

In The Matter Of:
George Boltz v.
Larry Jennings, et al.

Paul Collier, M.D.
April 25, 2014

NEXTGEN|REPORTING

Making Litigation Easier.

www.nextgenreporting.com

WORLDWIDE COVERAGE | (888) 267-1200

PHILADELPHIA | NEW YORK CITY | WILMINGTON | SILICON VALLEY

Min-U-Script® with Word Index

Page 1

1
2 STATE OF MICHIGAN
3 IN THE CIRCUIT COURT FOR THE COUNTY OF JACKSON
4 - - -
5 GEORGE BOLTZ,)
6))
7 Plaintiff,) No. 12-2490-NH
8 vs.))
9 LARRY JENNINGS, M.D.,)
10 COREEN GARCIA, PA-C, and)
11 LARRY JENNINGS, M.D., P.C.,)
12 Defendants.)
13 - - -
14 Deposition of PAUL COLLIER, M.D.
15 Friday, April 25, 2014
16 - - -
17 The deposition of PAUL COLLIER, M.D.,
18 called as a witness by the Defendants, pursuant
19 to notice and the Pennsylvania Rules of Civil
20 Procedure pertaining to the taking of
21 depositions, taken before me, the undersigned,
22 Ena R. Marino, a Notary Public in and for the
23 Commonwealth of Pennsylvania, at The Edgeworth
24 Club, 511 East Drive, Sewickley, Pennsylvania,
25 15143, commencing at 12:58 o'clock p.m., the
day and date above set forth.
- - -

Page 2

1 APPEARANCES:
2
3 On behalf of the Plaintiff:
4 Ferris & Salter PC:
5 Heidi L. Salter-Ferris, Esquire
6 4158 Washtenaw Avenue
7 Ann Arbor, Michigan 48108
8
9 On behalf of the Defendants
10 Larry Jennings, M.D., and
11 Larry Jennings, M.D., P.C.:
12
13 Foley Baron Metzger & Juip PLLC:
14 Cathy Bowerman, Esquire
15 38777 6 Mile Road, Suite 300
16 Livonia, Michigan 48152
17
18 On behalf of the Defendant
19 Coreen Garcia, PA-C:
20
21 Rutledge Manion Rabaut Terry & Thomas PC:
22 Matt Thomas, Esquire
23 333 W Fort Street, Suite 1600
24 Detroit, Michigan 48226
25 - - -
I-N-D-E-X

EXAMINATION BY: PAGE:
Ms. Bowerman 4
Mr. Thomas 171
- - -

Page 3

1 E-X-H-I-B-I-T-S
2
3 MARKED AND ATTACHED PAGE
4
5 Exhibit No. 1 Curriculum Vitae 6
6 Exhibit No. 2 Photographs 35
7 Exhibit No. 3 Photographs 35
8 Exhibit No. 4 Photographs 35
9 Exhibit No. 5 Photographs 36
10 Exhibit No. 6 Notice of Deposition 37
11
12 ORIGINALS MARKED AND RETAINED PAGE
13
14 Exhibit No. 7 Doctor's Notes 40
15 Exhibit No. 8 Doctor's Notes 40
16
17
18
19
20
21
22
23
24
25

Page 4

1 PAUL COLLIER, M.D.,
2 called as a witness by the Defendants, having
3 been first duly sworn, as hereinafter
4 certified, was deposed and said as follows:
5 EXAMINATION
6 BY MS. BOWERMAN:
7 Q. Let this reflect this is the
8 discovery-only deposition of Dr. Collier,
9 Dr. Paul Collier, taken pursuant to those
10 limited purposes under the Michigan General
11 Court Rules. Sir, my name is Cathy Bowerman.
12 I represent two of the Defendants in this case,
13 Dr. Jennings, and his professional Corporation.
14 I'm going to ask you a series of questions
15 today. If my questions aren't clear, or if you
16 don't hear me or understand me, let me know
17 that. I'll be happy to repeat or rephrase,
18 because it's important that when I ask a
19 question and that you answer it, that we are on
20 the same page and that you have understood what
21 I have asked; is that fair?
22 A. Yes, ma'am.
23 Q. I'm going to assume, when you answer
24 the question, that you have heard me and
25 understood me; fair enough?

Page 5

1 A. Yes, ma'am.
2 Q. Your full name is what?
3 A. Paul E. Collier, C-O-L-L-I-E-R.
4 Q. Your date of birth?
5 A. December 24, 1953.
6 Q. And your professional address?
7 A. 701 Broad Street, Sewickley,
8 Pennsylvania, 15143.
9 Q. It's pronounced Zewickie --
10 Zewickley? How do you say your city?
11 A. It's Sewickley.
12 Q. Zewickley?
13 A. Close.
14 Q. That's a suburb of Pittsburgh; is
15 that correct?
16 A. Yes, ma'am.
17 Q. How far out of Pittsburgh is it?
18 A. About 12 to 15 miles down the Ohio
19 River.
20 Q. Okay. You are a vascular surgeon?
21 A. Yes, ma'am.
22 Q. Do you hold yourself out as anything
23 else?
24 A. No. I'm also a Board-Certified
25 general surgeon.

Page 6

1 Q. How do you divide your practice
2 time? Is it strictly vascular surgery or do
3 you do general surgery, as well, or other
4 aspects?
5 A. No. I stopped doing general surgery
6 three, three-and-a-half years ago, except for
7 command performances up at another hospital,
8 but I don't advertise that. I just do it for
9 people who want me to do something for them.
10 Q. Okay.
11 A. Otherwise, it's just vascular
12 surgery: Arteries, veins, and wounds.
13 Q. I'm sorry?
14 A. Arteries, veins, and wounds.
15 Q. Your CV has been provided to us,
16 today, which I'm going to mark as Exhibit 1.
17 (Deposition Exhibit No. 1 was
18 marked for identification.)
19 Q. Is this current and up-to-date?
20 A. Hot off the press this morning.
21 Q. Is it current and up-to-date?
22 A. Yes, ma'am.
23 Q. It seems to be eight pages, and my
24 understanding is that you have kindly
25 anticipated a question that one of us might ask

Page 7

1 in terms of whether there's anything on your CV
2 that is relevant or you believe to be relevant
3 to the issues raised by this case, and I
4 understand that you have circled those
5 presentations, articles, book chapters, that
6 you believe, out of your CV, are relevant in
7 one way or another; is that fair?
8 A. Yes, ma'am.
9 Q. So when we see a circle such as, as
10 an example on Page 7, there is a circle on an
11 article No. 12 and an article No. 13. It's
12 your belief that these articles are relevant to
13 the issues raised by the case, by this Boltz
14 case; is that correct?
15 A. Potentially, yes, ma'am.
16 Q. Okay. Have you gone back and
17 reviewed any of the articles or book chapters
18 that you've written --
19 A. No, ma'am.
20 Q. -- in preparation?
21 A. Sorry. No.
22 Q. This deposition will be a lot of
23 easier if you understand that I'm a slow
24 speaker. I was born and raised in the south,
25 and it would be much better for all of us if

Page 8

1 you let me finish my question first before you
2 answer it. I can appreciate that our speech
3 patterns are different, but it will be better
4 for the record if that happens, okay?
5 A. Not a problem. That last question
6 seemed like you were done.
7 Q. I understand. This is not a
8 criticism. We haven't been engaging for very
9 long, but you'll see I'm -- my brain just
10 doesn't work as fast as yours, so I talk
11 slower, as well.
12 A. I'm not sure about the brain not
13 working as fast.
14 Q. Just understand that let me finish
15 my question before you jump into the answer.
16 Have you maintained notes for any of these
17 presentations that you've circled?
18 A. No, ma'am. They're in the
19 literature. I could look them up if I had to
20 but --
21 Q. Is it fair to say that the most
22 recent article, book chapter, or even
23 presentation that you have circled is 1987,
24 that's relevant to this case, out of your CV?
25 A. Maybe, you know. I don't know if

Page 9

1 anything came out after that.
2 Q. I'm sorry?
3 A. I said I don't know if anything came
4 out after that. Sure, that's probably true.
5 Q. You grew up in New Jersey?
6 A. Yes, ma'am.
7 Q. You attended the University of
8 Pennsylvania as an undergrad and Yale Medical
9 School for your M.D. degree; is that correct?
10 A. Yes, ma'am.
11 Q. Then it indicates you went for your
12 general surgery residency at Allegheny General
13 Hospital which you completed in 19 -- looks
14 like 1984, including the Chief Residency in
15 general surgery; is that fair?
16 A. Yes, ma'am.
17 Q. And then you did a Fellowship in
18 vascular surgery at Montefiore Medical Center
19 in the Bronx?
20 A. Yes.
21 Q. Finished that in 1986?
22 A. Yes, ma'am.
23 Q. You've listed your Board
24 Certifications here. Have you passed each of
25 your Board Certification examinations on the

Page 10

1 first attempt?
2 A. Yes, ma'am.
3 Q. It would appear that you're Board
4 Certified in both general surgery and vascular
5 surgery?
6 A. Correct.
7 Q. And those are current certifications
8 and up-to-date?
9 A. Yes, ma'am.
10 Q. You are not a family practitioner;
11 is that correct?
12 A. That is correct.
13 Q. You're not a physician assistant,
14 certified physician assistant?
15 A. Correct.
16 Q. You don't hold yourself out as
17 either of those specialties?
18 A. Correct.
19 Q. And as I understand it, it not your
20 intent to offer standard of care testimony in
21 either of those fields; is that fair?
22 A. Fair.
23 Q. Now, the -- in terms of your
24 practice, what has been the nature of your
25 practice since you finished your training in

Page 11

1 1986?
2 A. Well, up until three,
3 three-and-a-half years ago, I did general
4 surgery, vascular surgery, thoracic surgery,
5 pacemakers, ran the vascular laboratory in
6 Sewickley. Then, about three, three-and-a-half
7 years ago, I stopped doing general surgery and
8 thoracic surgery and pacemakers, at least in
9 Sewickley, and just focused on vascular surgery
10 including arteries, veins, wounds.
11 Q. Have you been in the same practice
12 since 1986?
13 A. No, ma'am. I was --
14 Q. I'm sorry. Yeah, since '86?
15 A. I was with a group for 12 years, and
16 then in '98, I went solo.
17 Q. What was the name of the group you
18 were in for 12 years?
19 A. Surgical Associates of Sewickley.
20 Q. And the -- that group practice, were
21 there other vascular surgeons?
22 A. Not Boarded, no.
23 Q. And since -- so that would have
24 taken us up to -- 1986 to '98?
25 A. '98.

Page 12

1 Q. '98. Is that, roughly, correct?
2 A. Yes, ma'am.
3 Q. Then in '98 you went into solo
4 practice?
5 A. Yes, ma'am.
6 Q. And you've remained in solo practice
7 since that?
8 A. I've had a couple associates, off
9 and on, people I've worked with. They were all
10 general surgeons.
11 Q. So the year you changed your
12 practice more recently to limit it to vascular
13 surgery, what year was that?
14 A. What year is this? End of 2010,
15 yeah.
16 Q. Okay. Does your practice have a
17 name?
18 A. It goes by Greater Pittsburgh
19 Surgical Alliance.
20 Q. Are you the sole owner?
21 A. Yes, ma'am.
22 Q. In terms of your hospital
23 affiliations, do you currently have hospital
24 affiliation?
25 A. Yes, ma'am.

Page 13

1 Q. Since 1986, has it always been one
2 hospital or more than one?
3 A. It's been more than one,
4 intermittently.
5 Q. What is the primary hospital that
6 you have been involved with?
7 A. It was Sewickley Valley Hospital.
8 It's now known as Heritage Valley Sewickley,
9 but I still call it Sewickley Valley. Too old
10 to change.
11 Q. This Grove City Medical Center, what
12 is that?
13 A. It's another hospital I have
14 privileges at.
15 Q. What do you do at that hospital?
16 A. About twice a month we go up and
17 have clinic, see people with vein problems,
18 mostly. We're doing some arterial work up
19 there. Operate up there, periodically. Like I
20 said, I'll sneak a general surgery case in,
21 periodically, if somebody really wants me to do
22 it.
23 Q. What's -- this is going to be a
24 really stupid question. What city is Grove
25 City Medical Center in? Is it in Grove City?

Page 14

1 A. Yes, ma'am. It was actually Grove
2 City College.
3 Q. That's the name of the town?
4 A. Yeah. Grove City, not Grove City
5 College.
6 Q. You also have yourself listed as the
7 director of the Sewickley Vein Center. What is
8 that?
9 A. Well, basically, nowadays, a lot of
10 specialties are doing vein work that aren't
11 vascular surgeons, so in order to keep the
12 patients flowing in, you put up a shingle that
13 says Sewickley Vein Center. It's just part of
14 my main practice. I've been doing veins my
15 entire career.
16 Q. What percentage of your practice in,
17 say, the past ten years has been vein as
18 opposed to arterial work?
19 A. Over ten years?
20 Q. Well, let's say over the last --
21 since 2009?
22 A. Well, why don't we just say since
23 2010, when I stopped doing general surgery,
24 because that complicates the picture, but I'd
25 say that it's probably to the point now where

Page 15

1 it's half vein, half arterial. But prior to
2 that, I mean, the veins had only really started
3 to grow, and we focused more on that just
4 because I'm getting older and I don't want to
5 do the major stuff anymore. Probably, the
6 average over the ten years, it's probably 15
7 percent.
8 Q. Over the ten years, what percentage
9 of your practice has, on average, been arterial
10 work?
11 A. The arterial work, it varies
12 anywhere between 50 and 70 percent, depending
13 if somebody's with me. I'd say 60 percent, at
14 least.
15 Q. Is that 60 percent of your vascular
16 practice or 60 percent of your entire practice
17 over the last ten years?
18 A. No. The entire -- the rest would be
19 the general surgery practice, if we're just
20 talking about procedures.
21 Q. So prior to three-and-a-half years
22 ago, what percentage of your practice was
23 vascular surgery as opposed to general surgery
24 or thoracic surgery?
25 A. It would depend if I had an

Page 16

1 associate with me. My associates were all
2 general surgeons, so I would try and shift my
3 general surgery work to them. So if I was by
4 myself, probably just over 50 percent vascular.
5 If I had somebody with me, probably 70 percent
6 vascular.
7 Q. When is the last time you had a
8 partner?
9 A. Three-and-a-half years ago.
10 Q. What is the name of that last
11 partner?
12 A. It was Dr. Solow, S-O-L-O-W.
13 Q. And is it a woman?
14 A. She.
15 Q. She. Is Dr. Solow still practicing
16 in the area?
17 A. No.
18 Q. Was she a general surgeon?
19 A. Yes, ma'am.
20 Q. Do you have any academic
21 appointments?
22 A. Not currently, no, ma'am.
23 Q. When's the last time you had an
24 academic appointment?
25 A. '86 or '87.

Page 17

1 Q. Where was that?
2 A. I think I had a clinical appointment
3 at Allegheny, but prior to that, it was
4 Montefiore.
5 Q. So your last academic appointment
6 was, essentially, in your training; is that
7 fair?
8 A. I think I had one for a little while
9 at Allegheny, because I would go down there and
10 teach the residents, but that just got to be a
11 waste of time.
12 Q. Why was it a waste of time?
13 A. Well, number one, the residents
14 tended not to show up for lectures. Number
15 two, when I would do a case down there that I
16 thought would be interesting to the residents,
17 it would, invariably, be bounced back on the
18 schedule because I wasn't a frequent flyer down
19 there, sit around five or six hours waiting to
20 go. It was a waste of time.
21 Q. At the hospital that you practice
22 at, Sewickley Valley Hospital, which is now --
23 what did you say it is now called?
24 A. Heritage Valley of Sewickley.
25 Q. Why did it change the name, if you

Page 18

1 know?
2 A. We merged with another hospital in
3 the valley, the Beaver Medical Center there,
4 Heritage Valley. So we are -- they are
5 Heritage Valley, Beaver. Basically, insurance
6 wars out here, so we have our own little slice
7 that UPMC and Allegheny weren't in.
8 Q. The hospital which is now Heritage
9 Valley Sewickley, how many a bed hospital is
10 that?
11 A. I think it's listed at about 200, it
12 runs about 180. It has 17 or 18 ICU beds.
13 Q. Why type of facility is that? Is
14 that a community hospital?
15 A. It's community.
16 Q. Is it a --
17 A. No. It's not a Level-1 Trauma
18 Center.
19 Q. Is it a Level-2 Trauma Center?
20 A. No. It's not a Trauma Center.
21 Q. Are there other vascular surgeons on
22 staff?
23 A. There's one other gentleman who
24 rarely ever comes. He's stationed down in
25 Beaver.

Page 19

1 Q. Is he a full-time vascular surgeon
2 down there?
3 A. In all honesty, I heard he was going
4 to go to hospital administration school, so I
5 don't know what he does down there.
6 Q. What's his name?
7 A. Sandhu, S-A-N-D-H-U.
8 Q. That's his last name, I assume?
9 A. Yes, ma'am.
10 Q. Are there other surgeons at your
11 hospital that perform arterial bypass
12 procedures?
13 A. Yes, ma'am. There's two others that
14 do a little bit of work.
15 Q. Who are they?
16 A. Dr. Wilcox and Dr. Felix.
17 Q. Are they general surgeons?
18 A. Yes, ma'am. They do general and
19 bariatric surgery.
20 Q. Have done any research or
21 investigative work in any area of arterial
22 bypass graft surgeries?
23 A. Have I done research?
24 Q. Yeah.
25 A. Those are the papers I showed you.

Page 20

1 Those had to do with graft failures and things
2 like that.
3 Q. Were those papers that, basically,
4 arose out of your Fellowship training?
5 A. Yes, ma'am. That's my two year
6 research project.
7 Q. Okay. And you've not been involved
8 in any research since then; is that correct?
9 A. No. I still have done clinical
10 research and published papers.
11 Q. But not in the area of arterial
12 bypass grafting; is that fair?
13 A. I think that's fair, sure. There's
14 some papers, since then, that had to do with
15 ischemia and bypasses, but not germane to this
16 case, but, yeah.
17 Q. For the medical issues or surgical
18 issues raised by this case, do you consider any
19 medical journal or any textbook authoritative
20 or generally reliable?
21 A. I would say some of them are
22 generally reliable. I don't consider anything
23 the Gospel, it that's what you mean by
24 authoritative, but there's good starting
25 points.

Page 21

1 Q. What would be good starting points?
2 A. If you look at a textbook, I like
3 Rutherford's Vascular Surgery, although my
4 edition is probably outdated. As for journals,
5 I would say our number one journal is the
6 Journal of Vascular Surgery. If I had a
7 question, I'd probably try to find it there
8 first. Nowadays, with computers, you can
9 pretty much get anything, but they're good
10 starting points.
11 Q. Have you reviewed any literature,
12 including textbooks, any writings beyond the
13 materials in this case, any medical literature
14 for this case?
15 A. I don't understand what you mean,
16 "Beyond the materials in this case."
17 Q. Let me rephrase that, because it was
18 rambling and inartful. I was trying to improve
19 it as I went along but wasn't successful. Have
20 you reviewed any literature, medical
21 literature, as part of your review of
22 preparation for this case?
23 A. Not specifically for this case, no,
24 ma'am.
25 Q. Have you looked up anything in a

Page 22

1 journal or textbook?
2 A. Not for this case, no.
3 Q. Are you planning to rely on any
4 medical literature in support of your opinions
5 in this case?
6 A. I wouldn't say, necessarily, rely.
7 I mean, there's the Rutherford's Scale of Acute
8 Ischemia, but that's basic vascular surgery
9 that every vascular surgeon knows.
10 Q. I'm sorry. Rutherford's Scale of?
11 A. The scale of how you grade acute
12 arterial ischemia.
13 Q. I just need the name? Rutherford's
14 Scale of?
15 A. Acute Ischemia. I don't know if
16 that's what it's officially called. That's
17 pretty much how we grade it.
18 Q. I don't mean to be critical, but
19 your speech pattern is a thousand miles an
20 hour. I just can't keep up with you. If you
21 don't mind slowing down a bit. I will do my
22 best not to ask you to repeat things. I'm not
23 deaf, so it's not a matter of that. I'm just
24 not accustomed to your speech pattern. I don't
25 mean it as a criticism, but if you could slow

Page 23

1 down, it would be helpful.
2 A. Usually it's the court reporter that
3 slows me down.
4 Q. I am stunned that she hasn't, except
5 I know that she is recording this.
6 (Discussion held off the
7 record.)
8 Q. Have you reviewed anything in the
9 Rutherford vascular surgery textbook?
10 A. I have reviewed the entire textbook.
11 You mean for this case?
12 Q. For this case?
13 A. No.
14 Q. You consider Rutherford's
15 classification generally authoritative and
16 reliable?
17 A. I think for what it does, yeah.
18 Q. Okay. Is there more than one
19 Rutherford scale?
20 A. I don't know if they have one for
21 chronic ischemia, but the one that I'm thinking
22 about is for acute ischemia. It's the only one
23 I know of. Bob has been around a long time.
24 He's the author of the textbook so I'm sure
25 there's more than one Rutherford scale for

Page 24

1 different thing.
2 Q. In terms of your experience as an
3 expert, when did you begin reviewing cases?
4 A. Either '85 or '86.
5 Q. What started you in that process?
6 A. I had written a paper about a
7 unusual complication. It was a cardiac
8 tamponade from central venous catheters. I
9 reviewed the world's literature and pretty much
10 wrote a paper saying that this is how you avoid
11 having it happen. Published it. Unbeknownst
12 to me, it was put in all the package inserts
13 for all the catheters in the country, and I
14 guess the lawyers knew about it and it I didn't
15 know about that, so I got called about a case
16 that was similar to my case, and I reviewed it.
17 In the beginning I got cases. The only case I
18 reviewed was this kind of case, from all over
19 the country, and so I wrote another paper. I
20 figured I'm really trying to put myself out of
21 business and eliminate this problem.
22 Continued to see cases, so I started
23 working with the catheter companies, the BARD
24 Corporation, and the Arrow Corporation, and
25 with the Food and Drug Administration, and we

Page 25

1 presented a paper at a National conference. I
2 wrote another paper, and I guess I'm proud to
3 say I haven't seen a case listed in the last
4 ten years, so maybe I accomplished what I set
5 out to do. That's how I get into it.
6 Q. Other the years, how many cases have
7 you reviewed?
8 A. I'd say probably over 400.
9 Q. You ever advertise for your
10 services?
11 A. No, ma'am.
12 Q. Ever review cases through a
13 medicolegal service?
14 A. No, ma'am.
15 Q. Do you have a sense of the
16 percentage of case, plaintiff versus defense,
17 that you reviewed?
18 A. I'd say, over the years, I reviewed
19 probably two-thirds or 70 percent on behalf of
20 the patient and the other third or so on behalf
21 of the doctor.
22 Q. What do you charge an hour to review
23 cases?
24 A. Right now I charge \$500 hour.
25 Q. For what period of time have you

Page 26

1 been charging \$500 an hour?
2 A. It's been the last few years, at
3 least. Three, four, five, I don't know.
4 Q. You've reviewed cases in the state
5 of Michigan?
6 A. I have, ma'am.
7 Q. For what attorneys or law firms?
8 A. Obviously, Ms. Salter-Ferris, I
9 think, this is the second case I've done with
10 her.
11 Q. Okay. With her or with her firm?
12 A. Well, both. Her, specifically. I
13 did another case with a lawyer, I think his
14 last name was Wrangler. I know I've done a
15 couple other cases. I did a defense case a few
16 years ago. It was one of those catheter cases.
17 Q. Do you know who the lawyer was?
18 A. No. It was interesting because I
19 think he was from Royal Oaks. The only reason
20 I remember that is my wife was an ICU nurse and
21 that came with R-O-M-I on the return address
22 which is Rule Out M-I, Rule Out Myocardial
23 Infarction, and she thought it was funny. I
24 don't remember his name, though, or hers. I
25 don't remember anything about him.

Page 27

1 Q. Can you estimate for me the number
2 of cases you've done out of the State of
3 Michigan?
4 A. Both guess, half a dozen.
5 Q. And you don't remember the other
6 attorneys you've reviewed for?
7 A. Quite honestly, I don't usually
8 remember lawyers' names.
9 Q. Can you tell me what other states
10 besides Michigan you've reviewed cases out of?
11 A. I've probably reviewed cases in
12 about 25 to 30 states. If you want me to try
13 to rattle them off, I can, but mostly to the
14 east of the Mississippi. Some to the west.
15 Q. In terms of depositions, how many
16 have you given?
17 A. Best guess, probably 125 or so.
18 Q. Has that increased over the years?
19 A. Yeah, of course. I started out slow
20 and then picked up.
21 Q. In the last five years, how often
22 have you given depositions, a year?
23 A. It varies. Probably 10 to 12, 10 to
24 15.
25 Q. What do you charge for a deposition?

Page 28

1 A. I charge \$3,000 for a block of 4
2 hours, because I can't work. If it goes over 4
3 hours, I now charge \$1,000 an hour.
4 Q. Again, is the percentage of
5 depositions you've given for plaintiff versus
6 defense similar to the two-thirds to 70 percent
7 for plaintiff versus --
8 A. Sorry. It's probably just a tad
9 higher on behalf of the patient. In
10 Pennsylvania, we don't give depositions. We
11 just do reports.
12 Q. What defense firms here in
13 Pennsylvania have you reviewed for?
14 A. You probably know better than I do.
15 Dickie Chilcote McCamey, is it? I think it's
16 dickie Chilcote McCamey. There used to be one
17 called Israel, Wood & Puntill, but they broke
18 up, and I've done work each of them on their
19 own. Murphy Taylor. I think, B-I, Buchanan
20 Ingersoll. There's a couple other firms I
21 missed.
22 Q. In the other case you had for
23 Ms. Salter-Ferris, have you given a deposition?
24 A. I think it was a few years ago, yes,
25 ma'am.

