim to a prior art. For purposes of my
15 independent analysis herein, I have assumed that all
16 the references cited in the grounds for rejection in
17 the PTAB decisions dated February 13, 2014 are using
18 the SVS-PR, Telamon, Baccelli and Michelson '973 to
19 be prior art. See February 13, 2014 PTAB decision at
20 page 19 to 20.
21 Even if each of the SVS-PR, Telamon,
22 Baccelli, and Michelson's 973 is considered to be a

1 prior art publication, I find that the proposed
2 grounds for rejection are lacking and the '156 patent
3 claims are not rendered obvious by the proposed
4 combination cited in the grounds for rejection in a
5 PTAB decision dated February 13, 2014.
6 I understand that the teaching of the art,
7 of the prior art is viewed through the eyes of a
8 person of ordinarily skill in the art at the time the
9 invention was made. To assess the level of ordinary
10 skill in the art, I understand one can consider the
11 types of problems encountered in the art, the prior
12 solutions to those problems found in prior art
13 references, the rapidity with which innovations are
14 made, the sophistication of the technology, and the
15 level of education of active workers in the field.
16 My opinion as to what constitutes a relevant person
17 of ordinary skill in the art is set forth below.
18 I understand that Dr. Hynes contends the
19 challenged claims are invalid as obvious. A patent
20 claim is invalid as obvious only if the subject
21 matter as a whole of the claimed invention would have
22 been obvious to a person of ordinary skill in the

1 field at the time the invention was made. This means
2 that even if all the requirements of the claim cannot
3 be found in a single prior art reference that would
4 anticipate the claim, a person of ordinary skill in
5 the field who knew about all this prior art would
6 have come up with the claimed invention.
7 However, I understand that a patent claim
8 composed of several elements is not proof -- is not
9 proved obvious merely by demonstrating that each of
10 its elements was independently known in the prior
11 art. In evaluating whether such a claim would have
12 been obvious, I considered whether Medtronic's
13 petition or the Declaration of Dr. Hynes presented an
14 articulated reason with a rational basis that would
15 have prompted a person of ordinary skill in the field
16 to combine the elements or concepts from the prior
17 art in the same way as in the claimed invention. I
18 understand there is no single way to define the line
19 between true inventiveness on one hand in
20 paragraph -- in brackets (which is patentable) and
21 the application of common sense and ordinary skill to
22 solve a problem on the other hand (which is not

1 patentable.) For example, market forces or other
2 design incentives may be what produce a change,
3 rather than true inventiveness.
4 It is my understanding that the
5 decision-maker may consider whether the change was
6 merely the predictable result of using prior art
7 elements according to their known functions or
8 whether it was a result of true inventiveness. And
9 the decision-maker may also consider whether there is
10 some teaching or suggestion in the prior art to make
11 the modification or combination of elements claimed
12 in the patents-in-suit. Also, the decision-maker may
13 consider whether the innovation applies a known
14 technique that had been used to improve a similar
15 device or method in a similar way. The
16 decision-maker may also consider whether the claimed
17 invention would have been obvious to try, meaning
18 that a claimed invention was one of a relatively
19 small number of possible approaches to the problem
20 with a reasonable expectation of success by those
21 skilled in the art. However, I understand the
22 decision-maker must be careful not to determine

1 obviousness using the benefit of hindsight and the
2 many true inventions might seem obvious after the
3 fact. I understand that the decision-maker should
4 consider obviousness from the position of a person of
5 ordinary skill in the field at the time the claimed
6 invention was made and that the decision-maker should
7 not consider what is known today or what is learned
8 from the teaching of the patent.
9 I understand the ultimate conclusion of
10 whether a claim is obvious should be based on -- upon
11 my determination of several factual decisions.
12 First, the decision-maker must assess the level of
13 ordinary skill in the field that someone would have
14 had at the time the claimed invention was made.
15 Second, the decision-maker must decide the scope and
16 content of the prior art. Third, the decision-maker
17 must decide what difference if any, existed between
18 the claimed invention and the prior art.
19 It is my understanding that existence of
20 one or more objective factors of nonobviousness can
21 rebut a showing of obviousness based on prior art.
22 These objective factors include:

1 1, commercial success of a product due to
2 the merits of the claimed invention;
3 2, a long-felt need for the solution
4 provided by the claimed invention;
5 Unsuccessful attempts by others to find the
6 solution provided by the claimed invention;
7 And, number 4, copying of the claimed
8 invention by others;
9 5, unexpected and superior results from the
10 claimed invention;
11 6, acceptance by others of the claimed
12 invention as shown by praise from others in the field
13 or from the licensing of the claimed invention;
14 7, teaching away from the conventional
15 wisdom in the art at the time of the invention;
16 8, other evidence tending to slow nonob --
17 to show nonobviousness.
18 Independent invention of the claimed
19 invention by others before or at about the same time
20 as the named inventor thought of it and.
21 Other evidence tending to show obviousness.
22 It is my understanding that in order to

1 **establish the second consideration of nonobviousness,**
2 **NuVasive must show a nexus between the secondary**
3 **consideration and the claimed invention.**
4 Q. Are you done, sir?
5 **A. Yes.**
6 Q. Okay, sir. So the record is clear, you
7 just read paragraphs 15 through 25 from
8 Exhibit NuVasive 2020 into the record; is that
9 right?
10 **A. Yes, sir.**
11 Q. Okay. Sir, one of the things you just
12 mentioned in your answer, in paragraph 22, you talk
13 about five lines down, "an articulated reason with a
14 rational basis." Do you see that, sir?
15 **A. On page?**
16 Q. 9, paragraph 22, five lines down.
17 **A. Yes.**
18 Q. Okay. So you're using the word rational
19 there, correct?
20 **A. Yes.**
21 Q. I think in some of my earlier questions
22 you had difficulty answering them because of the

1 meaning of the word rational. So what did you mean
2 by the word rational in that sentence?
3 MR. AMON: Objection; the
4 document reads what it reads.
5 **A. In this sentence here it means a reasonable**
6 **basis.**
7 Q. A reasonable basis?
8 **A. As far as -- or a -- reasonable, correct,**
9 **acceptable basis, that makes sense.**
10 Q. Just asking what you meant by it, sir.
11 **A. Thank you.**
12 Q. Using that -- using that explanation of
13 what a rational basis is, because I know we had some
14 issues with my questions about whether something was
15 reasonable or unreasonable, so I'll categorize them
16 in terms of a rational basis.
17 Did you have a rational basis, before you
18 conducted those two lateral surgeries that we talked
19 about with Dr. McAfee, of proceeding the way you
20 did?
21 MR. AMON: I'm going to object as
22 being beyond the scope of redirect and

1 I will move to have this testimony
2 stricken. You can go ahead and
3 answer.
4 **A. We did those two cases because that is**
5 **the -- that's a reasonable -- it's reasonable. It's**
6 **an improved approach, to be less traumatic for the**
7 **patient, and that we know that it's safe as we talked**
8 **about before, Counsel.**
9 **So we did not know obviously what the**
10 **outcome is going to be totally but we know it was**
11 **safe and we know that we have done what we can to**
12 **document that the device will do no harm, but whether**
13 **it is going to give us the anticipated outcome,**
14 **that's the portion that we didn't know and that's**
15 **what we informed the patient and got the patient's**
16 **permission and the IRB approval, sorry. So**
17 **to answer you, it is a reasonable time to use those**
18 **devices in those two patients because the conditions**
19 **that the patient had at the time.**
20 Q. Thank you, sir. Getting to the
21 predictable result that you refer to about three
22 lines from the bottom in that same page,

1 paragraph 22, page 9, three lines up, you talk about
2 a predictable result. Do you see that, sir?
3 **A. Yes, sir.**
4 Q. Okay. When you were talking to Mr. Amon
5 during redirect, the subject matter of the two
6 markers in the center of the implant came up. Do
7 you remember that?
8 **A. Yes.**
9 Q. Was it predictable that if you put two
10 markers in the center of an implant, you would get
11 the images that you get?
12 MR. AMON: Objection; vague.
13 **A. I'm trying to understand you. I'm not**
14 **trying to slow you down at all. I'm trying to**
15 **understand you. Can you magnify that a little bit?**
16 Q. Okay, sir, you had question and answer
17 about the two markers in the middle of the implant.
18 Do you remember those questions and answers?
19 **A. Yes.**
20 Q. And what I'm asking is, putting two
21 markers in the center of that implant, did they
22 provide a predictable result?