Page 29

1 Q. Do you know the name of the case?
2 A. No, ma'am.
3 Q. Do you know what City or County the
4 case was in?
5 A. No, ma'am. Sorry.
6 Q. Name of the doctor or the hospital
7 involved?
8 A. I don't remember anything about the
9 case, just, I did one.
10 Q. And in terms of trials, have you
11 appeared in trial before?
12 A. Yes, ma'am.
13 Q. On how many occasions?
14 A. I'd say, probably, about 30.
15 Q. What do you charge for trial
16 appearance?
17 A. I charge \$7,000 a day, away from the
18 practice.
19 Q. Plus travel expenses, I assume?
20 A. Yes, ma'am. I always forget that.
21 Q. Have you testified in Michigan
22 before?
23 A. In trial?
24 Q. Yes.
25 A. No.

Page 30

1 Q. Did you give trial testimony in the
2 case for Ms. Salter?
3 A. No. I think I just did a deposition
4 by video.
5 Q. Was that for trial purposes, if you
6 know?
7 A. I don't think so, but I don't think
8 it was, no.
9 MS. SALTER-FERRIS: It wasn't.
10 A. I probably would have worn a jacket
11 and tie if it was.
12 Q. Have you ever testified in a Federal
13 Court case?
14 A. Many years ago.
15 Q. Have you maintained a list of cases
16 that you have given testimony in?
17 A. No, ma'am.
18 Q. Do you have a separate business or
19 entity through which you do your medicolegal
20 work?
21 A. No, ma'am. It all goes through the
22 same thing.
23 Q. Can you tell me how much money you
24 make a year doing medicolegal activity?
25 A. It's gone down because I've slowed

Page 31

1 down but, I guess, about 16 percent of my
2 practice.
3 Q. How much money?
4 A. I understand your question. I'm
5 trying to think. I mean, I'm sure -- I don't
6 know the exact number. Probably, in the years
7 I've made the most, it's been somewhere between
8 100-to- \$200,000.
9 Q. Over what period of time were you
10 making that kind of money?
11 A. Those were just the best years.
12 Probably, just a few years, I went over
13 100,000.
14 Q. When were you first contacted in
15 this case?
16 A. I think it was the end of 2012.
17 Q. Was that by Ms. Salter?
18 A. Salter-Ferris, yes, ma'am.
19 Q. What were asked to do?
20 A. I was just asked to review the case
21 and determine whether there was a -- if the
22 patient had been treated sooner, would there
23 have been a different outcome.
24 Q. I'm sorry?
25 A. If the patient had been treated

Page 32

1 sooner, would there have been a different
2 outcome. In other words, causation.
3 Q. The materials that you have reviewed
4 for this case, are they -- have you brought all
5 of those with you today?
6 A. Yes, ma'am.
7 Q. I'm going to hand them back to you
8 and ask you if you could list them for me, what
9 you reviewed?
10 A. Sure. There's a deposition of
11 Dr. Heidenreich, H-E-I-D-E-N-R-E-I-C-H.
12 There's selective records. These are records
13 from the Associates in General and Vascular
14 Surgery. I have the deposition of PA Garcia.
15 There's a CV and, what do you call them,
16 exhibits from Dr. Heidenreich's deposition.
17 Q. What is -- what do you understand to
18 be the makeup of that, those exhibits? Are
19 those, basically, the records from St. Joe's,
20 or are there other institutions, as well? Let
21 me rephrase that. Is -- are those records that
22 you reviewed from that, that you said were
23 marked as exhibits in Dr. Heidenreich's, were
24 they limited to the care and treatment in April
25 of 2010 and more recent?

Page 33

1 A. Yeah. It looks like it's more
2 recent, yeah, and April of 2010 --
3 Q. I'm sorry. I didn't mean to
4 interrupt you. Go ahead.
5 A. There's bills from his office, it
6 looks like. It looks like this is, probably,
7 just his office record that was Xeroxed, but
8 I'm not sure.
9 Q. Okay.
10 A. Then, there is some records from
11 2006, in -- Toledo Hospital; there's some
12 records from May 29, '07, Toledo Hospital;
13 October 7, 2007, Toledo Hospital; there's some
14 records from February 6, 2008, Toledo hospital;
15 records from Dr. Balkany, B-A-L-K-A-N-Y's
16 office; some records from St. Joseph's Mercy
17 Hospital, April 2, 2010, admission; there's
18 records from the Associates in General and
19 Vascular Surgery; records from Allegiance
20 Emergency Room, April 1, 2010; records of
21 Dr. Jennings; and then there is as couple
22 CD-ROMS, four, to be exact. One is the CT scan
23 from April 3, 2010, at Mercy Health System, and
24 then there is three disks with records from
25 Joseph's Mercy Hospital.

Page 34

1 Q. As far as you know, those three
2 disks that you have in your hand, now, are
3 limited to the medical records and not imaging
4 studies?
5 A. Correct. I don't remember seeing
6 imaging on them.
7 Q. Did you review all of what's on
8 those three disks?
9 A. Yes, ma'am, at one point. There is
10 all sorts of photographs.
11 Q. Can you give me the dates of those
12 photographs that you reviewed?
13 A. Let's see.
14 MS. SALTER-FERRIS: Do you
15 want -- can we just mark that list? It's the
16 same list we're using in every deposition.
17 MS. BOWERMAN: Well, I'm going
18 to go mark all of -- I think we'll probably end
19 up marking all of these. I don't know what the
20 quality of these are, versus something else.
21 I'm going to mark as Exhibit 2 what has been
22 stapled together with a list of, looks like, a
23 printer's copy of photos, and the list on the
24 front says, handwritten notes on backside of
25 photographs. See that?

Page 35

1 THE WITNESS: Yes.
2 BY MS. BOWERMAN:
3 Q. Am I correct?
4 A. Yes, ma'am.
5 (Deposition Exhibit No. 2 was
6 marked for identification.)
7 Q. Then you have additional photographs
8 here that seem to be, at least two pages of
9 them are glossy --
10 A. Yes, ma'am.
11 Q. -- printing. I'm going to mark one
12 as Exhibit 3, which has one photograph of
13 3-24-2010, and two photographs of 3-30-2010.
14 Did I identify that correctly?
15 A. Yes, ma'am.
16 (Deposition Exhibit No. 3 was
17 marked for identification.)
18 Q. And, then, we'll mark as Exhibit 4
19 another glossy printout of three photographs,
20 and the dates on these are 3-31-2010, and
21 4-1-2010, and 4-2-2010. Did I identify that
22 correctly?
23 A. Appears to be, yes, ma'am.
24 (Deposition Exhibit No. 4 was
25 marked for identification.)

Page 36

1 MS. BOWERMAN: Then, there is,
2 stapled together, another three photographs
3 that, again, look like they came out of a
4 printer, a color printer. There's one
5 photograph per --
6 MS. SALTER-FERRIS: That's
7 Exhibit 5?
8 (Deposition Exhibit No. 5 was marked
9 for identification.)
10 MS. BOWERMAN: That's Exhibit
11 5, thank you, and the front page says,
12 3-24-2010, 6:17 P.M. The second one seems to
13 have the same time and date. And the third
14 one, because it looks like a copy, it's cut off
15 as to the date and time. Although, from what I
16 can see, it would appear that date, at least,
17 is 3-24-2010 and perhaps 6-something, but I
18 can't read them, the date and time on that
19 third page. You can do a better job --
20 THE WITNESS: I have no idea.
21 I'm sure it's a repeat, anyway.
22 BY MS. BOWERMAN:
23 Q. What else have you reviewed, sir?
24 A. Notice of Deposition, does that
25 count?

Page 37

1 Q. Sure. You've made some notes on
2 this Notice of Deposition?
3 A. Yes, ma'am.
4 Q. I'm going to mark this Notice as
5 Exhibit 6.
6 (Deposition Exhibit No. 6 was
7 marked for identification.)
8 Q. Are you complied with bringing with
9 you all the things that this Notice has
10 requested?
11 A. What I could, sure.
12 Q. Under No. 1, you've written, "Okay,"
13 which means that -- I assume you mean that you
14 have brought your Curriculum Vitae, summarizing
15 your professional qualifications?
16 A. Yes, ma'am. You have it.
17 Q. No. 2, copies of all scientific and
18 technical publications authored by you, and
19 you've written, "Don't have." Does that mean
20 you don't possess them anywhere, or you just
21 don't have them today?
22 A. Both.
23 Q. Exhibit number -- I'm sorry.
24 No. 3, which was all time records, diaries,
25 bills prepared and rendered in connection with

Page 38

1 your investigation and evaluation of the issues
2 involved in the lawsuit, what does that word
3 say that you've written?
4 A. I think it says, "Them," meaning I
5 don't have diaries, and the way I bill, yes,
6 ma'am time records. I send an invoice. When
7 it gets paid, our invoice goes in the garbage.
8 And, "Them," I asked Ms. Salter-Ferris today, I
9 said if you have them, you know, I don't have
10 copies.
11 Q. Okay. Do you keep records of how
12 much time you've spent on the case and how much
13 you have billed?
14 A. No, ma'am.
15 Q. So there is no way for you to
16 recreate how much you have been paid so far in
17 this case, is that what you're telling me?
18 A. Unless I get W-2s back at the end of
19 the year. Assuming this was the only case I
20 was working under during that time period for
21 this firm, I could probably do it that way, but
22 other than that, no.
23 Q. So let me make sure I'm
24 understanding you. You send out a bill, and
25 once it's paid, you destroy the bill?

Page 39

1 A. Correct.
2 Q. How do you account for your income
3 on your income tax?
4 A. You get a W-2 or a 1099 or something
5 at the end of the year.
6 Q. How does that payment of that bill
7 become a W-2 or 1099?
8 A. Well, I assume, the person that paid
9 me fills it out and sends it to me.
10 Q. So you are relying on the fact that,
11 in every instance, you have received a 1099 at
12 the end of every calendar year for cases that
13 you have reviewed or billed for?
14 A. I certainly hope that people forget
15 so I don't have to pay taxes on it, but, you
16 know, I rely on it, sure. I think they're
17 required to do that. It would be nice if they
18 didn't, you know, but --
19 Q. You have two pages of notes; is that
20 correct?
21 A. Yes, ma'am.
22 Q. I'm going to mark, as Exhibit 7, a
23 page that has at the top, left-hand corner, the
24 date 3-24-2010.
25 A. Yes, ma'am.

Page 40

1 (Deposition Exhibit No. 7 was
2 marked for identification.)
3 Q. When was that page authored?
4 A. Probably as I was doing the records
5 or if I scribbled when I was going through the
6 records I, sort of, put it together at that
7 time. Usually, it's an ongoing type of thing,
8 as I read things.
9 Q. And all of the notes on here were
10 made by you?
11 A. Yes, ma'am.
12 Q. Exhibit 8 is a second page of notes,
13 and at the top, left-hand corner is, I assume,
14 a schematic drawing of a vascular -- a lower
15 extremity or lower extremities or pelvis-down
16 vascular system?
17 A. Yes, ma'am.
18 (Deposition Exhibit No. 8 was
19 marked for identification.)
20 Q. When were -- when was the contents
21 of this document authored?
22 A. Same way. As I go through the
23 records, I take notes, especially if they're on
24 a disk.
25 Q. Have you authored a report in this

Page 41

1 case?
2 A. I don't think so, no, ma'am.
3 Q. Have you made any other notes, to
4 your knowledge?
5 A. Unless there's things written in
6 there, but I don't think so.
7 Q. When you say, "Things written in
8 there," do you make highlights on any of the
9 records?
10 A. I don't think I did on these. I
11 did -- highlighted some of the deposition
12 things but, I think, here, I didn't highlight.
13 Q. Are all of the highlightings or
14 writings in the exhibits that you have listed
15 off -- I'm sorry. The records that you have
16 listed off that you've reviewed, are all of
17 those markings, whether they're highlights or
18 ink markings or whatever, were they all made by
19 you?
20 A. Yes, ma'am.
21 Q. I want to start with Exhibit 7 and
22 ask if you could, slowly, read into the record,
23 since it's not a whole lot of notes, your --
24 all that's on this page?
25 A. Okay.

Page 42

1 Q. I might interrupt you, if you don't
2 mind, as you go along, in I have a question as
3 to what it means.
4 A. Okay. Well, if it's an abbreviation,
5 I'll just say that.
6 Q. Okay.
7 A. 3-24-2010, it says, 6 days, meaning
8 there were 6 days of symptoms. 3/1-17, foot
9 fine, then changed. That's going back in that
10 6 days. That changed, probably, about 3-18.
11 PA Garcia. Increased pain, no new
12 sensorimotor. That just means the sensorimotor
13 changes in his foot didn't change. He walks.
14 It says photos showed mild, dependent rubor,
15 and it just says Jennings, M.D., since it was
16 his office.
17 Q. If I could stop you there. The
18 photo you're referring to, the -- some of the
19 photos that we marked in this already as
20 exhibits -- and you're referring to one
21 particular photo or all the photos that are
22 dated March 24, 2010?
23 A. I would assume that would be all of
24 them, but I don't remember, specifically, why I
25 wrote that.

Page 43

1 Q. Did you note, in the photos timed or
2 dated March 24, 2010, that the mild, dependent
3 rubor was present on the left as well as the
4 right?
5 A. Well, clearly, the right one was
6 worse. There may have been some changes on the
7 left. I don't remember, specifically, looking
8 at that. I could look at the picture. I'd be
9 glad to look at that. My focus was on the
10 right leg.
11 Q. Okay. Well, when you say,
12 "Changes," you don't have any photos, do you,
13 of what his foot looked like on March 1, for
14 instance?
15 A. I don't think there's anything in
16 there, no, ma'am.
17 Q. Or any date before 3-24-2010, do you
18 have any photos that show you -- show us what
19 his feet, left and/or right feet; left and/or
20 right lower extremities look like?
21 A. No. All of the pictures I have are
22 there.
23 Q. Okay. Go ahead.
24 A. Okay. Then we have a 30 and a 31.
25 Just, basically, working backwards, to remind

Page 44

1 me there's 31 days in March, so I started
2 trying to figure out days there, with a
3 question mark next to it. The question is
4 trying to work backwards from the other records
5 when his foot changed or when it was
6 salvageable.
7 The 31, there's a note that says
8 needs to be seen per Doctor J, (next
9 appointment 4-2). I think there was a phone
10 call to a nurse that was recorded there. April
11 first, Duplex, no flow of right common femoral
12 artery, superficial femoral artery, popliteal,
13 posterior tibial and peroneal arteries. It
14 says class III which is that Rutherford's
15 classification we were talking about. I think
16 that's from Dr. Heidenreich's notes. Profound
17 right lower extremity ischemia, distal calf and
18 foot nonviable. It says 4-2-10, so April 2.
19 Q. If I may stop you for a second. The
20 entry from 4-1 about the Doppler negative flow
21 and then -- is everything else on that line
22 what you understand to be the result of a
23 Doppler study done on 4-1?
24 A. Yes, ma'am.
25 Q. Where was that study done, if you

Page 45

1 know?
2 A. I don't remember if that was the
3 emergency room or if it was when he got
4 transferred. I didn't, specifically, note
5 that.
6 Q. Okay.
7 A. I think we're on 4-2-10. It says
8 INR 4. He was (inaudible) regulated. We
9 talked about the Class III changes. Then, it
10 says thrombectomy right aorta femoral graft,
11 and right fem-pop bypass by Dr. Heidenreich.
12 Under that it says right aorta femoral to deep
13 femoral artery PTFE, and that's a bypass.
14 Right calf fasciotomy. Over to the right it
15 says questionable left fem-pop out, and under
16 that it says to save below knee, meaning the
17 amputation, prevent possible hip, meaning if he
18 didn't do that, Mr. Boltz would probably have
19 hip disarticulation.
20 Q. What do you mean by that?
21 A. Well, if he had no flow to that leg,
22 I don't think an above-the-knee amputation
23 would have healed. He would lose his leg up at
24 the hip.
25 Q. I understand now.

Page 46

1 A. That's disarticulation. Then there
2 was a CT scan, I think. It says negative
3 embolic source. So this was not from something
4 coming from his heart or something like that.
5 Q. All right.
6 A. April 5, 2010, right, below-knee
7 amputation, then just phantom pain next to
8 that. Later on it says November 11, 2010, left
9 aorta femoral opened. There's a bovine
10 paracardial patch, because they took out 1.5
11 centimeters of fresh clot in the profunda or
12 deep femoral artery. The fem-pop is out so
13 they performed a femoral to below-knee
14 popliteal vein bypass graft. There was two
15 vessel runoffs and the surgeon noted that there
16 was very minimal atherosclerosis of the
17 popliteal artery.
18 Q. When you say, "Two vessel runoff,"
19 you mean to say that there were two vessels
20 that were patent into his left foot?
21 A. There were two vessels into his left
22 foot from the popliteal.
23 Q. Do you know which two?
24 A. One of them is the peroneal which
25 doesn't directly go into the foot. The other

Page 47

1 was the posterior tibial.
2 Q. So on the left he had direct runoff
3 into the foot through the posterior tibial; is
4 that correct?
5 A. Yes, ma'am. It depends what you
6 mean by direct. Obviously, he had a bypass
7 graft put in there prior to that. He didn't
8 have direct flow.
9 Q. I'm sorry. My question, perhaps,
10 wasn't artful so let me ask it again. The --
11 on the left, his posterior tibial artery was
12 patent down into his foot; is that correct?
13 A. That's correct.
14 Q. Go ahead. You were on the last line
15 there.
16 A. January 26, 2011, basically, an open
17 left fem-pop bypass graft with a distal
18 anastomosis. There was a stenosis, and they
19 put a 6 millimeter balloon into it. The open
20 means they did it with an open technique.
21 Q. Explain to me what that is, that
22 last procedure?
23 A. Well, basically, he developed,
24 probably, intimal hyperplasia at his distal
25 anastomosis. So if you don't repair that, you

Page 48

1 could close his graft. Usually, you do it
2 percutaneously, but because of all the scarring
3 of his groin, they thought it would be too hard
4 to go in through the groin, so they made a
5 little cut in his thigh and directly accessed
6 the graft and just did it that way.
7 Q. Based on your review of all the
8 records, did he have a similar finding at any
9 other time with regard to his grafts, this what
10 did you call it, an intimal --
11 A. Hyperplasia.
12 Q. Hyperplasia.
13 A. Again, I'm just -- it wasn't
14 documented it was intimal hyperplasia. It's
15 just, generally speaking, two months after you
16 put a graft in, if it's got a narrowing at the
17 anastomosis, it's usually intimal hyperplasia.
18 Q. Did they document intimal
19 hyperplasia in relation to this January 26
20 procedure?
21 A. Again, they didn't expose it. They
22 didn't look at it. They did it long distance
23 with a balloon.
24 Q. But did they -- is there anywhere in
25 the records that you saw, they referenced that

Page 49

1 was the cause?
2 A. I don't remember them saying intimal
3 hyperplasia. Again --
4 Q. Or words that effect, scaring?
5 A. That they said anastomosis stenosis
6 which is scarring.
7 Q. So they used a different term for it
8 but, unmistakably, it was, I mean --
9 undeniably, it's not confusing to you as a
10 surgeon that they had a finding of a narrowing
11 that was not the result of atherosclerotic
12 disease; is that fair?
13 A. Correct, yeah.
14 Q. There was another cause other than
15 atherosclerotic?
16 A. He developed some scar tissue there.
17 Q. As far as you know, in relation to
18 any of the prior grafts, bypass grafts that had
19 been placed in Mr. Boltz since 2006, there was
20 never a finding of any toward sort of scarring
21 that caused the clotting off of the grafts; is
22 that fair?
23 A. Well, again, that wasn't
24 well-documented, whether it was
25 atherosclerosis, intimal hyperplasia, a

Page 50

1 combination of both. I mean, the grafts
2 clot -- a lot of times when the graft clots,
3 you don't even see what caused the distal end
4 unless you expose it. So, fair, yes, it wasn't
5 documented. But, again, you don't sometimes
6 directly look at it, so you don't document it.
7 So if a graft closes and you don't get it open,
8 it's just a closed graft.
9 Q. Again, there's no description in any
10 of the prior surgeries that there was a
11 narrowing or stricture anywhere in the graft
12 itself or at the beginning of or at the end of
13 the graft where they inserted into the native
14 veins -- native arteries; is that fair?
15 A. Correct. They usually just have a
16 closed graft. Generally speaking, a graft just
17 doesn't close miraculously. There's usually
18 some narrowing that leads to the closure, but
19 it wasn't documented because they didn't
20 uncover it. They left the clot in place.
21 Q. Okay. These are your only notes?
22 A. Yes, ma'am.
23 Q. Are there any materials which have
24 not been provided to you, to date, that you
25 feel that you need to more accurately render

Page 51

1 opinions in this case?
2 A. I don't think, specifically, no. I
3 mean, it would be nice to see the prior
4 arteriograms. I mean, it would, but I don't
5 think it's going to change anything.
6 Q. When you say it would be nice to see
7 them, are the reports not specific enough for
8 you?
9 A. You know, it's what I said. Since
10 I'm really not rendering an opinion about that,
11 you know, it's not in that important, but the
12 reports are fairly specific, but, you know,
13 vascular surgeons are pretty anal. We like to
14 look at the pictures and not just rely on how a
15 radiologist interprets them.
16 Q. Okay. Your understanding, I assume,
17 from the review of the records is that not only
18 did a radiologist review the arteriograms of
19 May 2006, but Dr. Balkany, himself, reviewed
20 them?
21 A. That's standard procedure, yes,
22 ma'am.
23 Q. Do you see anywhere in the records
24 where Dr. Balkany's interpretation of those
25 arteriograms from 2006 differed from what the

Page 52

1 radiologist found?
2 A. No, ma'am.
3 Q. Do you have any reason to believe
4 that the radiologist's report is inaccurate in
5 any way?
6 A. No, ma'am.
7 Q. What is the five-year patency of the
8 fem-pop bypass graft above-the-knee with using
9 a vein?
10 A. Eventually, gotten better, I'd say.
11 Well, it also -- I don't want to complicate
12 your question, but there's primary patency,
13 there's secondary patency, there's assisted
14 primary patency, so it depends which one
15 you're looking at. I'd say, you know, in good
16 hands, probably hitting up close to 90 percent,
17 five year.
18 Q. And what about ten years out?
19 A. Well again, with the -- if you have
20 good follow-up on these patients and take care
21 of them, help maintain the patency and monitor
22 their risk factors and things like that,
23 probably, like, 75 to 80 percent.
24 Q. At ten years?
25 A. Yes, ma'am.

Page 53

1 Q. What did Dr. Heidenreich use for the
2 bypass graft? Did he use a vein, or did he use
3 some synthetic material?
4 A. What date are you talking about?
5 Q. April 2.
6 A. He used a piece of GORE-TEX from the
7 aorta femoral to the deep femoral, if that's
8 the bypass you're talking about.
9 Q. What about -- I'm sorry. From the
10 aorta to the deep femoral, did you say?
11 A. GORE-TEX. It's PTFE.
12 Q. I want to make sure we're taking
13 about the same bypass graft, not the material
14 that was used?
15 A. I thought that's what you asked me,
16 what did he use?
17 Q. Yeah, but did he use the GORE-TEX
18 for -- let me rephrase that question, because
19 as I recall now that I'm asking it, he only put
20 in one new graft on April 2, and he cleaned out
21 the existing ABF; is that correct?
22 A. Correct. He cleaned out the aorta
23 femoral, and he put a short jump graft into the
24 deep femoral, yeah.
25 Q. What is the five-year patency of a

Page 54

1 fem-pop, above-the-knee graft --
2 MS. SALTER-FERRIS: You just
3 asked him that.
4 Q. -- using --
5 MS. BOWERMAN: Excuse me. Why don't
6 you let me finish.
7 BY MS. BOWERMAN:
8 Q. Using GORE-TEX?
9 A. Again, you know, with surveillance
10 and things like that, probably 80 percent.
11 Q. 80-percent patency at five years?
12 A. Yeah. I mean, there's ways to keep
13 them going, so -- I mean, it depends on, you
14 know, which exact number -- like I said,
15 there's primary, where you take it to the first
16 closure. There's assisted primary, where you
17 use balloons and things like that. There's
18 secondary patency where you do a thrombectomy
19 or a lysis, so the numbers are variable. I
20 would say, on average, 80 percent.
21 Q. How about the ten-year patency for
22 GORE-TEX for that particular fem-pop bypass
23 graft?
24 A. I'd probably say, again, with the
25 same considerations, 60 percent. It's lower

Page 55

1 than a vein.
2 MR. THOMAS: You said 60?
3 THE WITNESS: 60, yeah.
4 MR. THOMAS: Thank you.
5 BY MS. BOWERMAN:
6 Q. What is the five-year patency for a
7 fem-pop, below-the-knee graft using vein?
8 A. Actually, the interesting thing is
9 it's probably a little bit higher than
10 above-the-knee, so I'd probably say a little
11 above 90 percent.
12 Q. What about for ten years?
13 A. Anywhere from 80 to 90, depending.
14 Q. How about with using GORE-TEX for a
15 below-the-knee fem-pop graft?
16 A. Probably in the range of 80 percent
17 for a five-year and maybe 60 for ten.
18 Q. What is the five-year patency for a
19 fem to peroneal artery bypass using vein?
20 A. Again, it depends on a lot of
21 conditions, but I'd probably put it somewhere
22 in the 70 to 80 percent range.
23 MS. SALTER-FERRIS: I'm sorry.
24 Which one was this, again?
25 THE WITNESS: Peroneal.

Page 56

1 BY MS. BOWERMAN:
2 Q. What about using GORE-TEX? I'm
3 sorry. That was the five-year patency. What
4 is it, ten years?
5 A. Ten is probably down to 50 or 60
6 percent.
7 Q. And what is the fem-peroneal bypass
8 using GORE-TEX? What's the five-year patency?
9 A. Not very good. So there's all sorts
10 of tricks you use to keep it open. If you just
11 put a piece of GORE-TEX into the peroneal
12 artery, five years, dismal, 20 percent. Again,
13 there's all sorts of adjuncts we use for that.
14 Q. What about the ten-year patency?
15 A. Less than that.
16 Q. And what is the five-year patency
17 for a femoral plantar arch bypass graft with
18 vein?
19 A. Plantar arch, there probably haven't
20 been enough bypasses to the plantar arch to
21 give you those numbers.
22 Q. Have you ever done one?
23 A. To the arch of -- the plantar arch?
24 Q. Yes.
25 A. Once.

Page 57

1 Q. Did it succeed?
2 A. Yes, ma'am.
3 Q. What was the circumstance?
4 A. The patient had a gangrenous toe,
5 and everything was closed up to there, so we
6 did a bypass as far down as we could go.
7 Q. It was -- I'm sorry. It was
8 gangrenous up to what level?
9 A. The toe. If it was the mid-foot, we
10 wouldn't be able to do a plantar arch bypass.
11 Q. Do you know what the patency of the
12 posterior tibial and anterior tibial arteries
13 were in that case?
14 A. They were occluded, or we wouldn't
15 have gone where we did.
16 Q. Nonetheless, do you know what the
17 literature says in terms of the five-year
18 patency for femoral plantar arch bypasses with
19 vein?
20 A. Again, I don't think I've even seen
21 literature on bypasses to the plantar arch.
22 Q. Because it's so rare?
23 A. Correct.
24 Q. And just so I'm complete here,
25 the -- do you know what the five-year patency

Page 58

1 for femoral to plantar arch bypass is with a
2 GORE-TEX graft?
3 A. Again --
4 Q. Would somebody not attempt that?
5 A. Yeah, I don't think anybody would
6 put a piece of GORE-TEX into the plantar arch.
7 Q. How many femoral-peroneal bypass
8 grafts have you done?
9 A. In my career, hundreds.
10 Q. Has your success rate been what
11 you've quoted above, here?
12 A. Yes, ma'am.
13 Q. Where have you performed these
14 procedures?
15 A. In people's legs.
16 Q. I'm sorry. What institution?
17 A. Sorry. Mostly, Sewickley Valley.
18 Q. The one case of the bypass to the
19 plantar arch, was that done at the same
20 hospital?
21 A. No. I think we did that at
22 Montefiore.
23 Q. So that was done in your Fellowship?
24 A. Yes, ma'am.
25 Q. So it's something you did yourself

Page 59

1 or you were an assistant in the procedure of a
2 faculty member?
3 A. Well, there was a faculty member
4 there, but I did the operation.
5 Q. And did you follow that patient for
6 any period of time?
7 A. I think I did that my first, so a
8 year.
9 Q. Do you know how long that graft
10 stayed patent?
11 A. It was patent when I left New York
12 so --
13 Q. So you know it was patent at a year.
14 You don't know what it was at two years or
15 three years or?
16 A. No, ma'am.
17 Q. I take it you've had experience
18 performing bypass graft procedures from the ABF
19 graft further down the legs?
20 A. Yes, ma'am.
21 Q. Can you tell me when procedures --
22 what graft procedures you've performed from the
23 pelvis down?
24 A. You're talking if they have an aorta
25 femoral graft in place or just from the pelvis

Page 60

1 down.
2 Q. From -- anywhere from the pelvis
3 down?
4 A. I've done -- you're just talking
5 bypasses?
6 Q. Bypass grafts, yes.
7 A. I've done femoral to femoral,
8 femoral to deep femoral, femoral to popliteal,
9 femoral to anterior tibial, femoral to
10 posterior tibial, femoral to peroneal, femoral
11 to dorsalis pedis, femoral to lateral tarsal,
12 femoral to medial and lateral plantar arteries.
13 Q. I'm sorry. Femoral to what was the
14 lateral?
15 A. Medial and lateral plantar arteries.
16 Q. Is that different from the plantar
17 arch?
18 A. Yes, ma'am.
19 Q. What is the five-year patency rate
20 for those procedures?
21 MS. SALTER-FERRIS: For each of
22 them?
23 MS. BOWERMAN: Yes.
24 THE WITNESS: Well, they all
25 probably fall in the same ballpark. You're

Page 61

1 talking about the way-distal or everyone we
2 just talked about?
3 MS. BOWERMAN:
4 Q. I'm sorry. Let me start over, that
5 question. You mentioned that you've done
6 grafts from the femoral to the medial plantar
7 arteries; is that correct?
8 A. Medial and lateral plantars, yeah.
9 Q. How many of those procedures have
10 you performed?
11 A. Probably, 20, 25.
12 Q. Do you know what the five-year
13 patency rate has been for those?
14 A. Pretty good, I think. Probably, in
15 excess of 80 percent.
16 Q. You do you keep records?
17 A. I used to.
18 Q. All of these have been done at this
19 hospital, Sewickley Valley Hospital?
20 A. Yeah. That's what I'm talking
21 about, now. I'm not talking about my
22 Fellowship.
23 Q. You ever had bypass grafts fail in
24 the leg?
25 A. Never. Of course, I have.

Page 62

1 Q. When a graft fails after the initial
2 one-to-two-month period, what is, generally,
3 the reason these grafts fail?
4 A. Well, usually increase in the first
5 18 months, outside the first month or two, it's
6 considered intimal hyperplasia.
7 Q. I'm sorry. It's considered?
8 A. Intimal hyperplasia. It can either
9 be intimal hyperplasia to proximal anastomosis,
10 to distal anastomosis, or within the graft,
11 itself.
12 Q. Is that the only cause?
13 A. No. That's the predominant cause.
14 I mean, you can certainly have someone who has
15 artheroscleroses, either you bypass through a
16 diseased artery and it just worsened, you could
17 have people that, for some reason, develop
18 compression on a graft. The big reason is, at
19 that point, probably would just be intimal
20 hyperplasia or progression of disease.
21 Q. The progression of disease you're
22 referring to is the progression of the
23 atherosclerotic disease; is that correct?
24 A. Correct. And, then, for GORE-TEX,
25 as I tell my patients, sometimes, they close

Page 63

1 just do piss you off.
2 Q. You're a member of the Society for
3 Vascular Surgeons?
4 A. Yes, ma'am.
5 Q. You don't have a problem if your
6 testimony in this case is reviewed by the
7 Society, I assume?
8 A. No, ma'am. I welcome it. I hope
9 your experts feel the same way.
10 Q. Focusing on the May 2006
11 arteriograms, what was the condition of
12 Mr. Boltz's arteries as of that arteriogram,
13 starting from the pelvis going down to the
14 bottom of the right foot?
15 A. Well, why don't we start a little
16 higher than that in the aorta. That's sort of
17 outside the pelvis. He had a nearly occlusive
18 stenosis of his distal aorta. In his right leg
19 he had moderately severe disease and stenoses
20 of his common iliac and external iliac artery.
21 I think he had some disease in his common
22 femoral, but he had moderate plaquing in his
23 superficial femoral artery. His anterior
24 tibial artery was occluded. He had a small
25 localized occlusion of his distal posterior

Page 64

1 tibial artery.
2 Q. Okay.
3 A. On the left side, his common iliac
4 artery was totally occluded. He had some
5 disease in his common femoral, his deep
6 femoral, and his superficial femoral. His
7 popliteal was open, anterior tibial was
8 occluded. The other two vessels were patent.
9 Q. As of this May 2006 arteriogram,
10 what was supplying, what arteries were
11 supplying blood to his right foot?
12 A. His right foot?
13 Q. Yes.
14 A. I'm not sure I follow your question.
15 Q. How was blood getting to -- what
16 major arteries were supplying blood to his
17 right foot? Why don't we start -- well, start
18 with, you know, as high up as you want to
19 start?
20 A. Well, his common iliac artery was
21 patent, so it was supplying blood. It was
22 going down to his external iliac into his
23 superficial femoral popliteal, peroneal, and
24 then his posterior tibial went into his
25 plantars.

Page 65

1 Q. He was receiving blood through the
2 posterior tibial artery?
3 A. Yes, ma'am. It had just a localized
4 occlusion, so it had collaterals around it and
5 went into it, sure.
6 Q. So you're reading of that report is
7 that the right posterior tibial artery
8 reconstituted beyond the blockage?
9 A. I'm pretty sure it did. Let me see
10 if I got it --
11 Q. I can read the last line says --
12 A. Yeah. Mine, for some reason, as I'm
13 reading, is not where you'd expect it in the
14 records. I remember that, but go ahead.
15 Q. It's under No. 6. Occlusion of
16 distal right posterior tibial artery of
17 calcaneus with a reconstitution of a right
18 plantar artery. It doesn't say anything about
19 reconstitution of the distal posterior tibial
20 artery, does it, sir?
21 A. Okay. Well, the distal posterior
22 tibial artery turns into the plantar, so where
23 that fine line is, he had reconstitution at his
24 foot. I mean, if you'd like to splice hairs,
25 then let's get the pictures and look at them,

Page 66

1 and we can argue about it.
2 Q. Okay. Is it fair to say that he was
3 not receiving blood directly through the
4 posterior tibial artery, but through
5 collateral, smaller collateral vessels that
6 connected to the right plantar artery?
7 A. Yes. He had a distal posterior
8 tibial occlusion, like I said.
9 Q. So is it fair to say that all of the
10 blood feeding his foot were through the
11 indirect pathways of collateral arteries?
12 A. Well, he had a fork at the end of
13 his peroneal which was doing that. It does go
14 through collaterals, sure.
15 Q. The fork at the end of his peroneal
16 artery, the fork, in a normal foot goes to the
17 anterior tibial artery; correct?
18 A. Or the dorsalis pedis, sure.
19 Q. Well, the dorsalis pedis is just the
20 end of, the distal end, of the anterior tibial
21 artery, isn't it, sir?
22 A. Sure. Kind of like the plantar is
23 to the posterior tibia, yes, ma'am.
24 Q. And in this case that artery was
25 completely blocked of, wasn't it, sir?

Page 67

1 A. The posterior tibial?
2 Q. The anterior tibial.
3 A. The anterior tibial, yes, ma'am.
4 Q. And the peroneal artery, the other
5 fork, goes to the posterior tibial arterial and
6 it was blocked off; correct?
7 A. Yes. There was a localized
8 occlusion, sure.
9 Q. Can we agree, sir, that these
10 blockages of the anterior tibial artery and the
11 posterior tibial artery on the right were
12 permanent blockages?
13 A. Sure.
14 Q. They aren't ones that could be
15 reopened with TPA, for instance?
16 A. Well, not with TPA. That posterior
17 tibial, with a fine balloon or atherectomy,
18 might have been able to if somebody tried it,
19 but it's not what we generally do that for
20 unless the patient's foot is threatened.
21 Q. And it was certainly -- those two
22 blockages of the AT and the PT were not ones
23 that would open on their own; fair? It's not
24 reversible -- it's not a reversible condition;
25 is that fair?

Page 68

1 A. Again, as I said, with the balloon
2 or a atherectomy it might be, but certainly
3 it's not going to change on its own.
4 Q. Was Mr. --
5 A. Boltz.
6 Q. -- Boltz, in your opinion, ever a
7 candidate for that type of balloon procedure to
8 the AT or PT?
9 A. He didn't need it.
10 Q. He was -- so therefore, he was never
11 a candidate for that; is that fair?
12 A. Correct. You would do that for limb
13 salvage, and he wasn't at a point of needing
14 limb salvage. He had good collaterals to his
15 foot.
16 Q. And when you say, "He had good
17 collaterals to his foot," are you talking about
18 in 2006?
19 A. Yes, ma'am.
20 Q. Did he have good collaterals to his
21 foot as of March 1, 2010?
22 A. I would say, yes, ma'am.
23 Q. What's that based on?
24 A. It's based on the fact that he was
25 doing fine. He was walking. He had chronic

Page 69

1 neuropathy from a prior vascular insult, but he
2 had adequate circulation, that his foot wasn't
3 falling off.
4 Q. Is there no in-between his foot
5 falling off and having good circulation, sir?
6 A. Well, he didn't have rest pain, he
7 didn't have ulceration, he didn't have
8 gangrenous changes, didn't have any worsening
9 of his symptoms. He had adequate circulation.
10 THE WITNESS: Can we take a
11 one-minute bathroom break.
12 MS. BOWERMAN: Sure.
13 (Recess taken.)
14 BY MS. BOWERMAN:
15 Q. Ready? Based on this arteriogram of
16 2006, in your opinion, was there any artery
17 below the ankle on the right that was a
18 candidate to receive a bypass graft?
19 A. Well, first off, there was none that
20 was indicated to be done. You certainly could
21 have put it to the plantar. And, again, that's
22 why looking at the arteriogram was so
23 important. He may have had a lateral tarsal
24 branch that was open that could have received
25 it, but without seeing the pictures, I can't

Page 70

1 tell you. In this clinical situation, it
2 wasn't necessary.
3 Q. When you say, "In this clinical
4 situation," which clinical situation are you
5 referring to?
6 A. Mr. Boltz's clinical situation at
7 the time. The fact that he had --
8 Q. I'm sorry. At what time?
9 A. We're talking about 2006.
10 Q. Okay. But at any time, would he
11 have been a candidate for a bypass to the --
12 even in March of 2010, would he have been -- or
13 up to the time of his April 2, 2010, surgery
14 was he ever a candidate for a bypass graft to
15 the plantar artery?
16 A. Well, again, it wasn't necessary.
17 His problem was all proximal disease. He did
18 not need a bypass to a distal vessel. So he
19 wasn't a candidate because it wasn't clinically
20 indicated. Could it have been done? Sure.
21 Q. Why did Mr. Boltz need this first
22 surgery by Dr. Balkany in June 2006?
23 A. Well, at that point he had worsening
24 claudication. He could barely walk, I think,
25 100-to-150- feet, if I remember correctly. He

Page 71

1 had, I think he said there was some rest pain.
2 He was developing some numbness in his feet. I
3 don't think it was going to help his erectile
4 dysfunction, but, really, for his inability to
5 walk and the fact that he was developing
6 numbness, they thought it was significant
7 disease.
8 Q. Is it fair to say that for
9 Mr. Boltz, his claudication on his right leg
10 began in -- sometime in 2006?
11 A. I don't know. I think -- I can't
12 say that. I think he -- because I remember in
13 the notes saying that he had been able walk a
14 couple blocks then it worked down to 100, 150
15 feet. I don't remember that being in 2006. I
16 thought it was going on for a couple years,
17 but, you know, I'd have to dig out the records.
18 Q. When did you -- when, in your
19 opinion, did he first develop claudication?
20 A. I have no idea.
21 Q. Did he have claudication as of the
22 second surgery in May 2007?
23 A. Again, you asked me when he
24 developed it. I mean, I thought you were
25 talking about the first time. I mean, that's

Page 72

1 usually when it developed means, so --
2 Q. I understand. Perhaps -- let me ask
3 another question. You say you have no idea
4 when it developed. I'm asking you, did he have
5 claudication as of June 2006?
6 A. Yes.
7 Q. And that was not cured, was it, in
8 him, ever?
9 A. I don't have those intermittent
10 notes so I don't know if it was or not. Again,
11 the problems I focused on after that seem to be
12 more of acute problems. Again, I don't have
13 the records to show that.
14 Q. You don't know one way or the other?
15 A. Correct.
16 Q. But you know as of, at least, the
17 first surgery of 2006, he had at least
18 intermittent claudication; is that fair?
19 A. Yes, ma'am.
20 Q. Is it fair to say that it was severe
21 atherosclerotic disease that resulted in his
22 need for that first surgery in June 2006?
23 A. It's fair.
24 Q. And that surgery was an ABF; is that
25 correct?

Page 73

1 A. Aorto-bi-femoral graft, yes, ma'am.
2 MS. BOWERMAN: Off the record.
3 (Discussion held off the
4 record.)
5 BY MS. BOWERMAN:
6 Q. In your opinion, as of June 2006,
7 was there any evidence that this patient had
8 some form of a hypercoagulable state?
9 A. Well, it wasn't documented until
10 later on, but I would say in someone as young
11 as he was, you know -- people under 50, I
12 generally send the coagulation workup, because
13 about half of them do have some sort of a
14 defect so -- other than the fact that he was
15 young with atherosclerosis, there was never
16 anything documented before.
17 Q. Is it fair to say, sir, that given
18 his young age which this severe atherosclerotic
19 disease developed, in all likelihood, he had
20 hypercoagulable state?
21 A. No. I think the statistics, even my
22 statistics are about 50 percent, so I don't
23 know if that makes it in all likelihood. It's
24 50/50.
25 Q. Do you have any reason to believe

Page 74

1 that he did not have hypercoagulable state
2 between 2006 and 2010?
3 A. We know that he was documented with
4 the M-T-H-F-R mutation in 2007, so I assume he
5 had that in 2006, also.
6 Q. And if that was positive, would that
7 tell you that one of the contributing factors
8 to his clotting off or failed bypass grafts in
9 2007, 2010, and in between was in-part because
10 of hypercoagulable state?
11 A. No, ma'am. Basically, this speaks
12 more of a venous problem. It's in association
13 with this, but it certainly hasn't been shown
14 to close bypass and arteries, and it's
15 heterozygous. If it's homozygous, it's a
16 little bit worse. Plus, when he closed his
17 grafts later on, like in 2010, he was fully
18 anticoagulated. So it was more of a mechanical
19 problem than it was a hypercoagulable problem.
20 Q. So you don't believe
21 hypercoagulability played any role in any of
22 his bypass grafts closing off at any time?
23 A. No. They always seemed to have a
24 mechanical problem.
25 Q. Can we agree he was very young for

Page 75

1 someone needing an aorta iliac -- for having
2 aortoiliac disease?
3 A. He was on the young end of the
4 spectrum. He certainly wasn't the youngest
5 person I've seen with something like this.
6 Q. Is it fair to say that when it
7 develops as young as it did in his case, it's a
8 poor prognosticator down the road for longevity
9 of life?
10 A. Not necessarily in that way. I
11 mean, it's a cardiac risk factor. We know it's
12 a cardiac risk factor, so hopefully with that
13 warning, his doctors will kick him in his him
14 butt about cigarette smoking, make sure he
15 stopped, make sure he's on some sort of statin
16 medication which I think he is now, make sure
17 he's either on some sort of a blood thinner or
18 aspirin or something like that, make sure his
19 blood pressure is controlled. You know, the
20 nice part is now we know all this stuff and we
21 can manage it.
22 Q. Can we agree, sir, that his smoking
23 contributed to his severe atherosclerotic
24 disease as of 2006?
25 A. Yes, ma'am.

Page 76

1 Q. Can we agree that it continued to be
2 a significant contributing factor for -- to the
3 advancement of his atherosclerotic disease
4 through April 2010?
5 MS. SALTER-FERRIS: Object to
6 the lack of foundation since he'd already
7 testified that he did quit smoking.
8 A. Again, no. I think if he quit
9 smoking, the effects of that, sort of, on the
10 progression of atherosclerotic disease go away
11 with a short period of time.
12 Q. I'm talking about up to his April 2
13 surgery, 2010, can we agree that his continuing
14 to smoke up to that point was a significant
15 factor in the advancement of his
16 atherosclerotic disease?
17 MS. SALTER-FERRIS: Same
18 objection.
19 A. Well, my understanding is if he
20 quit, if he had one relapse or something -- if
21 you're telling me that he continued to smoke on
22 a daily basis up until 2010, I would tell you,
23 yes, it had some contributing factor to his
24 atherosclerosis.
25 Q. Even if he quit for short periods of

Page 77

1 time, the fact that he smoked at all during
2 that time period would be a contributing factor
3 to his advancing atherosclerotic disease?
4 MS. SALTER-FERRIS: Same
5 objection.
6 Q. Is that fair?
7 A. I think it would depend on what you,
8 sort of, mean by cheating. If you're saying he
9 snuck a cigarette every three months, I'd say
10 no. If you're saying he quit for a week and
11 then would smoke for three months, and sort of
12 did that cyclicly, I'd say, yes.
13 Q. Do you know what his smoking pattern
14 was between 2006 and 2010?
15 A. No.
16 Q. I'm talking about April 2, 2010.
17 A. Yeah. I don't have an exact, how
18 many packs per day he did per day, you know, if
19 it went longer. There's just notations saying
20 he had quit already. For somebody to say they
21 quit, it means they're substantially not
22 smoking. There's no good documentation about
23 how many days a year he would smoke.
24 Q. You understand that he had
25 hypertension?

Page 78

1 A. Yes, ma'am.
2 Q. Did that contribute to his advancing
3 atherosclerotic disease?
4 A. Well, I think it was controlled but,
5 I mean, it has a small factor, sure.
6 Q. How about his high cholesterol, did
7 that contribute to his advancing
8 atherosclerotic disease?
9 A. Elevated cholesterol does that.
10 Q. And he had high cholesterol;
11 correct?
12 A. I think he did, yes, ma'am.
13 Q. So that was a significant risk
14 factor and a contributing factor to his
15 advancing atherosclerotic disease; correct?
16 MS. SALTER-FERRIS: Object to
17 the compounding-term question. You can answer
18 with my objection.
19 A. Yeah. High cholesterol is a risk
20 factor for atherosclerosis.
21 MS. SALTER-FERRIS: Same
22 objection.
23 Q. The ABF that was put in in June of
24 2006, what was the expected five-year patency
25 for that graft?

Page 79

1 A. Well, most people get quoted about
2 95 percent, five-year patency. 90, 95 percent.
3 Q. Can you explain to me why his failed
4 in less than a year?
5 A. Well, again, it's not
6 well-documented what was going on but, you
7 know, looking at his arteriographic pictures,
8 he had some disease in his femorals, so there
9 was probably some sort of outflow disease
10 there. Again, his op note didn't clearly
11 describe whether or not he had any intimal
12 hyperplasia that developed there.
13 Q. Well, I'm sorry. It doesn't mention
14 hyperplasia, period, does it?
15 A. Correct. It just mentions, you
16 know, a narrowing. It mentions -- it doesn't
17 mention atherosclerosis as a cause, either, but
18 we know we it's there from the arteriogram. We
19 know when you sew a piece of Dacron to an
20 artery there gets to be some intimal
21 hyperplasia. It's a fact of life.
22 Q. Okay. Is it fair to say that his
23 needing -- I'm sorry. Is it fair to say that
24 the fact that this graft failed in 11 months,
25 this ABF graft, it was a sign of his advancing

Page 80

1 atherosclerotic disease?
2 A. Not necessarily. He had disease
3 beyond that, so it may just have been a outflow
4 problem that got a little bit worse. It could
5 be atherosclerosis, it could be intimal
6 hyperplasia. It wasn't described either way in
7 the chart.
8 Q. Okay. So can we agree that as of
9 the May arteriogram, May 2006 arteriogram, and
10 his June surgery of 2006, his SFA was patent?
11 A. It had disease to it, but it was
12 patent, yes, ma'am.
13 Q. His profunda was patent?
14 A. Again, it had some disease, but it
15 was patent.
16 Q. The popliteal arteries were patent?
17 A. Yes, ma'am.
18 Q. The fact they had clotted off or
19 were found to be clotted off, and I'm talking
20 about now the SFA on the right, so let me start
21 the question over. Can we agree that his SFA
22 was found to be blocked off 11 months later in
23 May 2007?
24 MS. SALTER-FERRIS: Object to
25 foundation of question.

Page 81

1 A. Can you repeat it? Sorry.
2 Q. Sure. Can we agree that when
3 Dr. Balkany operated on Mr. Boltz again in May
4 2007, he found that the SMA (sic) was
5 completely occluded; is that fair?
6 MS. SALTER-FERRIS: Same
7 objection.
8 A. It's the SFA, not the SMA.
9 Q. What did I say? I meant the SFA,
10 yes.
11 A. Different artery.
12 MS. SALTER-FERRIS: Do you
13 want -- do you have the report there?
14 THE WITNESS: I have his
15 artery report -- I don't have an arteriogram
16 report from that time, but I think,
17 approximately, there was an occlusion that he
18 couldn't get a catheter through.
19 BY MS. BOWERMAN:
20 Q. That would be a sign of rapidly
21 advancing atherosclerotic disease, wouldn't it?
22 A. Not necessarily, no, ma'am. I mean,
23 he had significant disease there to start with.
24 If he ruptured a plaque or something then
25 clotted it off, it doesn't mean his

Page 82

1 atherosclerosis progressed, it just changed.
2 He just clotted the rest of the vessel off.
3 Q. Why did he require a fem-pop on the
4 right in 2007?
5 A. Because --
6 Q. And I'm -- let me -- I'm referring
7 to a fem-pop graft?
8 A. Okay. First off, I don't think he
9 had a fem-pop on the right. He had -- it's
10 listed as a common femoral to proximal
11 superficial femoral artery. I don't think it
12 moved down to the popliteal. What date --
13 Q. I'm sorry -- May 2007. So he had a
14 fem-to-fem?
15 A. Well, sort of. See fem-to-fem, to
16 us, usually means you went across the groin
17 from one femoral to the femoral but, in effect,
18 you're right. It is a fem to fem. It's from
19 the common femoral to the superficial femoral.
20 I don't want anybody to misread it. As I said,
21 a fem-to-fem bypass has one connotation.
22 Q. Why was that required?
23 A. Well, because I think Dr. -- I'm
24 blocking his name. The surgeon felt that there
25 was outflow obstruction that led to the

Page 83

1 occlusion of the aorta by femorals, so to
2 provide better what he thought was better
3 outflow, he did a short jump graft in the
4 superficial femoral.
5 Q. Why did he require -- was it a
6 fem-to-pop graft on the left or a fem-to-fem on
7 left, as well?
8 A. On the left -- he may have done a
9 pop there. Let me get this right. No. Again,
10 on the left he, said short common femoral to
11 mid-superficial femoral Distaflo graft. So,
12 again, I think the feeling was he had outflow
13 problems that led to the occlusion of his
14 graft, so they were giving him more flow,
15 trying to help keep the graft open.
16 Q. What caused the outflow problems on
17 the right?
18 A. Well, the same thing. He had
19 moderately severe disease in the superficial
20 femoral artery, and if it went to total
21 occlusion, he probably clotted that last
22 section of artery.
23 Q. And the same would be true on the
24 left?
25 A. Yes, ma'am.