1 **A. Which implant?**
2 Q. The claimed implant?
3 **A. Oh, okay.**
4 MR. AMON: Vague -- objection;
5 vague as to time.
6 **A. You're referring to a lateral implant; am I**
7 **correct?**
8 Q. Sir, I'm talking about the claim, which if
9 you're asking me a question, the word lateral
10 doesn't appear in the claim.
11 **A. A long implant.**
12 Q. Greater than 40 millimeters.
13 **A. Greater than 40 millimeters, okay. So**
14 **you're putting it into a greater than 40 millimeter**
15 **long implant, okay. Now go ahead and ask your**
16 **question. I'm with you.**
17 Q. Is the image that you obtained from those
18 two markers predictable?
19 MR. AMON: Same objection.
20 **A. If you put two markers and you take an**
21 **X-ray, you can see the two implants. What do you**
22 **mean by "predictable"?**

1 Q. Sir, I'm using your words. You just read
2 them into the record. You talked about predictable
3 result. I'm asking you in my question, using your
4 words, what did you mean by "predictable result" in
5 your testimony?
6 MR. AMON: Objection; calls for a
7 legal conclusion.
8 **A. What predictable for me means that it's**
9 **something that is reproducible and something that**
10 **the -- you know what it will do.**
11 Q. Okay.
12 MR. AMON: Is there a question
13 pending?
14 MR. SCHWARTZ: I think I do have
15 a question pending but I'll re-ask it
16 so it makes the question a little more
17 clear.
18 THE WITNESS: Thank you.
19 EXAMINATION BY MR. SCHWARTZ:
20 Q. Do you get a predictable result in the
21 image that you obtain through radiographic process
22 by viewing the two markers in the center of the

1 claimed implant?

2 MR. AMON: Objection; nonsensical

3 question.

4 **A. When you put two markers, when you take an**

5 **X-ray, you'll see two markers; you'll see them as**

6 **one. So I don't understand what you mean "you get a**

7 **predictable result."**

8 Q. Is that image that you see something you

9 would have expected to see?

10 **A. It's an image but it may or may not be what**

11 **I expect to see depending on the alignment.**

12 Q. Is there something unpredictable about the

13 image that you get when you look at an implant that

14 has two markers in the center? Let me back up a

15 little, sir.

16 **A. Thank you.**

17 Q. When you look at a metal object on X-ray,

18 you can see it; correct?

19 **A. Yes, it's radiopaque.**

20 Q. And so if you place a marker in a plastic

21 object and then you put that plastic object under

22 X-ray, you can see where that marker is; correct?

1 **A. Yes, you can see it on the X-ray.**
2 Q. And you knew that before 2004, correct?
3 **A. Yes.**
4 Q. I mean, back when you first took your
5 first X-ray, you knew that you could see something
6 metal on that X-ray; right?
7 **A. I ask you to qualify. You can see**
8 **something metal that you implant into a plastic**
9 **implant on X-ray.**
10 Q. Right.
11 **A. That is correct, sir.**
12 Q. And you knew that in 2004; right, sir?
13 **A. Yes.**
14 Q. And in 2003 you knew that?
15 **A. I don't know how far forward. I don't know**
16 **how far the so-called PEEK implants date exactly and**
17 **I would have to be guessing. I don't want to do**
18 **that.**
19 Q. Okay. But there were certainly prior art
20 implants in 2003 that were nonmetal implants and had
21 metal markers in them, correct?
22 **A. Okay. I don't know if it's correct, but if**

1 **we did, then my answer to you would be yes.**
2 Q. Is there something unexpected about being
3 able to see a marker on an X-ray, sir?
4 **A. That isn't what you're asking me. You're**
5 **asking me to go back --**
6 Q. I just asked you a new question, sir.
7 **A. Okay, fine.**
8 Q. Is there something unexpected about seeing
9 a metal marker on an X-ray?
10 **A. No. If it's implanted into a vertebral --**
11 **particularly into a plastic of some type, yes.**
12 Q. And that's true even in 2003; right, sir?
13 **A. If in 2003 we already had either PEEK or**
14 **other plastic implants, then the metal marker that's**
15 **visible by X-ray, the answer is yes.**
16 Q. And so with that qualification in your
17 answer, putting two markers in the middle, you would
18 expect to be able to see them on an X-ray; right,
19 sir?
20 **A. Right, that's correct.**
21 Q. And you would have expected that in 2002,
22 correct?