Page 84

1 Q. Can we agree that's a sign of
2 advancing atherosclerosis disease?
3 A. No, we can't agree on that. We can
4 agree that there was a change in the artery.
5 Whether or not he reached a critical stenosis
6 and just clotted it, that doesn't mean his
7 atherosclerosis is worsening. It's just the
8 nature of the disease. It's not like the
9 plaque itself is growing and growing and
10 growing. It occluded the artery, so no, not
11 necessarily.
12 Q. Would you agree that the fact that
13 the ABF clotted off in less than a year is a
14 sign of aggressively progressive
15 atherosclerotic disease?
16 A. For about the fourth time, no, I
17 wouldn't agree with that. There's other causes
18 for that.
19 Q. In this case, what were the most
20 likely other causes, more likely than not?
21 A. The more likely causes are he had --
22 he was sown into a diseased vessel which we
23 know. We know that his outflow was diseased.
24 The outflow, for some reason, he had either
25 reached a critical stenosis or there was a

Page 85

1 plaque rupture thrombosed. Plus, because the
2 natural history when you sew a graft into an
3 artery, is they do develop some intimal
4 hyperplasia, he may have developed some of
5 that, anastomosis. There's a variety of
6 factors other than very aggressive
7 atherosclerosis. I mean, we have no
8 documentation that his atherosclerosis
9 worsened, so, no. I don't agree with your
10 statement, as said.
11 Q. Can we agree, sir, that continued
12 smoking plays a significant role in plaque
13 rupture?
14 A. Yes, ma'am.
15 Q. You have any reason to believe it
16 didn't play a significant role in this case?
17 A. Well, again, I don't have
18 documentation that he had plaque rupture. If
19 he had plaque rupture, then I'd probably say it
20 had a role in it. Again, that's not been
21 documented anywhere in the record.
22 Q. What else would be the cause for his
23 plaque rupture?
24 A. Well, what happens sometimes is
25 people just have -- there's little vessels

Page 86

1 inside the plaque. If you bleed inside the
2 plaque, it causes it to rupture. Sometimes it
3 just happens because the plaque is there.
4 Q. That's not considered a form of
5 advancing atherosclerotic disease?
6 A. No. I consider advancing
7 atherosclerosis is just a form of more plaque
8 and things like that. I mean, just because
9 you, you know, in a (inaudible) artery, you
10 blow the cap off the plaque. It doesn't mean
11 atherosclerosis has changes. It just means
12 that you bled into the plaque.
13 Q. Can we agree, sir, that as of June
14 2007, the profunda was patent?
15 A. I think it was but -- I think it was
16 patent but diseased, yes.
17 Q. Do you know how diseased?
18 A. Excuse me?
19 Q. Do you know how much disease?
20 A. No. On the left, it had moderate
21 plaquing. On the right, I forget what it was
22 listed as. 2006 arteriogram --
23 Q. I have that arteriogram here.
24 Perhaps you could point out to me where there's
25 a mention, and I made have missed it?

Page 87

1 A. Probably.
2 MR. THOMAS: It's very
3 important --
4 MS. SALTER-FERRIS: What?
5 MR. THOMAS: Nothing.
6 MS. SALTER-FERRIS: Talking to
7 yourself, again?
8 THE WITNESS: I was going to
9 say, if I put it in my picture, it's in that
10 report, somewhere.
11 BY MS. BOWERMAN:
12 Q. I'm going to give you the
13 arteriograms of May 2006. Is there any
14 reference in there that the profunda or the
15 deep femoral artery on the right has
16 obstruction?
17 A. Again, I had said the left had
18 plaque. I didn't say the right.
19 Q. I'm only talking about the right.
20 A. I was talking about the left. Then,
21 all of the sudden, we changed sides. That's
22 why I'm asking that.
23 MS. SALTER-FERRIS: That's
24 exactly what -- just what was said. You want
25 her to read it back?

Page 88

1 MS. BOWERMAN: No. If I was
2 mistaken, I mean, you -- perhaps you caught me
3 in a mis-question, and I apologize.
4 THE WITNESS: No problem.
5 BY MS. BOWERMAN:
6 Q. So just so we're clear, is there any
7 evidence that -- or let me phrase it, again.
8 Can we agree that as of the June 2007 surgery,
9 the right profunda was patent?
10 A. We can agree to that, yes.
11 Q. And it's your understanding that
12 less than three years later, that same profunda
13 had a complete occlusion; correct?
14 A. You're saying less than three years
15 later, so when are you talking about?
16 Q. From June 2007 to April 2, 2010. To
17 me, that's two years, ten months?
18 A. Okay.
19 Q. Or close to that. I don't remember
20 the date in June. Can we agree that the
21 profunda as of April 2, 2010, was completely
22 occluded?
23 A. Proximal part of it was occluded,
24 yes, ma'am.
25 Q. That's a sign of aggressive --

Page 89

1 progressive atherosclerotic disease; is it not?
2 A. It is a sign of progressive
3 atherosclerotic disease, yes, ma'am.
4 Q. But you would not consider that
5 aggressive atherosclerotic disease or
6 fast-moving, fast-progressing, advancing
7 atherosclerotic disease?
8 A. Again, without seeing that
9 arteriogram of 2006 and seeing what the --
10 there may have been disease in the common
11 femoral impinging on the origin of the
12 profunda, so I can't tell you that it was
13 fast-moving. It'd could have been common
14 femoral disease that caused the profunda to
15 clot in the beginning, but you know, again,
16 it's a relative term. I can tell you over the
17 course of two years and ten months, there was a
18 change. I just don't use the word aggressive.
19 Q. Again, there's nothing in this
20 arteriogram report of 2006 that suggests that
21 the RITE profunda was diseased?
22 A. There is absolutely nothing in there
23 that says it wasn't. It says it was patent at
24 its origin. Other than that, it doesn't say
25 diddly.

Page 90

1 Q. And patent at its origin would be
2 where it breaks off from the common femoral
3 artery; isn't it?
4 A. Correct.
5 Q. Do you have any criticism of the
6 care and treatment rendered by Dr. Balkany?
7 MS. SALTER-FERRIS: I'm going
8 to object. First of all, I didn't ask him to
9 review that. Second, this isn't a case of
10 medical malpractice against Dr. Balkany, so the
11 question is irrelevant.
12 MS. BOWERMAN: It's not
13 irrelevant for discovery purposes.
14 BY MS. BOWERMAN:
15 Q. Do you have any criticism of
16 Dr. Balkany's care?
17 MS. SALTER-FERRIS: You're not
18 the Judge in this case, but I would say that it
19 is irrelevant for purposes of discovery.
20 Q. I'll take an answer.
21 A. Do you agree that I can answer? No.
22 Again, I didn't review it from that standpoint,
23 but I didn't see anything in the notes that I
24 saw. Again, I haven't looked at his
25 arteriogram. Did I find anything wrong with

Page 91

1 his care? No.
2 Q. In your -- somewhere in your
3 handwritten notes, and I can't remember exactly
4 where it was, you made reference that there was
5 some significance to Dr. Balkany's 10-7-2008
6 office note?
7 A. 10-7-2008.
8 Q. I thought I read that. Oh. On
9 exhibit 8 under -- the page that has the
10 diagram on it.
11 A. Uh-huh.
12 Q. You've just got something that says
13 See Balkany 10-8-7. I assume that means 2007.
14 Of note, what did you -- what's the
15 significance of that notation in your
16 handwritten notes?
17 A. I don't know. Probably a notation
18 to go back and look at his notes. Let me see
19 what it says. Just that -- okay. If we see
20 that on 5-29-07 he did that common femoral to
21 mid-superficial femoral artery bypass graft on
22 the left. Yet, three months later, he's saying
23 he made the good femoral pulse, will probably
24 require some form of left-femoral popliteal
25 bypass graft to a more distal landing zone

Page 92

1 sometime in the future. You know, I was just
2 trying to make some sense of all that. He's
3 already extending his bypass graft and,
4 granted, he did have that graft closure in
5 June, but he's already planning for his next
6 procedure on him.
7 Q. What is the significance of the fact
8 that in such a short period of time on the
9 left, he would, Mr. Boltz, will require and, in
10 fact, underwent a repair of a failed graft?
11 A. Again, that's something you would
12 have to ask Dr. Boltz (sic). I mean, I don't
13 know in this case --
14 MS. SALTER-FERRIS: Dr. Balkany.
15 A. Sorry. Dr. Balkany. You know,
16 that's why I had the question there. Why is he
17 doing that if he recently had a bypass, unless
18 he's starting question whether or not he's got
19 disease in that vessel that he didn't bypass.
20 Those just something -- I couldn't figure out
21 what he was -- why he would do a bypass one
22 month and then a couple months later he's
23 saying he'll probably need a more distal bypass
24 graft in the future. I don't know.
25 Q. Would that have been the result of

Page 93

1 or was it a result of advancing atherosclerotic
2 disease, sir, on the left?
3 A. I don't think so, no.
4 Q. Why do you not think so?
5 A. Well, again, if you look at that
6 arteriogram from 2006, he had moderate plaquing
7 of his entire superficial femoral artery and
8 yet the bypass graft went into the superficial
9 femoral artery. So I don't know what
10 Dr. Balkany was thinking or doing without,
11 again, comparing his operation to the
12 arteriogram.
13 Q. As of March 1, 2010, can we agree
14 that Mr. Boltz's SFA was chronically occluded
15 by that time?
16 A. By that time, I think he was
17 occluded, yes, ma'am.
18 Q. In your opinion, was his ABF open as
19 of March 1?
20 A. March 1, I think his aorta-femoral
21 graft was open, yes, ma'am.
22 Q. As of March 1, did he have pain at
23 rest in the right leg?
24 MS. SALTER-FERRIS: As of
25 March 1?

Page 94

1 A. I think he had chronic neuropathic
2 pain that he was being treated for, but I don't
3 think it was rest pain. I think it was
4 ischemic pain from his -- or ischemic
5 neuropathy from his rhabdomyolysis on in
6 May/June of '07. I think that was just a
7 chronic type of thing so --
8 Q. Wasn't there an EMG that showed he
9 had a vascular neuropathy; sir?
10 A. I said ischemic neuropathy as a
11 result of poor blood supply that had been
12 corrected.
13 Q. On what basis are you able to say
14 that the pain he had at rest in his right leg
15 as of March 1, 2010, which required him to take
16 methadone on an on-going basis, was not rest
17 pain?
18 A. Well, my understanding was that it
19 was from nerve damage from the ischemia that he
20 had. You know, is it pain at rest? Sure, it's
21 pain at rest, but it's not classic ischemic
22 rest pain. His flow was adequate at that
23 point.
24 Q. How do you know that?
25 A. Just from going through the records.

Page 95

1 It seemed like he was doing fine that at that
2 point in time. He had changes that came about.
3 He had, I think there was an EMG that showed
4 nerve damage. Usually, rest pain does not have
5 damage. It's just pain. You do an EMG and
6 it's going to be normal.
7 Q. What evidence do you have as of
8 March 1, sir, that he had adequate blood flow
9 to his right foot?
10 A. Well, he was walking. He didn't
11 have rest pain, as we talked about. He just
12 had ischemic neuropathy. And, again, he had
13 chronic problems there, but nothing had
14 changed.
15 Q. He had chronic ischemic problems?
16 A. He had chronic ischemic neuropathy
17 which is damage that has occurred to the nerves
18 when he was ischemic. In fact, the end of May
19 in 2007, he had rhabdomyolysis which is muscle
20 death, so the nerves were injured at that
21 point. It's a chronic problem, unfortunately.
22 Q. My question to you is did he have
23 chronic ischemia as of March 1, 2010?
24 A. I guess it depends what you mean by
25 ischemia.

Page 96

1 Q. How do you define ischemia?
2 A. Well, there's different kinds of
3 ischemia. There's acute limb-threatening
4 ischemia. No, he didn't have that.
5 Q. Maybe I can shortcut this and help
6 us both. How do you define chronic ischemia?
7 A. Chronic ischemia is someone who has
8 low blood flow that affects them. I mean, it
9 can be anywhere in certain stages. It can be
10 intermittent claudication that comes out at
11 long distances. It can be short-term
12 intermittent claudication that limits their
13 lifestyle. It can be rest pain. It can be
14 signs of ulceration and things like that that
15 come out over a chronic basis. It's a very
16 variable type of thing.
17 Q. Can we agree that as of March 1,
18 2010, Mr. Boltz had chronic ischemia?
19 A. He had peripheral vascular disease.
20 I'm not sure he had chronic ischemia. I don't
21 remember any documentation that he was still
22 claudicating. His neuropathy was what it is.
23 It wasn't a vascular problem at that point. It
24 was a damaged nerve problem. So not that I'm
25 aware of.

Page 97

1 Q. How do you define acute ischemia?
2 A. Acute ischemia, it's sort of a
3 sudden change that comes on. I think for
4 research protocols I think they use within two
5 weeks, but that's just for research protocol.
6 Again, it has to do with that Rutherford's
7 classification we were talking about before.
8 You have people who have blocked off an artery
9 that now have -- Class I has pain, ischemic
10 pain.
11 Q. How do you define ischemic pain?
12 A. Ischemic pain is pain that's usually
13 distal in the foot, distal in the toes. It
14 could be pain that's relieved with dependency,
15 worse with elevation, or it could be constant.
16 It could be severe. It could be mild. It
17 depends on how bad the blockage is/or are. So,
18 you know, Class I is, usually, loss of pulses,
19 pain, sometimes coolness, sometimes pallor, but
20 the main thing is just pain. Then we move on
21 to II(a) which has sensory changes.
22 Q. What's the characteristic of the
23 pain? Is it usually burning pain?
24 A. That's more of a neuropathic type of
25 pain. It's more of a constant, gnawing type of

Page 98

1 pain. It can be very variable, depending if
2 it's just affecting a nerve or something else.
3 Burning type of pain makes me think of more of
4 a nerve, you know, somebody's got a back
5 problem or ischemic neuropathy or something
6 like that. Do you want me to keep going
7 through my classifications, or are you done?
8 Q. Sure. I didn't mean to interrupt
9 you.
10 A. You know, you have pain -- and then
11 II(a) would pain and sensory changes.
12 Generally speaking, they have good Doppler
13 signals.
14 II(b) would be pain, sensory change,
15 and motor change. The motor is what pushes it
16 over.
17 III is a mottled, insensate leg
18 that's, you know, not going to make it.
19 Q. In your opinion did he have acute
20 ischemia as of March 1, 2010?
21 A. No, ma'am.
22 MS. SALTER-FERRIS: I'm sorry.
23 I didn't hear that question.
24 THE WITNESS: Did he have
25 acute ischemia as of March 1, 2010?

Page 99

1 BY MS. BOWERMAN:
2 Q. You've mentioned this Rutherford
3 classification. What was his Rutherford
4 classification as of March 1, 2010?
5 A. He didn't fit in the Rutherford
6 classification because he didn't have acute
7 ischemia. I guess that's Rutherford zero. I
8 don't know. We'll make up a new
9 classification.
10 Q. Did he have a palpable pulse as of
11 March 1, 2010, at the --
12 A. Groin or foot, take your choice.
13 Q. Foot?
14 A. It's not documented anywhere. What
15 leg are you taking about?
16 Q. The right leg.
17 A. The right leg, I'd say judging from
18 what his arteriogram looked like in the past,
19 probably not.
20 Q. You would expect, judging from his
21 arteriogram in 2006, that he would never have a
22 palpable pulse in his -- at the level of his
23 ankle; is that correct? Either the dorsalis
24 pedis or the posterior tibial?
25 A. I'd say that's most likely. You

Page 100

1 could still, if you had a good collateral from
2 your peroneal and good flow into that, you can
3 feel a posterior tibial pulse or a distal
4 pulse, and you might feel a lateral tarsal
5 pulse if it was open, but generally speaking, I
6 would not expect it.
7 Q. What was the status of his profundus
8 as of March 1, 2010, on the right?
9 A. March 1, 2010, not having any
10 imaging, it's hard to tell you. I would say,
11 you know, looking forward to April, I would say
12 that he, at the very least, he had some disease
13 in his proximal, deep femoral on the right
14 side, or at least, you know, it may have be
15 common femoral. The problem is your common
16 femoral, your profunda, the diseases can sort
17 of go over the top. So it's either common
18 femoral across the profunda or profunda disease
19 but, you know, it's origin. I'd say there's
20 probably something there.
21 Q. Okay. How much as of March 1, 2010?
22 A. Again, anything I would give you
23 would be a guess.
24 MS. SALTER-FERRIS: You're not
25 required to guess.

Page 101

1 A. There's no imaging to tell us for
2 sure, so I'd be guessing.
3 Q. Is it your -- based on what you know
4 about the patient and the disease in general,
5 would you expect that, as of that time, he had
6 significant atherosclerotic disease in his
7 proximal profundus on the right?
8 A. Again, it's not clear. He's
9 occluded for the first 3 to 4 centimeters in
10 April. Again, we don't know if that's mostly
11 clot that's formed in there or what. Was
12 there, probably, some atherosclerosis?
13 Probably, some. I just can't tell you the
14 degree because it's not stated anywhere.
15 Q. You would not expect, sir, that had
16 TPA been instituted on or after March 24 that
17 it would have dissolved whatever that
18 obstruction was in the profundus?
19 MS. SALTER-FERRIS: Objection.
20 Form of the question.
21 A. Again, if it was more chronic-y type
22 of clot, it's less-effective. I'd say, chances
23 are, not.
24 Q. Is it fair to say that more likely
25 than not in this case, the disease in the

Page 102

1 profundus from March 1 until his surgery of
2 April 2 was chronic atherosclerotic disease?
3 MS. SALTER-FERRIS: I'm going
4 to object to the form of the question, lack of
5 foundation. Go ahead.
6 A. I think there was a combination of
7 atherosclerotic disease and clot there.
8 Q. By clot, do you mean a ruptured
9 plaque?
10 A. No. In mean clot in the blood
11 vessel.
12 Q. Was there a description of clot by
13 Dr. Heidenreich?
14 A. There was a description of nothing.
15 It says, of note, after opening the deep
16 femoral artery the first 3 to 4 centimeters
17 were occluded, but more distally this vessel
18 was patent, and this was the only possible
19 outflow for the right lower extremity area to
20 femoral bypass graft. So he doesn't say clot.
21 He doesn't say atherosclerosis. He just says
22 it was occluded.
23 Q. If it was clot, wouldn't you expect
24 him, a vascular surgeon, to attempt to evacuate
25 the clot as opposed to do a bypass?

Page 103

1 A. If it was fresh clot or if it was
2 clot that didn't have some disease with it.
3 He's trying to find the best vessel to go to so
4 he's going to go downstream where it's a nice,
5 clean vessel which is usually the case. He's
6 not going to monkey around with any
7 atherosclerosis or kind of clot.
8 Q. The fact of the matter is he does
9 not describe clot in that profundus at all,
10 does he, sir?
11 A. He doesn't describe anything except
12 an occlusion.
13 Q. In your opinion was the profundus as
14 of March 1 completely blocked off?
15 A. Trying to re-put this all together,
16 I would say probably not.
17 Q. Okay. What is your best
18 understanding of the extent of the blockage in
19 the profundus as of March 1, 2010?
20 A. That it was not totally occlusive.
21 Q. Was it partially occlusive in your
22 opinion?
23 A. Yes, ma'am.
24 Q. Can you give us an estimate, 10
25 percent, 50 percent, greater than 50 percent?

Page 104

1 A. I'd be guessing, you know, 50
2 percent, I don't know. Nobody knows.
3 Q. Is there a way to offer an opinion
4 more likely than not, the status of that
5 profundus blockage, as of March 1?
6 A. No. Nothing saw it. Nobody did any
7 testing on it. Dr. Heidenreich didn't describe
8 it, he didn't put anything on it, and any
9 imaging they had on it would just show an
10 occlusion, so there's no way to tell that for
11 sure. I can tell you for sure it wasn't
12 occluded because, according to Dr. Heidenreich,
13 the fem-pop was chronically occluded. If his
14 profunda was also occluded, his aorto-femoral
15 would have shut down long before that and his
16 leg would have been ischemic long before that
17 so on March 1, it was patent.
18 Q. As of March 1, 2010, what was the
19 pathway of blood flow from the common -- from
20 the aorta into his right foot?
21 A. Well, it would go down his graft.
22 Q. Down which graft?
23 A. Aorta-to-femoral. Then it would go
24 down his profunda and via the large collaterals
25 we have in our thigh, it would reconstitute his

Page 105

1 popliteal artery.
2 Q. It's not the popliteal artery that's
3 reconstituted, it's a plantar artery; is that
4 correct?
5 A. No. You're absolutely wrong. The
6 bottom line is popliteal arterial is patent.
7 It's been patent, so what happens is the
8 profunda goes down into the collaterals --
9 Q. I'm sorry. I apologize. You're
10 talking about the popliteal artery, not the
11 posterior tibial?
12 A. Right. I'm working way down from
13 the top. So the profunda is going to give you
14 large collaterals into his popliteal and then
15 the popliteal is going to run into his
16 posterior tibial and his and peroneal and via
17 collaterals, go into his foot.
18 Q. Do you know how large any of those
19 collaterals were?
20 A. Not without some sort of imaging.
21 Q. Any of those collaterals have names
22 to them, considered named arteries?
23 A. There's superior geniculates,
24 inferior geniculates. There's all sorts of
25 branches that have names.

Page 106

1 Q. But you don't know what he had?
2 A. No, we don't. We just know it was
3 adequate too keep his foot alive.
4 Q. Can we agree, as of March 1,
5 Mr. Boltz had weakness in his right leg and
6 foot?
7 A. Correct. He had chronic ischemic
8 neuropathy.
9 Q. But you do not believe, as of
10 March 1, he had chronic arterial ischemia?
11 A. No. I think he had -- he has
12 chronic disease. I don't think he had
13 symptomatic disease that I could tell, and he
14 certainly didn't have acute.
15 Q. I want to make sure that you've
16 answered my question.
17 A. Mm-hmm.
18 Q. It's your opinion that as of March 1
19 he did not have chronic arterial ischemia; is
20 that correct?
21 A. Correct. I don't see any symptoms
22 consistent with that.
23 Q. Did he have dependent rubor as of
24 March 1, 2010?
25 A. Again, not that I'm aware of.

Page 107

1 Q. Wouldn't you expect, given the
2 status of his leg even as of the arteriogram of
3 2006, that he would have dependent rubor?
4 A. In 2006 he may have had dependent
5 rubor, but then they do bypasses, so I don't
6 think he had it -- we're talking about 2010;
7 right.
8 Q. Yeah. March 1, 2010. Is it your
9 opinion that he did not have dependent rubor?
10 A. Not from an arterial standpoint.
11 Certainly, if he had venous problems, it could
12 look like dependent rubor but from an arterial
13 standpoint, no. Usually, dependent rubor is a
14 sign of a significant chronic problem, and he
15 seemed to have adequate flow to his foot. I
16 don't think he had it from that standpoint.
17 Q. Did he have cyanotic toes as of
18 March 1?
19 A. Again, he may have had some
20 discoloration of his toes from chronic venous
21 type problems, but I don't think he had it from
22 the standpoint of arterial.
23 Q. How about on the left? Would you
24 agree that as of March 1 he had chronic -- he
25 had cyanotic toes?

Page 108

1 A. Again, I don't have any reason to
2 think he had cyanotic toes on March 1.
3 Cyanotic toes are a sign of significant
4 hypoxia, and there's no evidence that he had
5 that.
6 Q. Did he have any significant swelling
7 in his right foot as of March 1, 2010?
8 A. I think he did have some. In fact,
9 I think he was seen in the hospital once for
10 swelling. Yeah, he had right leg swelling.
11 They checked and ruled out deep thrombosis, so
12 possible ischemic neuropathy, because he had
13 some swelling or because he had some operations
14 there. A lot of times we have people who have
15 had bypasses that have swelling. In fact,
16 people that have had bypasses, swelling is a
17 good sign because that means the graft's
18 working.
19 Q. So your understanding is that he had
20 had swelling, perhaps, all along in the year or
21 two before April 2010; is that correct?
22 MS. SALTER-FERRIS: Object to
23 lack of foundation. You can answer.
24 A. I know he had it in '07. I don't
25 have reason to doubt he's had it straight on

Page 109

1 though. He's had multiple operations and he
2 had ischemic insult. Sure.
3 Q. And as far as you know, chronically,
4 he was unable to walk more than, perhaps, 100
5 or 200 feet without pain?
6 MS. SALTER-FERRIS: What
7 period of time are you talking about?
8 Q. As of March 1, 2010?
9 MS. SALTER-FERRIS: Object to
10 lack of foundation.
11 A. Again, I didn't see that in the
12 records anywhere. I know he had pain from his
13 nerves, but I don't know how much it limited
14 his walking. I know it limited it a little
15 bit.
16 Q. You're aware that as of March 1,
17 2010, he was smoking?
18 MS. SALTER-FERRIS: Object to
19 lack of foundation.
20 A. Again, the record I had said he had
21 quit. I just don't know if on March 1 he was
22 smoking. I think even -- 2010, I thought they
23 said he had quit smoking.
24 Q. Did you read his deposition, sir?
25 A. I don't think so. Hold on, maybe I

Page 110

1 did.
2 Q. So you don't know what the status of
3 his smoking was as of March 1, 2010?
4 A. No, ma'am, other than then records I
5 had keep saying he quit, he quit.
6 Q. Are you aware, sir, that as of
7 March 1, 2010, he was permanently and totally
8 disabled due to his severe atherosclerotic
9 disease?
10 A. No. In fact, I would think he would
11 be disabled because of his ischemic neuropathy,
12 not because of his atherosclerosis, if he was
13 disabled, but I'm not aware of that.
14 Q. It wouldn't surprise you, sir, that
15 he was permanently and totally disabled because
16 of his neuropathy?
17 MS. SALTER-FERRIS: You know,
18 I'm going to object because now you're asking
19 him to give a medical opinion based upon some
20 type of a disability report, which there's no
21 foundation that rises to the level of a
22 vascular surgery review. So go ahead.
23 BY MS. BOWERMAN:
24 Q. You can tell me if you know, if you
25 don't know. Can you answer my question?

Page 111

1 A. I think your question, would I be
2 surprised --
3 Q. Yeah.
4 A. Again, not knowing the degree of his
5 neuropathy, I wouldn't know the answer to that.
6 I've seen enough people with post-ischemic
7 neuropathy that do get disabled from it, sure.
8 It's possible.
9 Q. Would you consider that, as of
10 March 1, 2010, that Mr. Boltz had a healthy
11 blood supply and healthy blood flow to his
12 right foot?
13 A. I think he had adequate circulation
14 so if you want to call that healthy, fine.
15 Q. I'm sorry?
16 A. I said if you want to call that
17 healthy, fine. It's just we refer to it as
18 adequate circulation.
19 Q. You would agree that he had severe
20 atherosclerotic disease as of March 1, 2010?
21 A. Most of which had been bypassed,
22 yes, ma'am.
23 Q.
24 A. Most of which had been by passed
25 yes, ma'am.

Page 112

1 Q. Can we agree, sir, that as of
2 March 1, 2010, the peroneal runoff in the right
3 foot through the AT and the PT were gone?
4 A. Again, I would give you the AT. We
5 know they collateralized into either the distal
6 posterior tibial or the plantar branch, where
7 you draw that line, so he had collaterals into
8 his foot.
9 Q. Where does the peroneal connect to
10 the posterior tibial? Is it above or below the
11 ankle?
12 A. It can actually be both.
13 Q. In this case, do you have an
14 opinion?
15 A. Without seeing the pictures, I can't
16 tell you.
17 Q. Isn't it most common that it
18 connects above the ankles?
19 A. Sure, it's most common, but it
20 certainly could be both. We'd have to see the
21 pictures.
22 Q. And the status of his PT at the
23 ankle was that it was blocked, wasn't it?
24 A. He had a short segmental occlusion,
25 yes, ma'am.

Page 113

1 Q. When in March do you believe there
2 was a change in his arterial system on the
3 right leg or in the right leg or foot?
4 A. From the notes, it appears that --
5 they refer to 6 days before on the 24th, so I'd
6 probably say 24 minus 6 is 18, so about March
7 18.
8 Q. Let's talk about March 18.
9 A. Sure.
10 Q. Is it your understanding that he had
11 increased pain as of that date?
12 A. Yes, ma'am.
13 Q. What do you believe was the cause of
14 the increased pain?
15 A. Poor circulation.
16 Q. Be more specific, if you would?
17 A. Well, because his flow had dropped
18 down, the oxygen delivery to his nerves,
19 especially his pain nerves was diminished, so
20 he had pain.
21 Q. Flow had dropped down where, sir?
22 A. In his leg.
23 Q. Where in his leg? Which arteries --
24 artery or arteries and at what level?
25 A. Well, again, the oxygen gets sucked

Page 114

1 off high up, the effects are seen low down.
2 What artery do I think closed down at that
3 point?
4 Q. Yes.
5 A. Again, I would say that is probably
6 where he closed his fem-pop bypass graft.
7 Q. I thought you said it was already
8 closed, chronically closed, as of March 1?
9 A. Again, that was guesswork. I'm
10 trying to put this all together. I think if
11 you look at this, there's a couple sequences
12 here. He had a fem-pop. He had a peroneal --
13 a posterior tibial -- he had a fem-pop, he had
14 a deep femoral, and an aorta-bi-femoral graft.
15 If he closed his aorto-bi-femoral graft, then
16 everything down below that is going to be a
17 problem. There's a possibility.
18 All I'm trying to do is figure out
19 some sort of a sequence to put things together,
20 because more than one thing happened in this
21 case. So either his fem-pop closed then, or if
22 it was chronically occluded, he may have closed
23 his aorto femoral and just maintained
24 collaterals through his profunda. I don't
25 think he closed his profunda down with an

Page 115

1 occluded fem-pop because the aorto-fem would
2 close. It would be a disaster. That's the end
3 result. Whether he closed his fem-pop then --
4 again, we don't have any imaging to say that.
5 Do I think it was chronically closed? Likely.
6 So either he --
7 Q. Let me just make sure --
8 MS. SALTER-FERRIS: I don't
9 think it's right for you to interrupt his
10 answer.
11 Q. Here?
12 MS. SALTER-FERRIS: Don't
13 interrupt his answer, please. Go ahead.
14 A. I've lost my train of thought.
15 Q. I didn't mean to interrupt you?
16 A. Ask your question.
17 Q. I'm happy for you to hear the answer
18 you've given so far, if you want to complete
19 it, before I ask my next question?
20 A. No problem. You're asking me to
21 give you information about something that we
22 don't know all the information. We just have
23 to try to put the scenario together again.
24 Q. Is it your opinion that more likely
25 than not, that as of March 1, his fem-pop graft

Page 116

1 had been occluded?
2 A. As of March 1?
3 Q. Yes.
4 A. Again, I'd say it's likely. Can I
5 give you more likely than not? It's hard to
6 say. We don't have the imaging to prove it one
7 way or the other. We're just trying to put
8 this together and say there's a sequence of
9 events that happened here. Because, as I said,
10 if his fem-pop was occluded, then along about
11 March 18 he had the shut down of his
12 aorto-femoral graft -- because he couldn't have
13 shut down his profunda because then everything
14 would have shut down because there's no place
15 for it to go. So either the fem-pop closed
16 around then or if the fem-pop was occluded, he
17 may have closed his aorto-bi-femoral and
18 maintained adequate collaterals to his --
19 through his profunda. Hard to say.
20 Q. Is it your opinion that as of March
21 18, he had occluded the ABF?
22 A. Again, I don't know. He either
23 occluded his fem-pop at that point or occluded
24 his aorta femoral. ABF implies both sides.
25 I'm sorry. Go with AF.

Page 117

1 Q. I'm sorry. Let me rephrase so we're
2 clear. When I'm using the term ABF, in the
3 context of March and April 2010, I'm referring
4 to the right limb --
5 A. Okay.
6 Q. -- of the ABF. Is it your opinion,
7 sir, that more likely than not as of March 18
8 the right limb of his ABF was clotted off?
9 A. As of March 18, I don't know if we'd
10 know for sure, because there was no
11 documentation of femoral pulse on the 24th.
12 It's one of the 2 possibilities.
13 Q. Okay. And if it was closed off as
14 of March 18, can you explain to me what the
15 pathway of blood flow was to his knee?
16 A. To his knee, sure. The blood would
17 come through collaterals to his hypogastric
18 artery.
19 Q. Okay.
20 A. Then it would go into his profunda
21 femoral artery, and then the same collaterals
22 began to take it down to the popliteal artery.
23 Q. It's your belief that he could have
24 sufficient collaterals from his hypogastric
25 artery in the face of a closed ABF right limb

Page 118

1 to provide adequate or sufficient blood flow to
2 his right foot and viability to that right foot
3 as of March 18; is that correct?
4 A. Yes, ma'am. He's had a long time to
5 build up collaterals so sure, it's one of the
6 possibilities.
7 Q. So in your view, as of March 18, one
8 of the possibilities is that he had collaterals
9 that bypassed the ABF right limb and the
10 profunda, correct?
11 A. Well, that's not exactly what I
12 said. Basically, he reverts back to what his
13 picture looked like in June of '06. If you
14 read there, it talks about how the collaterals
15 come in the hypogastric, fill up the external
16 iliac, go down the common femoral into the
17 profunda and the superficial femoral. So he's
18 already got those collaterals. They were there
19 before, and when he loses his aorto femoral,
20 his flow is not sufficient now. He's having
21 the changes, the pain. Now that's rest pain.
22 Now he's having rest pain in his foot because
23 he's lost some flow.
24 Q. Is it your opinion that as of March
25 18 he's begun to have rest pain?

Page 119

1 A. Like I said, all I can say is from
2 the note on the 24th that says the symptoms
3 began six days before, whether it was the 19th,
4 18th, you know. I'm giving you the best shot I
5 have, so about the 18th.
6 Q. Is it your opinion that he had rest
7 pain as of March 24?
8 A. Yes, ma'am. He had increasing pain
9 now in his leg.
10 Q. Is that rest pain?
11 A. Pain at rest, yes, ma'am.
12 Q. Where does it say it was pain at
13 rest?
14 A. It doesn't. It says increasing
15 pain.
16 Q. Is there anything in the notes that
17 indicates it was rest pain as of March 24?
18 A. No, ma'am. It was such a
19 poor-quality note there's nothing in it.
20 There's not an examination. There's nothing.
21 It just says increasing pain.
22 MR. THOMAS: Move to strike.
23 He's not qualified to offer standard of care
24 testimony.
25 Q. So, basically, you don't know one

Page 120

1 way or the other, as of March 24, this patient
2 had rest pain?
3 A. That's correct. We just know he had
4 increased pain. It was not explained.
5 Q. In your opinion, as of March 18 when
6 he began to have this increased pain, was his
7 profunda completely closed?
8 A. I don't think so.
9 Q. Why not?
10 A. Well, again, because if his profunda
11 was completely closed, and he closed down -- if
12 it was chronically predated this, then the
13 vascular change that he had if he closed down
14 his fem-pop it would also shut down his
15 aorto-bi-femoral and he'd have tremendous
16 ischemia. So he had to have some outflow
17 through there to keep things going through the
18 collaterals.
19 Q. Do you have an opinion within a
20 reasonable degree of medical confidence or
21 certainty as of March 18 what was the source of
22 the blood flow to his right foot?
23 A. We've gone over that. If you want
24 the source of his blood flow, it's his heart.
25 Then it goes down into the collaterals that

Page 121

1 we've described.
2 Q. From the level of his lower aorta,
3 what was the source of the blood flow to his
4 right foot?
5 A. On the 18th?
6 Q. On the 18.
7 A. Again, as I told you, one of two
8 things happened. Either he closed his aorta
9 femoral or he closed his fem-pop. If he closed
10 his aorta femoral, it's the collaterals through
11 the hypogastric, down the external to the
12 profunda to the popliteal. If he closed his
13 fem-pop it's just the collaterals down to the
14 profunda to his popliteal. Again, not having
15 any imaging or examination, I can't tell you
16 for sure.
17 Q. In your opinion, sir, is it more
18 likely than not that he did not have -- that's
19 a way to -- too many negatives. In your
20 opinion, more likely than not, were both the
21 ABF and the fem-pop on the right closed as of
22 March 18?
23 A. Again, I can't tell you for sure
24 more than 50 percent. I would think that if
25 they were both closed at that point in time

Page 122

1 that he'd probably have more ischemia, but it's
2 hard to say. It's a potential.
3 Q. In your opinion, as of March 18, did
4 he have chronic limb ischemia?
5 A. On the 18th, yes, ma'am. He had
6 chronic limb-threatening ischemia. I'm sorry.
7 He had acute -- as of the 18th, he had acute
8 limb threatening ischemia.
9 Q. Let me ask the question again so you
10 and I are both clear. In your opinion, as of
11 March 18, did he have chronic limb ischemia on
12 the right?
13 A. I would say he has acute ischemia on
14 the right, not chronic.
15 Q. I didn't ask you that.
16 A. Well, I'm answering your question.
17 Q. My question is specific. Did he
18 have chronic limb ischemia, in your opinion, as
19 of March 18, 2010, on the right?
20 A. No. His symptoms were not
21 consistent with chronic ischemia.
22 Q. And the reason you believe they were
23 not consistent with chronic ischemia on that
24 day is what, sir?
25 A. Again, as we talked about, he had

Page 123

1 ischemic neuropathy. There's nothing that I
2 can see documented showing that he had
3 symptomatic chronic ischemic symptoms. He does
4 have chronic disease that but that doesn't
5 imply chronic ischemia. On the 18th there was
6 an acute change with increased pain, that puts
7 it into the acute category not the chronic
8 category.
9 Q. How long does acute limb ischemia
10 exist before it becomes chronic? Is there a
11 definition of acute, you know, the crossover
12 between acute and chronic?
13 A. Well, as I said, if you look at
14 research, you know, when they use tests on
15 acute ischemia, they use two weeks, I think.
16 Like I said, I never really thought about it
17 that way. I guess rest pain starts from one
18 point and goes to acute, and if it becomes
19 chronic, two weeks.
20 Q. In your opinion, as of March 18, did
21 he have impending limb loss?
22 A. I would say with acute ischemia
23 that's always a possibility, yes, ma'am.
24 Q. How are you defining impending limb
25 loss as of March 18?

Page 124

1 A. The fact he had acute changes. He
2 had increased pain. We don't know which way
3 it's going to go, so just impending limb loss.
4 Q. As of March 18, when was it expected
5 his limb would die?
6 A. It could drag on like that for a
7 long time depending on what happens next.
8 Q. A long time meaning months, years?
9 A. Again, if he opens up more
10 collaterals, he could develop chronic rest
11 pain, where it goes away with dependency and
12 things like that. So if everything stayed the
13 same at that point in time, he might open up
14 more collaterals. Those collaterals might get
15 bigger and turn this into a chronic situation.
16 Stays like that, he takes pain pills for it, so
17 that's hard to predict.
18 Q. Can we agree, sir, that the ABF
19 whenever it starts to clot does so within a
20 matter of hours? It's not something that drags
21 out over days?
22 A. Well, I think -- I mean, if you have
23 a totally occluded ABF, I think it's going to
24 clot off very quickly, sure.
25 Q. I'm talking about the right limb of

Page 125

1 the ABF. Can we agree that when it begins to
2 occlude, it will occlude within hours? It's
3 not going to linger in this slow process of
4 going from liquid to clot over days, is it,
5 sir?
6 A. Generally speaking, if there's a
7 problem with the graft, it's got a localized
8 area that's blocked. It's going to clot off
9 over hours, yeah.
10 Q. Unlike the arterial wall, there's
11 not endothelium to dissolve the clot, is that
12 fair?
13 A. That's one reason, but, I mean,
14 endothelium's not going to help you, even an
15 artery, if you have that situation. What it is
16 is there's no branches for the blood to go down
17 alternately so, basically, it's like a highway.
18 If you have a three-lane highway and there's a
19 major accident with three tractor trailer
20 trucks across the highway, you're going to
21 backup to the next exit. People are going to
22 get off, but if you're one of the unfortunate
23 people between that last exit and the accident,
24 you're going to be stuck there for awhile.
25 Q. Are they any clinical indications

Page 126

1 for you that as of March 18 that ABF was
2 clotted off?
3 A. Again, it's either the ABF or the
4 fem-pop. Can I tell you which one? No. Are
5 there clinical indications that there was a
6 change in his blood flow? Yes. He's got
7 increasing pain with no other cause.
8 Q. It doesn't have do with whether he
9 had swelling or not, does it, sir?
10 A. No. Swelling has nothing to do with
11 that.
12 Q. That's because swelling is not a
13 classic finding of acute ischemia, is it:
14 A. Correct.
15 Q. Can we agree that dependent rubor is
16 a classic finding of chronic arterial ischemia?
17 A. It's one of the findings of more
18 advanced disease, yes.
19 Q. It's one of the classic findings of
20 chronic ischemia; correct?
21 A. Of the more advanced forms, yeah.
22 Q. In your opinion, as of March 1,
23 2010, was the circulation to his right foot
24 better than it had been as of 2008, for
25 instance, or worse?

Page 127

1 A. Or the same? I mean --
2 Q. Or do you have an opinion one way or
3 the other?
4 A. I can't tell you one way or another,
5 worse, better, the same. I doubt it was
6 better.
7 Q. What would be the reason why it
8 could worsen?
9 A. It could worsen because he develops
10 more atherosclerosis, because he develops
11 intimal hyperplasia to grafts, because he clots
12 off some area, because his cardiac output goes
13 down, clots off a graft.
14 Q. Is it your opinion, sir, that more
15 likely that not, none of the significant
16 collaterals, collateral arteries downstream
17 that fed his right foot, suffered from
18 atherosclerotic disease that clotted them off
19 as of March 18 or March 24?
20 A. Run that by me again?
21 Q. Sure. Do you have an opinion one
22 way or the other whether the smaller
23 collaterals that were actually feeding his
24 right foot as of March 18, 2010, do you have an
25 opinion whether any of those key collaterals

Page 128

1 feeding his foot suffered from advancing
2 atherosclerotic disease causing blockage or
3 obstruction?
4 A. Again, there is no evidence to
5 suggest that. His pattern is most consistent
6 with inflow-type problems. Could he have
7 developed a little atherosclerosis over time?
8 Sure. I can't rule that out. I didn't think
9 it was significant.
10 Q. So your testimony is that he didn't
11 have evidence of significant outflow problems?
12 A. No, I didn't say that. I said it
13 didn't worsen.
14 Q. Can we agree that he had significant
15 and sufficient evidence from 2006 onward of
16 significant outflow problems?
17 A. Again, we've talked about that. You
18 asked me if there was a change. I said I
19 didn't think so unless it was small.
20 Q. What is your opinion based on?
21 A. Well, again, if he lost his
22 collaterals to his foot, he was already living
23 off just one artery. His foot would have
24 gotten a lot worse faster. It would have been
25 more localized to his foot. As opposed to all

Page 129

1 the things he developed later on, there's no
2 evidence that that was the case. He closed
3 everything up top that affected down below.
4 Again, without imaging, it's hard to say. When
5 you're living off one artery, if you lose that
6 collateral going into the foot and you have no
7 arteries going into your foot, your foot is
8 going to be nonviable pretty fast.
9 Q. Does it strike you as unusual that
10 there was no imaging done preoperatively to the
11 April 2 surgery, to map out what was going on
12 with his right leg and foot?
13 A. Well, Dr. Heidenreich imaged it with
14 his fingers. When you don't feel the femoral
15 pulse, you know where the problem starts.
16 You've got to take care of the inflow first. I
17 think he was in such -- they basically listed
18 him as a Class III, Rutherford's acute
19 ischemia, at which point there really isn't a
20 whole lot of time to wait if you have any
21 chance to do anything. I think he just did
22 what most of us was going doing do. He knew
23 there was a problem with the graft being
24 occluded because he couldn't feel the femoral
25 pulse anymore. He had to explore that to see

Page 130

1 if he could get it open. He needed to
2 reestablish flow which usually means going to
3 the profunda first. So no, it's not that
4 unusual under those circumstances.
5 Q. What in your opinion was the cause
6 of the outflow problem on March 18?
7 A. The outflow problem?
8 Q. Yeah, either the ABF shut down
9 and/or the --
10 A. Fem-pop.
11 Q. -- fem-pop shut down. What was the
12 cause, if you remember?
13 A. That's inflow. I'm sorry. Outflow
14 is down low. Inflow is up top. You said
15 outflow, that's why you confused me.
16 Q. Let's start with inflow?
17 A. Well, the problem with inflow is,
18 obviously, he's got disease there. Again,
19 whether he's developed more atherosclerosis,
20 more intimal hyperplasia, has clot there, we
21 just don't know. Obviously, there was
22 something that was progressing that it was
23 limiting the outflow in those grafts.
24 Q. Was what was the cause for outflow
25 problems as of March 18?

Page 131

1 A. The outflow probably was the
2 fem-pop. If that was open, you know, he's got
3 a diseased artery sewed into to start with.
4 He's got a graft that could have closed for
5 multiple reasons, as we talked about. Down
6 below that, I don't think there was any problem
7 until later on when he clotted things. That
8 was just low flow.
9 Q. As of March 18, what was the
10 Rutherford classification for him, in your
11 opinion?
12 MS. SALTER-FERRIS: I'm going
13 to go object. Asked and answered.
14 A. I think it's the same as on the
15 24th, probably a number 1. I didn't see any
16 sensory changes documented.
17 Q. What was the Rutherford
18 classification as of March 24?
19 A. March 24? One.
20 Q. What's that based on?
21 A. The fact that he has increased pain,
22 ischemic pain can cause that. He had no change
23 in his sensory or motor function that it was
24 documented or that they could find any evidence
25 about, so without some sensory or motor changes

Page 132

1 that are new, puts him at a one in my book.
2 Q. Looking at March 24, other than the
3 pain, the increased pain, am I correct that
4 you're not aware of any difference in his right
5 foot from three weeks before?
6 A. Again, from the classification we
7 use, I saw no signs that there was any sensory
8 change, any motor change, any ulceration,
9 gangrene, or anything like that, so from those
10 criteria, no, I'm not.
11 Q. So he had sensation on that date?
12 A. Yes. Again, it said no new sensory
13 changes. I know he had some changes from this
14 rhabdomyolysis insult from '07.
15 Q. I meant to say no new sensory
16 changes, in your view?
17 A. Correct.
18 Q. As of March 24?
19 A. That's what my understanding is,
20 yes, ma'am.
21 Q. And he had no changes in his motor
22 function as of March 24; is that right?
23 A. Correct. No new changes.
24 Q. Would you agree that dependent rubor
25 is more common in chronic arterial ischemia

Page 133

1 than acute ischemia?
2 A. I think just because of sheer
3 numbers of people that have chronic ischemia
4 compared to acute ischemia, that's a true
5 statement.
6 Q. Putting aside the sheer numbers of
7 people, sir, how about let's talk about
8 percentage of cases. So we take the volume out
9 of it, the relative volume out of it. Can we
10 agree that dependent rubor is a more common
11 finding in chronic arterial ischemia than acute
12 ischemia?
13 A. Again, I don't know the numbers it
14 occurs in acute ischemia. I never really
15 thought about which one had more, but if you
16 had advanced chronic ischemia it can happen, if
17 you had acute ischemia, it could happen. All
18 it is is when you put your foot down, gravity
19 takes more blood to your foot. If you have any
20 ischemia it's going to happen. I've never seen
21 anything comparing the absolute numbers, acute
22 versus chronic.
23 Q. Is it your belief, sir, that as of
24 March 24, 2010, Mr. Boltz had dependent rubor
25 in his right foot and his left foot?