1 **A. Expected that you could see them?**
2 Q. Yes.
3 **A. The answer is yes.**
4 Q. You would be able to tell if they were not
5 lined up when you looked on that X-ray; right, sir?
6 **A. Correct.**
7 Q. Thank you, sir.
8 **A. Thank you.**
9 MR. SCHWARTZ: Why don't you take
10 a short break and see if we can wrap
11 up my recross. Before we take our
12 break, sir, I'll remind you we're
13 still in recross and so the
14 instructions that I gave you earlier
15 about not conferring with counsel
16 during this break still apply. Do you
17 understand that, sir?
18 THE WITNESS: Yes, sir.
19 MR. AMON: And just so the record
20 is clear, they apply again. The
21 indications that Mr. Schwartz gave
22 apply again.

1 MR. SCHWARTZ: Off the record.
2 (7:02 p.m.)
3 (Discussion off the record.)
4 (7:09 p.m.)
5 MR. SCHWARTZ: We're back on the
6 record, sir, and we have no further
7 recross questions.
8 MR. AMON: No further questions.
9 We're done.
10 (7:09 p.m.)
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1 I, Marita Petrera, Registered Professional
2 Reporter and Notary Public in and for the State of
3 New York, County of Onodaga, the officer before whom
the proceedings were taken, do hereby certify that
4 prior to the commencement of the deposition of
HANSEN A. YUAN, M.D., the witness was by me first
5 duly sworn to testify the truth; that said deposition
was taken in stenotype notes by me on the 22nd day
6 of August, 2014 at 211 West Jefferson Street, Suite 21,
Syracuse, New York, 13202, commencing at 8:52 a.m. and
7 ending at 1:44 p.m., was thereafter reduced to
typewritten form under my supervision and that the
8 foregoing pages constitute a true and accurate record
of said witness.
9 I further certify that present on behalf of
Petitioner Medtronic, Inc. was Jeff E. Schwartz, Esq.
10 of Fox Rothschild, LLP and Brent D. Martin of Martin &
Ferraro, LLP and present on behalf of patent owner,
11 NuVasive, Inc were Michael A. Amon and Stuart Nelson of
Fish & Richardson.
12 I further certify that the reading and execution
by HANSEN A. YUAN was waived by counsel for the patent
13 owner.
I further certify that I am not related to nor
14 associated with any of the parties and their attorneys,
nor do I have any disqualifying interest, personal or
15 financial, in the actions within.
16 Dated this 22nd day of August, 2014 at Syracuse,
New York, Onondaga county
17
18
19 ______________________________
20 MARITA PETRERA
21
22

1 I, Pamela Palomeque, Registered Professional
2 Reporter and Notary Public in and for the State of
3 New York, County of Onodaga, the officer before whom
4 the proceedings were taken, do hereby certify that
5 prior to the commencement of the deposition of
HANSEN A. YUAN, M.D., the witness was by me first
6 duly sworn to testify the truth; that said deposition
was taken in stenotype notes by me on the 22nd day
7 of August, 2014 at 211 West Jefferson Street, Suite 21,
Syracuse, New York, 13202, commencing at 2:22 p.m. and
8 ending at 7:09 p.m., was thereafter reduced to
typewritten form under my supervision and that the
9 foregoing pages constitute a true and accurate record
of said witness.
10 I further certify that present on behalf of
Petitioner Medtronic, Inc. was Jeff E. Schwartz, Esq.
11 of Fox Rothschild, LLP and Brent D. Martin of Martin &
Ferraro, LLP and present on behalf of patent owner,
12 NuVasive, Inc were Michael A. Amon and Stuart Nelson of
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by HANSEN A. YUAN was waived by counsel for the patent
14 owner.
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15 associated with any of the parties and their attorneys,
nor do I have any disqualifying interest, personal or
16 financial, in the actions within.
17 Dated this 22nd day of August, 2014 at Syracuse,
18 New York, Onondaga county
19
20
21 ______________________________
22 PAMELA PALOMEQUE

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