Page 134

1 A. Well, the right foot I'd say
2 definitely. Left one, it's hard to say.
3 Q. Why is it hard to say on the left?
4 A. It really didn't get as ruborous as
5 the one on the right. We know he's had venous
6 problems -- actually, problems with swelling
7 worse on the right than the left. You can get
8 a little deoxygenated blood just from having
9 venous backup. The classic change is the right
10 foot certainly got more ruborous. I just can't
11 tell you for sure about the left. I really
12 wasn't too concerned about it when I was
13 looking at it.
14 Q. Well, the ruborous changes on the
15 right may just be because of his venous
16 insufficiency; correct?
17 A. Sure. It's a possibility.
18 Q. There's no way for you to tell one
19 way or the other is there, sir?
20 A. Not without having something shortly
21 before that, before he got his increase in
22 pain. Again, it's really not germane to the
23 classification.
24 Q. So in essence, sir, because you
25 don't have comparative photos of what both his

Page 135

1 feet looked like before his complaint of
2 increased pain on March 18, the photos don't
3 help you one way or the other, tell you what
4 his clinical picture or appearance was or the
5 significance of that appearance on March 24;
6 isn't that fair.
7 A. Correct. Dependent rubor doesn't
8 factor into my opinion one way or another.
9 Whether it was venous, whether it's arterial,
10 that doesn't change the picture. Maybe I
11 shouldn't say it that way because we're looking
12 at pictures. It doesn't change my opinion.
13 Q. Well, it doesn't help your opinion
14 or support your opinion one way or the other,
15 fair?
16 A. It doesn't hurt my opinion, it
17 doesn't help my opinion, it's not germane to my
18 opinion. I really don't care. On that note,
19 I'm going to go take a bathroom break.
20 Q. Okay.
21 (Recess taken.)
22 BY MS. BOWERMAN:
23 Q. Ready? Can we agree, sir, that if
24 the ABF clotted off completely as of March 18,
25 the graft clotted off, you would expect within

Page 136

1 hours to have loss of feeling and loss of
2 movement?
3 A. Not necessarily. It depends on the
4 collaterals.
5 Q. What collaterals are you referring
6 to, specifically?
7 A. Do you want me to go through them
8 for the fourth time?
9 Q. Where they come from and where they
10 go to?
11 A. We've gone over that, considerably.
12 They, basically, come down through the
13 hypogastrics, the internal iliacs, go down the
14 external iliac, into the common femoral to the
15 profunda femoral to the collaterals to the
16 popliteal and then down to the foot. Unless
17 his fem-pop is open, in that case, they go down
18 that, too.
19 Q. You don't really know if the
20 profunda was closed as of March 24, do you?
21 A. Well, I can tell you if his profunda
22 was closed, and his fem-pop was closed, and his
23 aorta-fem was closed as of the 18th --
24 Q. Yes.
25 A. -- he would have lost his leg a long

Page 137

1 time before he did. I can tell you with
2 absolute certainty those three things were not
3 all closed.
4 Q. When do you believe this patient's
5 foot was last salvageable more likely than not?
6 A. I think on the second, Dr. Heidenreich
7 |said that his symptoms had been going on for
8 four days. I'm not sure, exactly, what he
9 meant by that. So definitely I'd say on the
10 29th he was salvageable. On the 30th and 31st,
11 it's 50/50. I don't know for sure.
12 Q. Did the photos of March 30 or March
13 31 offer any support one way or the other to
14 your opinion that as of the 29th -- as you
15 testify, as you're looking at specific photos,
16 would you identify the Exhibit number and
17 photos you're referring to?
18 A. Exhibit 4, April 2, that foot was
19 long gone. April 1, probably not salvageable.
20 31st, he's got some blebs on it, again, not
21 knowing his sensorimotor function, I would say
22 just looking at the foot there's a chance it's
23 salvageable. Exhibit 3, doesn't look that bad
24 on the 30th, I'd say probably more than likely
25 not it's salvageable on the 30th, at least on

Page 138

1 the pictures. 31st, I'd have to go 50/50.
2 Q. Okay. Now, what other information
3 that -- do you have other than the pictures
4 that allows you to say that as of the 30th more
5 likely than not his foot was salvageable but
6 not so on March 31?
7 A. Again, the only information I have --
8 the question you asked me was based on the
9 pictures. So I based it on the pictures. The
10 only information I have is Dr. Heidenreich's
11 statement on the second of April that his
12 symptoms had been going on for four days. If
13 he had loss of motor function and loss of
14 sensory function on the 30th, then, you know,
15 chances are he's not salvageable, but if he
16 still had some, without getting that gradation,
17 it's hard to tell for sure. There's some
18 transition in there. Like I said, looking at
19 the picture it looks like he worsened between
20 the 30th and the 31st. That's all.
21 Q. Okay. And you have no idea what
22 symptoms Dr. Heidenreich is referring to as
23 being ongoing for four days; is that fair?
24 A. Correct.
25 Q. You don't know in he's simply

Page 139

1 talking about what he considers increase or
2 significant pain?
3 A. I have no ideas what he's
4 mentioning. He wasn't specific until there's a
5 history in the physical. There is really no
6 good definition of that. The only thing that
7 is more which we can see in the picture is he
8 started to blister on the 31st. There's no
9 good history about that.
10 Q. What is it about the blisters that
11 allows you to say that more likely than not his
12 foot was no longer salvageable?
13 A. I just said they mentioned the
14 blisters as being different on the 31st. I
15 think the entire -- his foot is looking more
16 mottled its and discolored in general, plus the
17 blisters. That's all.
18 Q. He certainly didn't have evidence of
19 tissue loss on March 24; is that correct?
20 A. Correct.
21 Q. And he didn't have any evidence of
22 blistering?
23 A. Correct.
24 Q. In your opinion, his foot was viable
25 as of March 24?

Page 140

1 A. Yes, ma'am.
2 Q. Can we agree there was not evidence
3 on March 24 that he lacked adequate profusion
4 to his foot?
5 A. Other than the fact that he had
6 increasing pain, a sign of decreasing profusion
7 affecting the nerves, but from looking at the
8 foot, you know, if that truly is dependent
9 rubor, that's a sign that his circulation was
10 diminished. Other than the symptoms, no.
11 Q. How would you characterize the
12 dependent rubor as of Mach 24? Would you say
13 it's mild dependent rubor?
14 A. I just say it's either there or it's
15 not. I wouldn't know how to -- I guess it
16 depends if you go from sheet white to bright
17 red. I'm looking at one isolated thing, it may
18 not even be -- totally declared itself yet. So
19 it's there.
20 Q. And again, you don't know how long
21 it had been there before March 24; correct?
22 A. Correct. We know that he had
23 symptoms as of the 18th, so I'd assume this is
24 from new onset ischemia that's been there from
25 since at least the 18th.

Page 141

1 Q. May have been there before then;
2 correct?
3 A. May have been, sure.
4 Q. May have been there a year before;
5 correct?
6 A. Correct.
7 Q. Can we agree that are not all
8 patients with dependent rubor have impending
9 limb loss that requires immediate vascular
10 surgical intervention?
11 MS. SALTER-FERRIS: Object to
12 form of question unless you can relate it to
13 this patient.
14 A. Not all dependent rubor is arterial
15 so I guess that's true.
16 Q. You can't tell whether the dependent
17 rubor in this case was arterial or venous;
18 correct?
19 A. Without having further history, I
20 can't tell that. I'd have to get more history
21 out of him.
22 Q. He didn't have power on March 24,
23 did he?
24 A. I don't know if anybody elevated his
25 leg to check for it. There's nothing

Page 142

1 documented, so I can't tell you one way or
2 another. I would say most likely if you have
3 ischemic pain then if you elevate his leg it's
4 going to have pallor. It's not documented in
5 the records and there's no photographs of his
6 leg being elevated.
7 Q. You don't know one way or the other
8 if this patient had pallor, arterial ischemic
9 pallor, as of March 24?
10 A. I'd say more likely than not, if he
11 elevated his leg he had pallor, because of his
12 symptoms and what we know. Again, it's not
13 documented.
14 Q. More likely than not, he would have
15 had pallor if the leg was elevated because of
16 his symptoms of increased pain?
17 A. His symptom of increased pain which
18 are a sign of ischemia, yes, ma'am.
19 Q. In your opinion as of March 24, more
20 likely than not, the increased pain was the
21 result of arterial ischemia?
22 A. Yes.
23 Q. Can we agree, sir, that had a
24 vascular -- an arterial Doppler been performed
25 on March 1, it would have been abnormal in his

Page 143

1 right foot?
2 A. In his foot?
3 Q. Yeah.
4 A. I think he didn't have absolutely
5 normal circulation in his foot. He had
6 adequate circulation in his foot on the first.
7 Q. In your opinion if an arterial
8 Doppler had been performed on March 1, is it
9 your opinion it would have been a normal
10 Doppler exam?
11 A. It couldn't have been because we
12 know his dorsalis pedis was occluded. So he'd
13 have an occluded dorsalis pedis, so, no.
14 Q. How about his calf?
15 A. His calf? His anterior tibial was
16 occluded in his calf so if you do a Doppler of
17 all three vessels, you would notice that the
18 anterior tibial was occluded. It's not going
19 to be normal.
20 Q. How about his thigh?
21 A. Well, if fem-pop's open, you're
22 going to see a patent graft. Hard to say, you
23 know. Sure, it's not normal because you're
24 looking at graft. We know his artery is
25 closed. His flow could be normal.

Page 144

1 Q. Do you have an opinion, sir, in what
2 way an arterial Doppler performed on March 24
3 would have been different that what it would
4 have been had it been done on March 1?
5 A. Sure. March 24 there would have
6 been a change. If he closed one of those two
7 grafts, they wouldn't have been patent. So
8 number one you'd have change in whatever graft
9 that was that was closed. Number two, the flow
10 pattern downstream would be very different. If
11 his grafts were open and you scanned his
12 popliteal, you're going to get triphasic
13 waveform. That's what it looks like, it's
14 normal. With inflow obstruction, you're going
15 to get a monophasic waveform. It's totally
16 different and you'd notice a difference. If
17 you measured pressure, you'd notice a
18 difference.
19 Q. That's differences would only be
20 their more likely than not if his increased
21 pain was a result of some arterial change;
22 correct?
23 A. Correct.
24 Q. Do you have an opinion as of March
25 24 what this patient's anatomy was in terms of

Page 145

1 his inflow?
2 A. Again, not knowing if his aorta-fem
3 closed or fem-pop closed, no.
4 Q. Okay. Same question about in terms
5 of his outflow. Do you have an opinion what
6 the anatomy of his outflow was as of March 24?
7 A. I think his popliteal artery was
8 open, his peroneal artery was open, his
9 posterior tibial artery was open, except for a
10 localized obstruction distally, and then he
11 collateralized into the plantar branches or
12 branch.
13 Q. You believe as of March 24, all of
14 his outflow and arteries and grafts were open?
15 A. well, I started at his popliteal, so
16 he had no grafts done in his popliteal. His
17 anterior tibial is occluded and he has a
18 localized occlusion of his posttibial tibial.
19 Q. Okay. What was his outflow as of
20 the ABF graft, right limb?
21 A. I have no idea what you're talking
22 about.
23 Q. Let me phrase it a little better
24 because it was not my best effort.
25 A. Probably your worst of the day.

Page 146

1 Q. I'll accept that. What was the
2 anatomy of Mr. Boltz outflow from the right
3 limb of his ABF as of March 24?
4 A. As of March 24, if we assume that
5 the aorta-fem was open?
6 Q. Whatever you want to assume.
7 A. You can't have outflow from an
8 aorto-bi-femoral graft if it's not open, it's
9 got no blood going through it. Assuming that
10 the aorta-fem was open, then the other scenario
11 comes in where his fem-pop was occluded. His
12 outflow was to a profunda femoral artery that
13 went down, collateralized into his popliteal,
14 then into the vessels that we talked about
15 before.
16 Q. It's your opinion as March 24, he
17 still had acute ischemia?
18 A. Yes, ma'am.
19 Q. Therefore, as of March 24, his acute
20 ischemia had been ongoing without treatment for
21 six days; correct?
22 A. That is correct.
23 Q. How likely is it for a Doppler
24 signal on March 24 to have picked up the PT or
25 the dorsalis pedis in acute ischemia of

Page 147

1 six-days duration?
2 A. Well, we know it's not going to
3 pickup the dorsalis pedis because that's been
4 chronically occluded. As for the posterior
5 tibial, if you're above that localized
6 occlusion, you're going to hear a signal.
7 Again, Class I ischemia or Class I acute
8 ischemia you do have Doppler signals in your
9 foot. You're going to go hear something. It
10 just means something is moving down there.
11 Q. Only if you're above the PT;
12 correct?
13 A. No, no. You're going to hear above
14 the PT.
15 Q. Above the occlusion of the PT?
16 A. Again, yeah, below it, if you know
17 where to listen in that plantar branch, you're
18 going to hear flow in that.
19 Q. And that's true even that, in your
20 opinion, this patient had had acute ischemia as
21 of March 24 for 6 days duration?
22 A. Correct, ma'am. The only way he's
23 not going to have Doppler signals in his foot
24 is if he had more advanced ischemia.
25 Q. If the foot is still viable after

Page 148

1 six days of acute ischemia as of March 24, how
2 likely is it for there to be detectable PT or
3 dorsalis pedis pulses on Doppler?
4 A. As I keep saying, leave the dorsalis
5 pedis out, because there hasn't been a Doppler
6 pulse in there since at least '06. It ain't
7 coming back, we already talked about that. You
8 know, again, the degree of ischemia is going to
9 dictate whether you get a Doppler pulse. If
10 you're above that blockage, you're going to
11 hear a posterior tibial pulse. Below, you're
12 going to hear a plantar pulse. Class I
13 ischemia, there's going to be Doppler signals.
14 Q. Is it your opinion that as of March
15 24 this patient had impending limb loss despite
16 the fact he had no change in either sensation
17 or motor function?
18 A. Correct. He's got acute ischemia.
19 The potential that he could lose that leg is
20 real.
21 Q. Would you consider his situation as
22 of March 24 emergent?
23 A. Yes, ma'am. Urgent as opposed to
24 emergent. He's still Class 1 so if it was 3 in
25 the morning he wouldn't have to run to the

Page 149

1 hospital to take care of it, but it needs to be
2 taken care of urgently.
3 Q. In your opinion, had this patient
4 been seen by a vascular surgeon on or before
5 March 30, what treatment do you believe he
6 would have undergone, that he would have had to
7 have undergone to salvage the foot?
8 A. At the very least, he would've had
9 to have that aorta-fem graft opened up either
10 with lytic therapy or a balloon, thrombectomy.
11 Pretty much what Dr. Heidenreich did, restore
12 flow to his profunda femoral artery. That may
13 have been all he needed. You just have to have
14 adequate circulation. You don't have to have
15 perfect circulation. So if he restored flow to
16 that profunda, and he hadn't clotted outflow
17 vessels as he did later on when he went to
18 Class 3, his leg was probably salvageable.
19 Q. It's your opinion that he had not,
20 as of March 30, clotted any of the microvessels
21 further down in his leg and his foot?
22 A. Yes, ma'am.
23 Q. And the reason you've drawn that
24 conclusion is what, sir?
25 A. Well, the picture doesn't show that.

Page 150

1 Usually, when you have microcirculation at
2 occlusion, you get more mottling and things
3 like that so -- didn't have that.
4 Q. As of March 30, do you have an
5 opinion about the level of occlusion of the
6 profunda, right profunda?
7 A. As of the 30th?
8 Q. Yes.
9 A. I think his profunda was either in
10 the process of occluding or had just occluded.
11 Q. What makes you draw that conclusion?
12 A. From experience, trying to put this
13 all together, that's usually the final thing
14 that breaks the back, lose that last
15 collateral. If he lost his profunda, he
16 probably lost his last collateral there.
17 Q. Do you have an opinion, sir, had
18 this patient been treated by a vascular surgeon
19 as of March 30, what the limb expectancy was?
20 A. The limb expectancy?
21 Q. Yeah. His limb expectancy on the
22 right?
23 A. Yes. I think if they had gotten
24 that all open, put him in a surveillance
25 program where they followed this along, his

Page 151

1 limb could go on indefinitely. The thing that
2 usually kills us is when we lose all the tibial
3 vessels. He still had popliteals and pretty
4 good tibia runoff.
5 Q. I want to make sure I'm clear here.
6 It's your opinion, sir, that the only thing
7 this patient needed up until March 30 was the
8 surgery that Dr. Heidenreich did in bypassing
9 the profunda and opening up the ABF?
10 A. Yeah. All you have do is get that
11 to adequate circulation. There is always a
12 chance that it would have taken care of the
13 whole problem to put a fem-pop in, but
14 generally speaking, restoring the inflow to a
15 good profunda with an open popliteal is going
16 to be enough to do it.
17 Q. You do not believe he needed TPA, do
18 you, as of the 30th or up until the 30th? TPA,
19 preoperative TPA or interoperative TPA would
20 play no role, is that fair?
21 A. Again, it depends on how bad his
22 symptoms were on the 30th. If he's got sensory
23 changes and starting to get motor changes, you
24 don't have time for the TPA. It's a timing
25 issue. On the 30th -- let me get my days right

Page 152

1 before I mess up. Let's say on the 24th in
2 there when he doesn't have sensorimotor
3 changes, you've got time. TPA, you can take a
4 day to open up a graft. When you're getting on
5 the 30th, things had moved along, it's faster
6 to do the operation.
7 Q. Is it your opinion, sir, that had
8 TPA been instituted anytime after the 24th that
9 that in and of itself would have opened up the
10 ABF?
11 A. No. That's not my opinion at all.
12 He needed some outflow. Whether or not they
13 could happen ballooned the profunda, it's hard
14 to say if that was a localized blockage, but he
15 probably needed either patch or something on
16 his profunda, localized jump graft. He needed
17 to have outflow restored at the outside of that
18 graft. TPA, you don't know until you put the
19 TPA in there, what you uncover. Might be able
20 to get the graft open and not get the profunda
21 opened or you might be able to.
22 Q. Well, prior to the surgery of -- or
23 let me start again. As of the 30th, where
24 would the TPA be inserted?
25 A. As of the 30th, I told you the 30th

Page 153

1 wasn't enough time. I wouldn't have put the
2 TPA in there.
3 Q. Anytime after the 24, where would
4 the TPA be inserted?
5 A. Not including the 30th. So the 24th
6 to the 29th.
7 Q. Whenever you believe he would have
8 been a candidate for TPA, where would it be
9 inserted, sir?
10 A. Inserted into the aorto-femoral
11 graft.
12 Q. That's the only place?
13 A. That's where you start. You've got
14 to open the top to get to the bottom.
15 Q. Okay. Would it be inserted anyplace
16 else?
17 A. Again, you can't get to anyplace
18 else because you've got to get through the
19 upper clot.
20 Q. You don't know one way or the other
21 whether TPA would've gotten through that ABF
22 clot?
23 A. Correct.
24 Q. How long would you wait to find that
25 out, sir?

Page 154

1 A. It depends on the patient's
2 symptoms. If the patient's in pain and the
3 sensorimotor is okay, give it a day or two, if
4 it looks like you're making progress. A lot of
5 times you can tell pretty quickly if the TPA is
6 going to work or not. Sometimes it just sits
7 there, and you say it's not working, let's take
8 him to the OR, or you can take them straight to
9 the OR, whatever your surgical choice is.
10 Q. When you inject TPA into is a fresh
11 clot, how long does it take to dissolve, sir?
12 A. It very variable. Some fresh clot
13 is very liquid, it goes away pretty quickly.
14 If you get some flow out through the graft, it
15 works better. If you can't get any flow
16 through it, it just sits there, sort of mixing.
17 Again, I've seen TPA work in a matt of minutes,
18 seen TPA not work over a couple of days. Who
19 knows?
20 Q. What are the variables or the
21 factors that determine how fast it works or
22 whether it works at all?
23 A. Well, there used to be -- UCLA had a
24 test. If you could get a wire through the
25 graft and into an open vessel, he was fairly

Page 155

1 sure he could get it open with TPA. There's no
2 place for anything to go, it's just going to
3 keep clotting.
4 Q. At what point in time is TPA most
5 effective?
6 A. The understanding is the earlier the
7 clot. However, there is a guys out of Chicago,
8 that for chronic iliac occlusions, there for
9 years, he would dissolve the clot to expose the
10 stenosis that he could balloon. So there is
11 evidence that even older clot can be dissolved.
12 Obviously, the younger the clot, the better off
13 you're going to do.
14 Q. It's unlikely that a clot of six
15 days duration in the ABF could be dissolved by
16 TPA, isn't that fair?
17 A. No, I don't think that's fair. If
18 there's decent outflow and you can get a wire
19 through it, there's a good chance it could be
20 occluded. Most the clot inside a graft, let's
21 say, there's a problem at the bottom of the
22 graft that caused it to clot, or a problem at
23 the top of the graft that caused it to clot.
24 TPA a lot of times can uncover that. Most of
25 the blood in there is surprisingly liquid, so

Page 156

1 it dissolves and once you can open up that
2 lower part where the stenosis was, it opens up.
3 If you de-clot a graft, like a femoral-popliteal
4 bypass graft, usually there's a stenosis at the
5 bottom, you put a balloon up, and there's
6 usually a little plug at the top. Before you
7 pull that stuff out, it's liquid blood in
8 there, it already dissolved itself.
9 Q. Would you expect TPA to be effective
10 in a clot that's 12 days old?
11 A. It's possible.
12 Q. But unlikely?
13 A. I don't know. It depends on the
14 symptoms. If I think there's a chance it's
15 going to open up without an operation -- this
16 guy's had his groin opened up a few times --
17 and you have time, certainly worth a shot.
18 Q. It's possible but not more likely
19 than not?
20 A. I don't know about that. It all
21 depends on what your outflow is, whether you
22 get a wire through it, dilate the lower part.
23 Q. So if we look at the ER visit at
24 Allegiance on April 1, can we agree, sir, that
25 the ER physician was able to palpate the

Page 157

1 popliteal and the femoral arteries? I'll be
2 more specific if you can give me a second. You
3 are aware, are you not, that as of April 1, the
4 ER physician made a finding of positive right
5 popliteal and femoral pulses, both appear to be
6 2 plus, on the right. You're aware of that?
7 A. That's what he says.
8 Q. Do you have any reason to believe
9 that's not accurate?
10 A. Yeah.
11 Q. What's the basis of you believing
12 it's not accurate?
13 A. Prospectively, he has cold, purple,
14 pulses, right foot, loss of motor function,
15 which usually comes from the calf, loss of
16 sensation, blistering, no Doppler pulses in the
17 foot and, you know, it just doesn't fit. Plus,
18 that's prospectively. Retrospectively, knowing
19 what Dr. Heidenreich found, there is no way
20 this guy had a pulse there.
21 Q. So you think that the ER physician
22 was just dead wrong when he made that finding?
23 A. Yes. If you look at the perception
24 of pulses, I think it's the kappa value, it
25 shows it's about 60 percent accurate. If you

Page 158

1 try hard enough to find a pulse in this table
2 right here, you'll feel a pulse, because you
3 have pulses in your own fingers. Yes, I think
4 he was incorrect in his findings.
5 Q. Isn't it the correct case, sir, that
6 femoral pulses are unmistakably found?
7 A. No, not in someone who's had
8 multiple scars, who's in pain. I don't know
9 how big he is, but no. I try to feel femoral
10 pulses all the time. I struggle, and I'm a
11 vascular surgeon. I disagree with that 100
12 percent.
13 Q. What was his Rutherford Class on
14 April 1?
15 A. Emergency room?
16 Q. Yes.
17 A. 3.
18 Q. And based on what?
19 A. The fact it was cold, purple,
20 pulses, right foot, with no motor function, no
21 sensation, blistering. That's pretty classic.
22 Q. Do you have an opinion, sir, about
23 this patient's life expectancy?
24 A. I don't generally refer to life
25 tables. It's pretty much the average. In his

Page 159

1 case, I'd probably knock a few years off just
2 because of his risk factors. I think, at this
3 point in time, hopefully he's had a wake-up
4 call, he's going to take his statin medication,
5 not smoke, have his heart followed, have his
6 legs followed. Take the average, take a few
7 years off it.
8 Q. What did you mean by a few years?
9 A. About five.
10 Q. So it's your opinion that more
11 likely than not, his life expectancy, based on
12 all his comorbidities, the history of his
13 peripheral arterial disease, gives him a life
14 expectancy of a normal white male, less five
15 years, for his given age?
16 A. Yes. Bottom line is he's got
17 peripheral vascular disease. That's just a
18 marker for cardiac disease. Peripheral
19 vascular disease may cost you your legs, but it
20 doesn't cost you your life. Again, you know,
21 this man should be seen and followed and taken
22 care of. He's had his wake-up call.
23 Q. Can we not agree, sir, that severe
24 peripheral arterial disease is a significant
25 marker for coronary artery disease?

Page 160

1 A. I think I just said that, so I guess
2 we agree.
3 Q. Can we agree, sir, that this
4 patient's carotid artery disease with a
5 70-percent stenosis is another significant
6 marker for coronary artery disease?
7 A. Two things about that. Number one,
8 I think it's more peripheral vascular disease.
9 Number two, if you read that report, they
10 actually say the numbers don't stack up to a 70
11 percent. They don't believe it's a 70 percent.
12 It wouldn't surprise me if he developed carotid
13 disease in the future.
14 Q. Can you answer my question?
15 A. I just did. I said it's more
16 peripheral vascular disease. It's one marker
17 for heart disease.
18 Q. You would agree with me that the
19 presence of his carotid artery disease is a
20 significant marker for coronary artery disease?
21 A. Yes, ma'am.
22 Q. And can we also agree, sir, that the
23 mere fact that he's had a below-the-knee
24 amputation does not change or shorten his life
25 expectancy?

Page 161

1 A. Also the fact -- if you look at,
2 maybe a year comes off because of the increased
3 energy expenditures you have with that. It
4 does shorten it a little bit, I think.
5 Q. When you say a little bit, you're
6 referring to potentially a year or two?
7 A. Yeah.
8 Q. Let's talk about hypercoagulable
9 state. What are some of the manifestations of
10 hypercoagulable state in a patient like this,
11 sir?
12 A. Most hypercoagulable states
13 predispose you to be in this disease. You're
14 talking more about deep vein thrombosis,
15 superficial phlebitis, pulmonary embolism,
16 things like that. Very few of them predispose
17 you to arterial type blockages. His
18 heterozygous M-T-H-F-R, I think that's the
19 initials, really doesn't factor into that.
20 It's sort of a tagalong to premature
21 atherosclerosis.
22 Q. In hypercoagulable state, sir, do
23 you tend to see certain types of clot?
24 A. The only one that you really see a
25 distinctive clot is HITS, and that, you get the

Page 162

1 white clot, more platelet clot. Other than
2 that, it's just regular old clot.
3 Q. What is the difference between a
4 white clot and red clot, sir?
5 A. I think the short answer is the
6 color, but the big answer is the white clot is
7 platelets. It's usually associated with HITS,
8 which is a platelet clotting problem. Red clot
9 has more to do with clotting factors.
10 Q. Is it your opinion, sir, that this
11 patient has HITS?
12 A. No, ma'am.
13 Q. He's never had HITS, has he?
14 A. Not that I've seen, no.
15 Q. HITS is heparin-induced --
16 A. Thrombocytopenia syndrome. Of
17 course, there's just HIT where it's not bad,
18 HITS where it's bad.
19 Q. In your opinion, this patient has
20 never had heparin-induced thrombocytopenic
21 syndrome, correct?
22 A. Call it HITS, it's easier. Not that
23 I'm aware of, no, ma'am.
24 Q. If a patient has hypercoagulable
25 state, are they more likely to have white clot

Page 163

1 than red clot?
2 A. Again, HITS is the only one that's
3 notorious for white clot. The rest is, best I
4 know, red clot, so run-of-the mill,
5 garden-variety clot.
6 Q. Okay. Do people who have early
7 onset of atherosclerotic disease, peripheral
8 arterial disease, tend to more likely have
9 hypercoagulability?
10 A. Again, I think I told you three
11 hours ago, that about half the people, less
12 than 50, with premature atherosclerosis will be
13 found to have some sort of defect.
14 Q. About 50?
15 A. If I see somebody under 50, I always
16 get a coagulation profile.
17 Q. But in your opinion, Mr. Boltz does
18 not fit into the 50 percent who have had
19 hypercoagulability as at least one explanation
20 for his disease state, correct?
21 A. No. I said he has an abnormal
22 protein. We know that, but it's just or of a
23 marker. It doesn't necessarily cause the
24 atherosclerosis.
25 Q. But it could account for why he is

Page 164

1 hypercoagulable; correct?
2 A. He has a hypercoagulable condition.
3 If you're asking me, could it account for why
4 he closed his grafts? No, he has mechanical
5 problems that do that. He gets obstructions.
6 Q. In your opinion, the
7 hypercoagulability plays no role at all and has
8 played no role at all in the clotting off of
9 any of his grafts; is that correct?
10 A. Again, he was also on Coumadin, so
11 any effect of the hypercoagulable state is
12 negated. So, yeah. Correct.
13 Q. What is so your explanation for why
14 he clotted off in the surgery of April 2 with
15 an INR of 4?
16 MS. SALTER-FERRIS: I'm going
17 to object to premise of that, that he did clot
18 off.
19 A. I have no idea what you're talking
20 about. What did he clot? He was clotted. He
21 came in clotted. Where do you have that
22 clotted during the surgery?
23 Q. Are you aware he had some clotting
24 problems in the middle of surgery?
25 MS. SALTER-FERRIS: Same

Page 165

1 objection.
2 A. Let me read it. So would you like
3 to point to me what you're looking at or would
4 you like me to read the whole note?
5 Q. Is it your understanding that
6 despite pulling out clot, he continued to clot,
7 have active clotting during that surgery of
8 April 2?
9 A. Again, if you could tell me exactly
10 what you're talking about because there's other
11 things that go on there. He may not have
12 gotten all the clot out which begets clots. So
13 if you tell me -- it's a four-page operative
14 note, if you want to point me to me what you're
15 looking at?
16 Q. Why don't you read it? Your reading
17 will be faster than mine, sir. I can point
18 you, now I think I can point you to Page 3 of
19 the op note.
20 A. Okay.
21 Q. Right in the middle of the page
22 where he says, first the distal anastomosis was
23 performed. Of note --
24 A. Hold on.
25 Q. Of note there was some clotting of

Page 166

1 blood -- its my Page 3.
2 A. Not mine.
3 Q. Maybe I can find it for you in your
4 note. Right here (indicating).
5 A. Mark it. All right.
6 Q. Okay. Just so we're on the same
7 page.
8 MS. SALTER-FERRIS: Can I have
9 my highlighter?
10 MS. BOWERMAN: Of note --
11 MS. SALTER-FERRIS: Wait,
12 wait. Okay. Of note --
13 BY MS. BOWERMAN:
14 Q. No, actually -- of note, there was
15 some thrombus again present in the bypass
16 graft, despite having what appeared to be --
17 A. Hold on, hold on. I've got a
18 different -- mine says, of note, there was
19 approximately four --
20 Q. Go up five lines. There's another
21 of note.
22 A. Too many of notes. All right, okay.
23 Of note, there was some thrombus present in the
24 bypass graft. Hold on. Okay. So he's talking
25 about the aorta-fem graft?

Page 167

1 Q. My question is what is the
2 significance of that statement in terms of
3 hypercoagulable state?
4 MS. SALTER-FERRIS: Can we
5 read it?
6 Q. Here's the question. In
7 Dr. Heidenreich's April 2 note, operative note,
8 he says, quote, of note, there was some
9 thrombus again present in the bypass graft
10 despite having what appeared to be full
11 anticoagulation doses. In your opinion, does
12 that not suggest that he has some element of
13 hypercoagulability that is contributed to his
14 clotting?
15 A. Well, to the uninitiated it might,
16 but more likely since this is a big graft, he
17 just didn't get all the clot out of it. If you
18 had some clot left behind, that's where it
19 would be common. Unless you do an arteriogram
20 you'd be surprised how ratty it looks up there.
21 It's most likely he just didn't have a complete
22 thrombectomy. More clot formed. It happens
23 more likely than -- more times than we can
24 count.
25 Q. Can we agree, sir, that for this

Page 168

1 patient, if he was taking Cultursene for gout,
2 there is no contraindication to taking aspirin
3 or do you not have an opinion on that?
4 A. I don't really have an opinion. I'd
5 have to look it up. Probably have had people
6 on it, I just never thought about it before.
7 Q. In your opinion, assuming that
8 Mr. Boltz failed to take or decided to stop
9 talking his aspirin for three or four days,
10 immediately prior to his admission on April 1,
11 would that play any role in the clotting off of
12 his ABF or other areas?
13 A. No. It had no impact.
14 Q. Why not?
15 A. Two reasons. One, INR was 4 which
16 is tremendously high. Number two, aspirin is a
17 non-reversible acetylator of platelets. The
18 half-life is like seven days. So four days,
19 his platelets aren't back to normal.
20 Q. Can you agree, sir, that poor
21 outflow into the right foot is a bad
22 prognosticator for longevity of the foot in the
23 face of peripheral arterial disease?
24 A. I think it depends on what you're
25 looking at. If you're looking at somebody,

Page 169

1 say, with ulcerating gangrene and you can't
2 restore good flow into the foot, that's a bad
3 thing. His outflow was adequate for what he
4 needed.
5 Q. It certainly isn't a good
6 prognosticator, is it, sir?
7 A. Well, again, it depends on the
8 circumstances. You only need adequate
9 circulation, you don't need perfect
10 circulation. A diabetic with severe tibial
11 disease and ulcers that aren't going to heal,
12 it's a lot worse than somebody who doesn't have
13 that, adequate flow down there.
14 Q. Is it your opinion, sir, given what
15 you believe was going on as of March 24, had
16 this patient been referred on March 24 to a
17 vascular surgeon, is it your opinion that he
18 would have suffered no consequences at all? In
19 other words --
20 A. Tell me what you mean by no
21 consequences.
22 Q. Is it your opinion that he would
23 have no additional deficits or problems over
24 and above what he had as of March 1?
25 A. Correct.

Page 170

1 Q. So the fact that he to undergo
2 another major surgery, opened this graft, it
3 neither -- it would neither cause nor
4 contribute any significant additional deficits
5 or losses for this patient?
6 MS. SALTER-FERRIS: I think it
7 was just asked and answered.
8 A. That's correct, yes.
9 Q. Do you have any other opinions you
10 intend to offer that we haven't gone over in
11 detail?
12 MS. SALTER-FERRIS: I'm going
13 to object to over-broadening nature of that
14 question.
15 A. In my opinion, had they
16 appropriately taken care of him on the 24th, he
17 got to a vascular surgeon, he would be fine. I
18 guess that's my main opinion. It took you a
19 long time to get to it, but, yeah.
20 MR. THOMAS: Let me --
21 Q. Other than an objection to
22 foundation to whether the care was appropriate
23 or not on the 24th, since that's not something
24 you can comment on.
25 A. Correct. Had he had the appropriate

Page 171

1 vascular care been given to him --
2 Q. Okay -- (inaudible).
3 A. Well, I'm not taking about that.
4 I'm talking about after he goes to a vascular
5 surgeon, he would have done fine.
6 MS. BOWERMAN: That's all I
7 have. Thank you.
8 - - - - -
9 EXAMINATION
10 BY MR. THOMAS:
11 Q. I don't have much. You testified --
12 you were asked some questions about TPA,
13 whether or not TPA could dissolve 12-day-old
14 clot, and I think
15 Ms. Bowerman started to ask you the question,
16 while it's possible, it's not probable, and you
17 said, no. So I want to make sure I understand
18 your opinion. Is it your opinion that, more
19 likely than not, TPA would dissolve 12-day-old
20 clot?
21 A. Just as a general statement, if you
22 look at studies like the Topaz which is
23 thrombolysis or operative intervention, up to
24 14 days, yeah, it's more likely. Again, there
25 are certain factors that go into it.

Page 172

1 Q. Sure. Thank you. Again, more for
2 purpose of clarification, I'm trying to avoid
3 going over the same material. It's your
4 opinion that when there was this change,
5 March 18, it was either the fem-pop going down
6 or the right limb of the ABF; right?
7 A. Yes.
8 Q. One or the other?
9 A. One or the other.
10 Q. As we sit here, you can't say more
11 likely than not it was the fem-pop versus the
12 right limb of the ABF; correct?
13 A. Correct. We know there is a change.
14 Q. On what was marked as Exhibit 7
15 which was the first page of your notes, and you
16 have the notation that 31 through 17, foot fine
17 then change; right?
18 A. Correct.
19 Q. And I think that was your testimony,
20 too, that the records showed the patient was
21 doing fine, as of March 1, 2010. I want to
22 know what records you're relying on?
23 A. I'm just relying on the fact that
24 the record says six days ago he had a change.
25 Q. So if I understand correctly, it's

Page 173

1 not that you are relying on any records that
2 document that he was doing fine, but rather
3 that there was a change and it's described as
4 worsening pain?
5 A. Correct.
6 Q. You can't point to me any records,
7 specifically, or cite any records that
8 specifically say he was doing fine?
9 A. I don't think there are any records,
10 so, no. I can't cite you anything.
11 Q. You were asked some questions
12 regarding the most likely causes of the
13 arteries going down a the short period of time,
14 11 months, 18, months. You were asked whether
15 or not that was evidence of rapidly progressing
16 atherosclerosis. I think you indicated no, and
17 in your opinion, that this was intimal
18 hyperplasia; correct?
19 A. I think there was, sure.
20 Q. Do you have any documentation or can
21 you point or cite any documentation in any of
22 the materials that you reviewed that show
23 intimal hyperplasia?
24 A. Again, there's nothing there,
25 there's no description of why these grafts

Page 174

1 closed.
2 Q. Ms. Bowerman asked you to read in
3 Exhibit 7. I'm going to ask you to read in
4 Exhibit 8. Would you read that, slowly?
5 A. All right. At the top it says
6 increased blood pressure. It says Toledo 2006.
7 Decreased walking distance, decreased to
8 100-to-150- feet. Some numbness. Erectile
9 dysfunction. Cigarettes, one pack per day,
10 quit. No femoral pulse. Leriche syndrome. On
11 the left there's a picture of the arteriogram.
12 6-14-06, it says aorto-bi-femoral bypass graft.
13 A 12 HEMASHIELD. It says left SFA out. PT out
14 distally, one vessel run off. I wrote that
15 there before I drew the picture. 4 Fogarty in
16 the right leg goes the length which basically
17 means he could put the entire length of the 4
18 Fogarty so it probably went down to his
19 peroneal or posterior tibial. Who knows. Left
20 SFA open 12 centimeters which means on the left
21 side he could only get the Fogarty down 12
22 centimeters and then it wouldn't go down any
23 further.
24 5-29, I assume that's '07. I didn't
25 put a year in there. It says short left common

Page 175

1 femoral artery to mid-superficial femoral
2 artery Distaflow, and that's just a type of
3 bypass graft. Right common femoral to proximal
4 superficial femoral thrombectomy with a Dacron
5 patch. Then we've got, it looks like,
6 1 cc or 1 mg of TPA down both legs.
7 Aorto-bi-femoral thrombectomy. Intraoperative
8 arteriogram, and then a right femoral popliteal
9 PTFE on May 30. Bilateral anterior compartment
10 fasciotomies. Postoperatively, he had
11 bilateral posterior tibial pulses by Doppler
12 and a right anterior tibial by Doppler.
13 Interesting. Discharge summary 6-5-07, rhabdo,
14 which is rhabdomyolysis. He was known to have
15 a heterozygous MTHFR mutation. He is on
16 Coumadin, and it says see Balkany 10-8-7 note.
17 It says February 6, 2008, left fem-pop
18 distaflow. Says the left posterior tibial
19 Doppler signal.
20 Q. Okay. Leriche Syndrome?
21 A. Leriche.
22 Q. Leriche. What is that?
23 A. It's a syndrome described by
24 Rene Leriche, who was a Frenchman. Basically,
25 it usually is for distal-aortic occlusion, and

Page 176

1 the findings are, classically, absence of
2 femoral pulses, buttock claudication, which
3 wasn't really here, and impotence. Only a
4 Frenchman would describe that; right?
5 Q. Generally related to atherosclerotic
6 disease?
7 A. Yes, it has to do with the aorta
8 being occluded distally.
9 Q. 12 HEMASHIELD? What does that refer
10 to?
11 A. That's a type of graft. A
12 HEMASHIELD is a coated Dacron graft so you
13 don't have to pre-clot it. 12 is just the
14 upper limb, 12 millimeter bifurcated graft and
15 it goes into two 6 millimeter looms.
16 Q. Thank you. Just a couple more.
17 Because you destroy your invoices after you
18 receive payment, are you able to tell me or
19 even give me a close estimate of how much time
20 you've spent reviewing materials in this case?
21 A. It would be a pure guess. The
22 problem is if I had a pure stack of records,
23 that could usually give you a good idea, but
24 CD-ROMS, I have no idea.
25 Q. The CD-ROMS, briefly can I just see

Page 177

1 that one. These ones are all labeled CDs of
 2 all St. Joseph's Mercy Hospital films, disk 1,
 3 disk 2, and disk 3. Are you sure there's
 4 records and not films.
 5 A. No. I don't think there's
 6 arteriograms in there.
 7 Q. Are there imaging studies?
 8 A. I don't know if they were chest
 9 x-rays or what they were.
 10 Q. It's your recollection --
 11 A. I thought they were records and I
 12 don't think there was any arteriograms. I
 13 would have drawn the pictures of all of them.
 14 Q. It's your recollection there's
 15 medical charts?
 16 A. I think there was some in there,
 17 yeah.
 18 Q. After we're done, let's mark those.
 19 I'd like to get a copy of those. Beyond
 20 understanding that you looked at CD-ROMs, you
 21 can't give me an idea if you spent 5 hours on
 22 this case, 10 hours, 15 hours, 20 hours?
 23 A. It probably wasn't 15 or 20, no.
 24 Q. Probably less than 15 or 20?
 25 A. Definitely less than 15 or 20.

Page 179

1 so, no.
 2 Q. Vascular has also been the bigger
 3 percentage of your clinical practice?
 4 A. Yeah.
 5 Q. You said thoracic is part of general
 6 surgery?
 7 A. You know, some people do, some
 8 people don't. I was trained to do thoracic
 9 surgery.
 10 Q. But you classified the thoracic
 11 surgery that you did under your guise of
 12 general surgery?
 13 A. Yes.
 14 MR. THOMAS: All right, thank
 15 you. That all I have at this point.
 16 MS. SALTER-FERRIS: I don't
 17 have any questions.
 18 (Signature was waived.)
 19 (Whereupon, the above-entitled
 20 matter was concluded at 5:03 p.m., this date.)
 21 -----
 22
 23
 24
 25

Page 178

1 Q. Do you do plaintiff reviews in
 2 Pennsylvania?
 3 A. Yes, sir.
 4 Q. What happened to make you stop, not
 5 that it should have a negative connotation, but
 6 made you stop doing general surgery?
 7 A. Main thing is, my hospital, you have
 8 to have coverage. I had two covering people,
 9 one was my old chief resident, and I had
 10 Dr. Solow, moved to West Virginia a year before
 11 than, then Emily decided to -- she was a single
 12 mom, wanted to have more kids, and being an
 13 intern for the hospital wasn't a good lifestyle
 14 so she moved and I was left with no coverage.
 15 The only deal I could get for coverage was from
 16 my ex partners, and basically it was, you give
 17 us general surgery, we'll cover your vascular.
 18 I probably should have done it ten years
 19 before. I sleep every night and I don't get
 20 called every night. I was mad for about a day.
 21 Q. Has general surgery ever been equal
 22 or larger percentage of your practice than
 23 vascular surgery?
 24 A. There were times when it might be
 25 close to equal. My job was to build vascular,

Page 180

1 COMMONWEALTH OF PENNSYLVANIA)
 2 COUNTY OF ALLEGHENY)
 3
 4 I, ENA R. MARINO, a notary public in
 5 and for the Commonwealth of Pennsylvania, do
 6 hereby certify that the witness Paul Collier,
 7 M.D., was first duly sworn to testify the
 8 truth, the whole truth, and nothing but the
 9 truth; that the foregoing deposition was taken
 10 at the time and place stated herein; and that
 11 the said deposition was recorded
 12 stenographically by me and then reduced to
 13 typewriting under my direction, and constitutes
 14 a true record of the testimony given by said
 15 witness, all to the best of my skill and
 16 ability.
 17
 18 I further certify that the inspection,
 19 reading and signing of said deposition were
 20 waived by counsel for the respective parties
 21 and by the witness.
 22
 23 I further certify that I am not a
 24 relative, or employee of either counsel, and
 25 that I am in no way interested, directly or
 indirectly, in this action.
 IN WITNESS WHEREOF, I have hereunto
 set my hand and affixed my seal of office this
 1 day of May, 2014.

 S/Ena R. Marino

 Ena R. Marino

	accident (2) 125:19,23	AF (3) 116:25;122:19;131:9	141:7;142:23;156:24; 159:23;160:2,3,18,22; 167:25;168:20	aorta (17) 45:10,12;46:9;53:7; 10,22;59:24;63:16,18; 75:1;83:1;104:20; 116:24;121:2,8,10; 176:7	
\$	accomplished (1) 25:4	affected (1) 129:3	ahead (7) 33:4;43:23;47:14; 65:14;102:5;110:22; 115:13	aorta-bi-femoral (1) 114:14	
\$1,000 (1) 28:3	according (1) 104:12	affecting (2) 98:2;140:7	ain't (1) 148:6	aorta-fem (6) 136:23;145:2;146:5, 10;149:9;166:25	
\$200,000 (1) 31:8	account (3) 39:2;163:25;164:3	affects (1) 96:8	alive (1) 106:3	aorta-femoral (1) 93:20	
\$3,000 (1) 28:1	accurate (3) 157:9,12,25	affiliation (1) 12:24	Allegheny (4) 9:12;17:3,9;18:7	Aorta-to-femoral (1) 104:23	
\$500 (2) 25:24;26:1	accurately (1) 50:25	affiliations (1) 12:23	Allegiance (2) 33:19;156:24	aorto (2) 114:23;118:19	
\$7,000 (1) 29:17	accustomed (1) 22:24	Again (104) 28:4;36:3;47:10; 48:13,21;49:3,23;50:5, 9;52:19;54:9,24;55:20, 24;56:12;57:20;58:3; 68:1;69:21;70:16; 71:23;72:10,12;76:8; 79:5,10;80:14;81:3; 83:9,12;85:17,20;87:7, 17;88:7;89:8,15,19; 90:22,24;92:11;93:5, 11;95:12;97:6;100:22; 101:8,10,21;106:25; 107:19;108:1;109:11, 20;111:4;112:4; 113:25;114:5,9;115:4, 23;116:4,22;120:10; 121:7,14,23;122:9,25; 124:9;126:3;127:20; 128:4,17,21;129:4; 130:18;132:6,12; 133:13;134:22;137:20; 138:7;140:20;142:12; 145:2;147:7,16;148:8; 151:21;152:23;153:17; 154:17;159:20;163:2, 10;164:10;165:9; 166:15;167:9;169:7; 171:24;172:1;173:24	Alliance (1) 12:19	allows (2) 138:4;139:11	Aorto-bi-femoral (7) 73:1;114:15;116:17; 120:15;146:8;174:12; 175:7
	acetylator (1) 168:17		along (6) 21:19;42:2;108:20; 116:10;150:25;152:5	aorto-fem (1) 115:1	
said (1) 137:7	across (3) 82:16;100:18;125:20		alternately (1) 125:17	aorto-femoral (3) 104:14;116:12; 153:10	
A	active (1) 165:7		although (2) 21:3;36:15	aortiliac (1) 75:2	
ab (1) 168:4	activity (1) 30:24		always (6) 13:1;29:20;74:23; 123:23;151:11;163:15	apologize (2) 88:3;105:9	
abbreviation (1) 42:4	actually (7) 14:1;55:8;112:12; 127:23;134:6;160:10; 166:14		amputation (4) 45:17,22;46:7; 160:24	appear (3) 10:3;36:16;157:5	
ABF (31) 53:21;59:18;72:24; 78:23;79:25;84:13; 93:18;116:21,24; 117:2,6,8,25;118:9; 121:21;124:18,23; 125:1;126:1,3;130:8; 135:24;145:20;146:3; 151:9;152:10;153:21; 155:15;168:12;172:6, 12	Acute (39) 22:7,11,15;23:22; 72:12;96:3;97:1,2; 98:19,25;99:6;106:14; 122:7,7,13;123:6,7,9, 11,12,15,18,22;124:1; 126:13;129:18;133:1, 4,11,14,17,21;146:17, 19,25;147:7,20;148:1, 18		anal (1) 51:13	appearance (3) 29:16;135:4,5	
able (8) 57:10;67:18;71:13; 94:13;152:19,21; 156:25;176:18	additional (3) 35:7;169:23;170:4		anastomosis (8) 47:18,25;48:17;49:5; 62:9,10;85:5;165:22	appeared (3) 29:11;166:16;167:10	
abnormal (2) 142:25;163:21	address (2) 5:6;26:21		anatomy (3) 144:25;145:6;146:2	Appears (2) 35:23;113:4	
above (10) 55:11;58:11;112:10, 18;147:5,11,13,15; 148:10;169:24	adequate (17) 69:2,9;94:22;95:8; 106:3;107:15;111:13, 18;116:18;118:1; 140:3;143:6;149:14; 151:11;169:3,8,13		and/or (3) 43:19,19;130:9	appointment (4) 16:24;17:2,5;44:9	
above-entitled (1) 179:19	adjuncts (1) 56:13	against (1) 90:10	ankle (4) 69:17;99:23;112:11, 23	appointments (1) 16:21	
above-the-knee (4) 45:22;52:8;54:1; 55:10	administration (2) 19:4;24:25	age (2) 73:18;159:15	ankles (1) 112:18	appreciate (1) 8:2	
absence (1) 176:1	admission (2) 33:17;168:10	aggressive (4) 85:6;88:25;89:5,18	answered (3) 106:16;131:13;170:7	appropriate (2) 170:22,25	
absolute (2) 133:21;137:2	advanced (4) 126:18,21;133:16; 147:24	aggressively (1) 84:14	anterior (14) 57:12;60:9;63:23; 64:7;66:17,20;67:2,3, 10;143:15,18;145:17; 175:9,12	appropriately (1) 170:16	
absolutely (3) 89:22;105:5;143:4	advancement (2) 76:3,15	ago (10) 6:6;11:3,7;15:22; 16:9;26:16;28:24; 30:14;163:11;172:24	anyplace (2) 15:5;129:25	approximately (2) 81:17;166:19	
academic (3) 16:20,24;17:5	advancing (12) 77:3;78:2,7,15; 79:25;81:21;84:2;86:5, 6;89:6;93:1;128:1	agree (44) 67:9;74:25;75:22; 76:1,13;80:8,21;81:2; 84:1,3,4,12,17;85:9,11; 86:13;88:8,10,20; 90:21;93:13;96:17; 106:4;107:24;111:19; 112:1;124:18;125:1; 126:15;128:14;132:24; 133:10;135:23;140:2;	anymore (2) 15:5;129:25	April (32) 32:24;33:2,17,20,23; 44:10,18;46:6;53:5,20; 70:13;76:4,12;77:16; 88:16,21;100:11; 101:10;102:2;108:21; 117:3;129:11;137:18, 19;138:11;156:24; 157:3;158:14;164:14; 165:8;167:7;168:10	
accept (1) 146:1	advertise (2) 6:8;25:9		anticoagulated (1) 74:18	arch (12) 56:17,19,20,23,23; 57:10,18,21;58:1,6,19;	
accessed (1) 48:5			anticoagulation (1) 167:11		

60:17 area (6) 16:16;19:21;20:11; 102:19;125:8;127:12 areas (1) 168:12 argue (1) 66:1 arose (1) 20:4 around (5) 17:19;23:23;65:4; 103:6;116:16 Arrow (1) 24:24 arterial (35) 13:18;14:18;15:1,9, 11;19:11,21;20:11; 22:12;67:5;105:6; 106:10,19;107:10,12, 22;113:2;125:10; 126:16;132:25;133:11; 135:9;141:14,17; 142:8,21,24;143:7; 144:2,21;159:13,24; 161:17;163:8;168:23 Arteries (23) 6:12,14;11:10;44:13; 50:14;57:12;60:12,15; 61:7;63:12;64:10,16; 66:11;74:14;80:16; 105:22;113:23,24; 127:16;129:7;145:14; 157:1;173:13 arteriogram (21) 63:12;64:9;69:15,22; 79:18;80:9,9;81:15; 86:22,23;89:9,20; 90:25;93:6,12;99:18, 21;107:2;167:19; 174:11;175:8 arteriograms (7) 51:4,18,25;63:11; 87:13;177:6,12 arteriographic (1) 79:7 artery (76) 44:12,12;45:13; 46:12,17;47:11;55:19; 56:12;62:16;63:20,23, 24;64:1,4,20;65:2,7,16, 18,20,22;66:4,6,16,17, 21,24;67:4,10,11; 69:16;70:15;79:20; 81:11,15;82:11;83:20, 22;84:4,10;85:3;86:9; 87:15;90:3,91:21;93:7, 9;97:8;102:16;105:1,2, 3,10;113:24;114:2; 117:18,21,22,25; 125:15;128:23;129:5; 131:3;143:24;145:7,8, 9;146:12;149:12;	159:25;160:4,6,19,20; 175:1,2 artful (1) 47:10 arthroscleroses (1) 62:15 article (3) 7:11,11;8:22 articles (3) 7:5,12,17 aside (1) 133:6 aspects (1) 6:4 aspirin (4) 75:18;168:2,9,16 assistant (3) 10:13,14;59:1 assisted (2) 52:13;54:16 associate (1) 16:1 associated (1) 162:7 Associates (5) 11:19;12:8;16:1; 32:13;33:18 association (1) 74:12 assume (15) 4:23;19:8;29:19; 37:13;39:8;40:13; 42:23;51:16;63:7;74:4; 91:13;140:23;146:4,6; 174:24 Assuming (3) 38:19;146:9;168:7 atherectomy (2) 67:17;68:2 atherosclerosis (25) 46:16;49:25;73:15; 76:24;78:20;79:17; 80:5;82:1;84:2,7;85:7, 8;86:7,11;101:12; 102:21;103:7;110:12; 127:10;128:7;130:19; 161:21;163:12,24; 173:16 atherosclerotic (31) 49:11,15;62:23; 72:21;73:18;75:23; 76:3,10,16;77:3;78:3,8, 15;80:1;81:21;84:15; 86:5;89:1,3,5,7;93:1; 101:6;102:2,7;110:8; 111:20;127:18;128:2; 163:7;176:5 attempt (3) 10:1;58:4;102:24 attended (1) 9:7 attorneys (2) 26:7;27:6	author (1) 23:24 authored (4) 37:18;40:3,21,25 authoritative (3) 20:19,24;23:15 average (5) 15:6,9;54:20;158:25; 159:6 avoid (2) 24:10;172:2 aware (10) 96:25;106:25; 109:16;110:6,13; 132:4;157:3,6;162:23; 164:23 away (4) 29:17;76:10;124:11; 154:13 awhile (1) 125:24	Based (12) 48:7;68:23,24;69:15; 101:3;110:19;128:20; 131:20;138:8,9; 158:18;159:11 basic (1) 22:8 basically (16) 14:9;18:5;20:3; 32:19;43:25;47:16,23; 74:11;118:12;119:25; 125:17;129:17;136:12; 174:16;175:24;178:16 basis (5) 76:22;94:13,16; 96:15;157:11 bathroom (2) 69:11;135:19 Beaver (3) 18:3,5,25 become (1) 39:7 becomes (2) 123:10,18 bed (1) 18:9 beds (1) 18:12 began (4) 71:10;117:22;119:3; 120:6 begets (1) 165:12 begin (1) 24:3 beginning (3) 24:17;50:12;89:15 begins (1) 125:1 begun (1) 118:25 behalf (3) 25:19,20;28:9 behind (1) 167:18 belief (3) 7:12;117:23;133:23 believing (1) 157:11 below (8) 45:16;69:17;112:10; 114:16;129:3;131:6; 147:16;148:11 below-knee (2) 46:6,13 below-the-knee (3) 55:7,15;160:23 besides (1) 27:10 best (8) 22:22;27:17;31:11; 103:3,17;119:4; 145:24;163:3	better (13) 7:25;8:3;28:14; 36:19;52:10;83:2,2; 126:24;127:5,6; 145:23;154:15;155:12 beyond (5) 21:12,16;65:8;80:3; 177:19 B-I (1) 28:19 bifurcated (1) 176:14 big (4) 62:18;158:9;162:6; 167:16 bigger (2) 124:15;179:2 Bilateral (2) 175:9,11 bill (4) 38:5,24,25;39:6 billed (2) 38:13;39:13 bills (2) 33:5;37:25 birth (1) 5:4 bit (8) 19:14;22:21;55:9; 74:16;80:4;109:15; 161:4,5 blebs (1) 137:20 bled (1) 86:12 bleed (1) 86:1 blister (1) 139:8 blistering (3) 139:22;157:16; 158:21 blisters (3) 139:10,14,17 block (1) 28:1 blockage (7) 65:8;97:17;103:18; 104:5;128:2;148:10; 152:14 blockages (4) 67:10,12,22;161:17 blocked (7) 66:25;67:6;80:22; 97:8;103:14;112:23; 125:8 blocking (1) 82:24 blocks (1) 71:14 blood (31) 64:11,15,16,21;65:1; 66:3,10;75:17,19;
---	--	---	--	---

94:11;95:8;96:8; 102:10;104:19;111:11, 11;117:15,16;118:1; 120:22,24;121:3; 125:16;126:6;133:19; 134:8;146:9;155:25; 156:7;166:1;174:6	briefly (1) 176:25 bright (1) 140:16 bringing (1) 37:8 Broad (1) 5:7 broke (1) 28:17 Bronx (1) 9:19 brought (2) 32:4;37:14 Buchanan (1) 28:19 build (2) 118:5;178:25 burning (2) 97:23;98:3 business (2) 24:21;30:18 butt (1) 75:14 buttock (1) 176:2 bypass (51) 19:11,22;20:12; 45:11,13;46:14;47:6, 17;49:18;52:8;53:2,8, 13;54:22;55:19;56:7, 17;57:6,10;58:1,7,18; 59:18;60:6;61:23; 62:15;69:18;70:11,14, 18;74:8,14,22;82:21; 91:21,25;92:3,17,19, 21,23;93:8;102:20,25; 114:6;156:4;166:15, 24;167:9;174:12;175:3 bypassed (2) 111:21;118:9 bypasses (8) 20:15;56:20;57:18, 21;60:5;107:5;108:15, 16 bypassing (1) 151:8	24:15;28:17;178:20 came (6) 9:1,3;26:21;36:3; 95:2;164:21 can (101) 8:2;21:8;27:1,9,13; 30:23;34:11,15;36:16, 19;59:21;62:8,14; 65:11;66:1;67:9;69:10; 74:25;75:21,22;76:1, 13;78:17;79:3;80:8,21; 81:1,2;84:1,3;85:11; 86:13;88:8,10,20; 89:16;90:21;93:13; 96:5,9,9,11,13,13,17; 98:1;100:2,16;103:24; 104:11;106:4;108:23; 110:24,25;112:1,12; 116:4;117:14;119:1; 123:2;124:18;125:1; 126:4,15;128:14; 131:22;133:9,16; 134:7;135:23;136:21; 137:1;139:7;140:2; 141:7,12;142:23; 152:3;154:5,8;155:11, 18,24;156:1,24;157:2; 159:23;160:3,14,22; 165:17,18;166:3,8; 167:4,23,25;168:20; 170:24;173:20;176:25 candidate (7) 68:7,11;69:18;70:11, 14,19;153:8 cap (1) 86:10 cardiac (5) 24:7;75:11,12; 127:12;159:18 care (16) 10:20;32:24;52:20; 90:6,16;91:1;119:23; 129:16;135:18;149:1, 2;151:12;159:22; 170:16,22;171:1 career (2) 14:15;58:9 carotid (3) 160:4,12,19 case (62) 4:12;7:3,13,14;8:24; 13:20;17:15;20:16,18; 21:13,14,16,22,23; 22:2,5;23:11,12;24:15, 16,17,18;25:3,16;26:9, 13,15;28:22;29:1,4,9; 30:2,13;31:15,20;32:4; 38:12,17,19;41:1;51:1; 57:13;58:18;63:6; 66:24;75:7;84:19; 85:16;90:9,18;92:13; 101:25;103:5;112:13; 114:21;129:2;136:17;	141:17;158:5;159:1; 176:20;177:22 cases (15) 24:3,17,22;25:6,12, 23;26:4,15,16;27:2,10, 11;30:15;39:12;133:8 category (2) 123:7,8 catheter (3) 24:23;26:16;81:18 catheters (2) 24:8,13 Cathy (1) 4:11 caught (1) 88:2 causation (1) 32:2 cause (14) 49:1,14;62:12,13; 79:17;85:22;113:13; 126:7;130:5,12,24; 131:22;163:23;170:3 caused (6) 49:21;50:3;83:16; 89:14;155:22,23 causes (5) 84:17,20,21;86:2; 173:12 causing (1) 128:2 cc (1) 175:6 CD-ROMS (4) 33:22;176:24,25; 177:20 CDs (1) 177:1 Center (9) 9:18;13:11,25;14:7, 13;18:3,18,19,20 centimeters (5) 46:11;101:9;102:16; 174:20,22 central (1) 24:8 certain (3) 96:9;161:23;171:25 certainly (14) 39:14;62:14;67:21; 68:2;69:20;74:13;75:4; 106:14;107:11;112:20; 134:10;139:18;156:17; 169:5 certainty (2) 120:21;137:2 Certification (1) 9:25 Certifications (2) 9:24;10:7 certified (3) 4:4;10:4,14 chance (5)	129:21;137:22; 151:12;155:19;156:14 chances (2) 101:22;138:15 change (31) 13:10;17:25;42:13; 51:5;68:3;84:4;89:18; 97:3;98:14,15;113:2; 120:13;123:6;126:6; 128:18;131:22;132:8, 8;134:9;135:10,12; 144:6,8,21;148:16; 160:24;172:4,13,17,24; 173:3 changed (7) 12:11;42:9,10;44:5; 82:1;87:21;95:14 changes (22) 42:13;43:6,12;45:9; 69:8;86:11;95:2;97:21; 98:11;118:21;124:1; 131:16,25;132:13,13, 16,21,23;134:14; 151:23,23;152:3 chapter (1) 8:22 chapters (2) 7:5,17 characteristic (1) 97:22 characterize (1) 140:11 charge (7) 25:22,24;27:25;28:1, 3;29:15,17 charging (1) 26:1 chart (1) 80:7 charts (1) 177:15 cheating (1) 77:8 check (1) 141:25 checked (1) 108:11 chest (1) 177:8 Chicago (1) 155:7 Chief (2) 9:14;178:9 Chilcote (2) 28:15,16 choice (2) 99:12;154:9 cholesterol (4) 78:6,9,10,19 chronic (46) 23:21;68:25;94:1,7; 95:13,15,16,21,23; 96:6,7,15,18,20;102:2;
blow (1) 86:10 Board (3) 9:23,25;10:3 Board-Certified (1) 5:24 Boarded (1) 11:22 Bob (1) 23:23 Boltz (17) 7:13;45:18;49:19; 68:5,6;70:21;71:9; 81:3;92:9,12;96:18; 106:5;111:10;133:24; 146:2;163:17;168:8 Boltz's (3) 63:12;70:6;93:14 book (4) 7:5,17;8:22;132:1 born (1) 7:24 both (15) 10:4;26:12;27:4; 37:22;50:1;96:6; 112:12,20;116:24; 121:20,25;122:10; 134:25;157:5;175:6 bottom (6) 63:14;105:6;153:14; 155:21;156:5;159:16 bounced (1) 17:17 bovine (1) 46:9 BOWERMAN (31) 4:6,11;34:17;35:2; 36:1,10,22;54:5,7; 55:5;56:1;60:23;61:3; 69:12,14;73:2,5;81:19; 87:11;88:1,5;90:12,14; 99:1;110:23;135:22; 166:10,13;171:6,15; 174:2 brain (2) 8:9,12 branch (4) 69:24;112:6;145:12; 147:17 branches (3) 105:25;125:16; 145:11 break (2) 69:11;135:19 breaks (2) 90:2;150:14	C calcaneus (1) 65:17 calendar (1) 39:12 calf (6) 44:17;45:14;143:14, 15,16;157:15 call (9) 13:9;32:15;44:10; 48:10;111:14,16; 159:4,22;162:22 called (6) 4:2;17:23;22:16;	4:12;7:3,13,14;8:24; 13:20;17:15;20:16,18; 21:13,14,16,22,23; 22:2,5;23:11,12;24:15, 16,17,18;25:3,16;26:9, 13,15;28:22;29:1,4,9; 30:2,13;31:15,20;32:4; 38:12,17,19;41:1;51:1; 57:13;58:18;63:6; 66:24;75:7;84:19; 85:16;90:9,18;92:13; 101:25;103:5;112:13; 114:21;129:2;136:17;		

106:7,10,12,19;107:14, 20,24;122:4,6,11,14, 18,21,23;123:3,4,5,7, 10,12,19;124:10,15; 126:16,20;132:25; 133:3,11,16,22;155:8 chronically (8) 93:14;104:13;109:3; 114:8,22;115:5; 120:12;147:4 chronic-y (1) 101:21 cigarette (2) 75:14;77:9 Cigarettes (1) 174:9 circle (2) 7:9,10 circled (3) 7:4;8:17,23 circulation (15) 69:2,5,9;111:13,18; 113:15;126:23;140:9; 143:5,6;149:14,15; 151:11;169:9,10 circumstance (1) 57:3 circumstances (2) 130:4;169:8 cite (3) 173:7,10,21 city (9) 5:10;13:11,24,25,25; 14:2,4,4;29:3 clarification (1) 172:2 class (11) 44:14;45:9;97:9,18; 129:18;147:7,7; 148:12,24;149:18; 158:13 classic (6) 94:21;126:13,16,19; 134:9;158:21 classically (1) 176:1 classification (11) 23:15;44:15;97:7; 99:3,4,6,9;131:10,18; 132:6;134:23 classifications (1) 98:7 classified (1) 179:10 claudicating (1) 96:22 claudication (9) 70:24;71:9,19,21; 72:5,18;96:10,12; 176:2 clean (1) 103:5 cleaned (2)	53:20,22 clear (6) 4:15;88:6;101:8; 117:2;122:10;151:5 clearly (2) 43:5;79:10 clinic (1) 13:17 clinical (10) 17:2;20:9;70:1,3,4,6; 125:25;126:5;135:4; 179:3 clinically (1) 70:19 Close (10) 5:13;48:1;50:17; 52:16;62:25;74:14; 88:19;115:2;176:19; 178:25 closed (42) 50:8,16;57:5;74:16; 114:2,6,8,8,15,21,22, 25;115:3,5;116:15,17; 117:13,25;120:7,11,11, 13;121:8,9,9,12,21,25; 129:2;131:4;136:20, 22,22,23;137:3; 143:25;144:6,9;145:3, 3;164:4;174:1 closes (1) 50:7 closing (1) 74:22 closure (3) 50:18;54:16;92:4 clot (60) 46:11;50:2,20;89:15; 101:11,22;102:7,8,10, 12,20,23,25;103:1,2,7, 9;124:19,24;125:4,8, 11;130:20;153:19,22; 154:11,12;155:7,9,11, 12,14,20,22,23;156:10; 161:23,25;162:1,1,2,4, 4,6,8,25;163:1,3,4,5; 164:17,20;165:6,6,12; 167:17,18,22;171:14, 20 clots (4) 50:2;127:11,13; 165:12 clotted (19) 80:18,19;81:25;82:2; 83:21;84:6,13;117:8; 126:2;127:18;131:7; 135:24,25;149:16,20; 164:14,20,21,22 clotting (11) 49:21;74:8;155:3; 162:8,9;164:8,23; 165:7,25;167:14; 168:11 coagulation (2)	73:12;163:16 coated (1) 176:12 cold (2) 157:13;158:19 collateral (8) 66:5,5,11;100:1; 127:16;129:6;150:15, 16 collateralized (3) 112:5;145:11;146:13 collaterals (35) 65:4;66:14;68:14,17, 20;104:24;105:8,14,17, 19,21;112:7;114:24; 116:18;117:17,21,24; 118:5,8,14,18;120:18, 25;121:10,13;124:10, 14,14;127:16,23,25; 128:22;136:4,5,15 College (2) 14:2,5 COLLIER (4) 4:1,8,9;5:3 C-O-L-L-I-E-R (1) 5:3 color (2) 36:4;162:6 combination (2) 50:1;102:6 coming (2) 46:4;148:7 command (1) 6:7 comment (1) 170:24 common (26) 44:11;63:20,21;64:3, 5,20;82:10,19;83:10; 89:10,13;90:2;91:20; 100:15,15,17;104:19; 112:17,19;118:16; 132:25;133:10;136:14; 167:19;174:25;175:3 community (2) 18:14,15 comorbidities (1) 159:12 companies (1) 24:23 comparative (1) 134:25 compared (1) 133:4 comparing (2) 93:11;133:21 compartment (1) 175:9 complaint (1) 135:1 complete (4) 57:24;88:13;115:18; 167:21	completed (1) 9:13 completely (7) 66:25;81:5;88:21; 103:14;120:7,11; 135:24 complicate (1) 52:11 complicates (1) 14:24 complication (1) 24:7 complied (1) 37:8 compounding-term (1) 78:17 compression (1) 62:18 computers (1) 21:8 concerned (1) 134:12 concluded (1) 179:20 conclusion (2) 149:24;150:11 condition (3) 63:11;67:24;164:2 conditions (1) 55:21 conference (1) 25:1 confidence (1) 120:20 confused (1) 130:15 confusing (1) 49:9 connect (1) 112:9 connected (1) 66:6 connection (1) 37:25 connects (1) 112:18 connotation (2) 82:21;178:5 consequences (2) 169:18,21 consider (7) 20:18,22;23:14;86:6; 89:4;111:9;148:21 considerably (1) 136:11 considerations (1) 54:25 considered (4) 62:6,7;86:4;105:22 considers (1) 139:1 consistent (4) 106:22;122:21,23;	128:5 constant (2) 97:15,25 contacted (1) 31:14 contents (1) 40:20 context (1) 117:3 Continued (5) 24:22;76:1,21;85:11; 165:6 continuing (1) 76:13 contraindication (1) 168:2 contribute (3) 78:2,7;170:4 contributed (2) 75:23;167:13 contributing (5) 74:7;76:2,23;77:2; 78:14 controlled (2) 75:19;78:4 coolness (1) 97:19 copies (2) 37:17;38:10 copy (3) 34:23;36:14;177:19 corner (2) 39:23;40:13 coronary (3) 159:25;160:6,20 Corporation (3) 4:13;24:24,24 corrected (1) 94:12 correctly (4) 35:14,22;70:25; 172:25 cost (2) 159:19,20 Coumadin (2) 164:10;175:16 count (2) 36:25;167:24 country (2) 24:13,19 County (1) 29:3 couple (10) 12:8;26:15;28:20; 33:21;71:14,16;92:22; 114:11;154:18;176:16 course (4) 27:19;61:25;89:17; 162:17 Court (3) 4:11;23:2;30:13 cover (1) 178:17
---	--	---	--	--

coverage (3) 178:8,14,15	154:18;155:15;156:10; 168:9,18,18;171:24; 172:24	depending (4) 15:12;55:13;98:1; 124:7	diddly (1) 89:25	102:2,7;103:2;106:12, 13;110:9;111:20;
covering (1) 178:8	dead (1) 157:22	depends (14) 47:5;52:14;54:13; 55:20;95:24;97:17; 136:3;140:16;151:21; 154:1;156:13,21; 168:24;169:7	die (1) 124:5	123:4;126:18;127:18; 128:2;130:18;159:13, 17,18,19,24,25;160:4, 6,8,13,16,17,19,20; 161:13;163:7,8,20; 168:23;169:11;176:6
criteria (1) 132:10	deaf (1) 22:23	deposed (1) 4:4	differed (1) 51:25	diseased (7) 62:16;84:22,23; 86:16,17;89:21;131:3
critical (3) 22:18;84:5,25	deal (1) 178:15	deposition (21) 4:8;6:17;7:22;27:25; 28:23;30:3;32:10,14, 16;34:16;35:5,16,24; 36:8,24;37:2,6;40:1, 18;41:11;109:24	difference (4) 132:4;144:16,18; 162:3	diseases (1) 100:16
criticism (4) 8:8;22:25;90:5,15	death (1) 95:20	depositions (3) 27:15;28:5,10	differences (1) 144:19	disk (4) 40:24;177:2,3,3
crossover (1) 123:11	December (1) 5:5	deps (1) 27:22	different (13) 8:3;24:1;31:23;32:1; 49:7;60:16;81:11;96:2; 139:14;144:3,10,16; 166:18	disks (3) 33:24;34:2,8
CT (2) 33:22;46:2	decent (1) 155:18	describe (5) 79:11;103:9,11; 104:7;176:4	dig (1) 71:17	dismal (1) 56:12
Cultursene (1) 168:1	decided (2) 168:8;178:11	described (4) 80:6;121:1;173:3; 175:23	dilate (1) 156:22	dissolve (5) 125:11;154:11; 155:9;171:13,19
cured (1) 72:7	declared (1) 140:18	description (4) 50:9;102:12,14; 173:25	diminished (2) 113:19;140:10	dissolved (4) 101:17;155:11,15; 156:8
current (3) 6:19,21;10:7	de-clot (1) 156:3	despite (4) 148:15;165:6; 166:16;167:10	direct (3) 47:2,6,8	dissolves (1) 156:1
currently (2) 12:23;16:22	decreased (2) 174:7,7	destroy (2) 38:25;176:17	directly (4) 46:25;48:5;50:6; 66:3	Distaflo (1) 83:11
Curriculum (1) 37:14	decreasing (1) 140:6	detail (1) 170:11	director (1) 14:7	Distaflo (2) 175:2,18
cut (2) 36:14;48:5	deep (13) 45:12;46:12;53:7,10, 24;60:8;64:5;87:15; 100:13;102:15;108:11; 114:14;161:14	detectable (1) 148:2	disability (1) 110:20	distal (20) 44:17;47:17,24;50:3; 62:10;63:18,25;65:16, 19,21;66:7,20;70:18; 91:25;92:23;97:13,13; 100:3;112:5;165:22
CV (5) 6:15;7:1,6;8:24; 32:15	defect (2) 73:14;163:13	determine (2) 31:21;154:21	disabled (5) 110:8,11,13,15; 111:7	distal-aortic (1) 175:25
cyanotic (4) 107:17,25;108:2,3	Defendants (2) 4:2,12	develop (4) 62:17;71:19;85:3; 124:10	disagree (1) 158:11	distally (4) 102:17;145:10; 174:14;176:8
cyclicly (1) 77:12	defense (4) 25:16;26:15;28:6,12	developed (12) 47:23;49:16;71:24; 72:1,4;73:19;79:12; 85:4;128:7;129:1; 130:19;160:12	disarticulation (2) 45:19;46:1	distance (2) 48:22;174:7
D	defenses (2) 169:23;170:4	developing (2) 71:2,5	disaster (1) 115:2	distances (1) 96:11
Dacron (3) 79:19;175:4;176:12	define (4) 96:1,6;97:1,11	develops (3) 75:7;127:9,10	Discharge (1) 175:13	distinctive (1) 161:25
daily (1) 76:22	defining (1) 123:24	diabetic (1) 169:10	discoloration (1) 107:20	divide (1) 6:1
damage (4) 94:19;95:4,5,17	definitely (3) 134:2;137:9;177:25	diagram (1) 91:10	discolored (1) 139:16	doctor (3) 25:21;29:6;44:8
damaged (1) 96:24	definition (2) 123:11;139:6	diaries (2) 37:24;38:5	discovery (2) 90:13,19	doctors (1) 75:13
date (14) 5:4;36:13,15,16,18; 39:24;43:17;50:24; 53:4;82:12;88:20; 113:11;132:11;179:20	degree (5) 9:9;101:14;111:4; 120:20;148:8	Dickie (2) 28:15,16	discovery-only (1) 4:8	document (4) 40:21;48:18;50:6; 173:2
dated (2) 42:22;43:2	delivery (1) 113:18	dictate (1) 148:9	Discussion (2) 23:6;73:3	documentation (7) 77:22;85:8,18;96:21; 117:11;173:20,21
dates (2) 34:11;35:20	deoxygenated (1) 134:8		disease (81) 49:12;62:20,21,23; 63:19,21;64:5;70:17; 71:7;72:21;73:19;75:2, 24;76:3,10,16;77:3; 78:3,8,15;79:8,9;80:1, 2,11,14;81:21,23; 83:19;84:2,8,15;86:5, 19;89:1,3,5,7,10,14; 92:19;93:2;96:19; 100:12,18;101:4,6,25;	documented (14) 48:14;50:5,19;73:9, 16;74:3;85:21;99:14;
day (9) 29:17;77:18,18; 122:24;145:25;152:4; 154:3;174:9;178:20	depend (2) 15:25;77:7			
days (25) 42:7,8,10;44:1,2; 77:23;113:5;119:3; 124:21;125:4;137:8; 138:12,23;146:21; 147:21;148:1;151:25;	dependency (2) 97:14;124:11			
	dependent (19) 42:14;43:2;106:23; 107:3,4,9,12,13; 126:15;132:24;133:10, 24;135:7;140:8,12,13; 141:8,14,16			

123:2;131:16,24; 142:1,4,13 done (28) 8:6;19:20,23;20:9; 26:9,14;27:2;28:18; 44:23,25;56:22;58:8, 19,23;60:4,7;61:5,18; 69:20;70:20;83:8;98:7; 129:10;144:4;145:16; 171:5;177:18;178:18 dont' (1) 110:25 Doppler (19) 44:20,23;98:12; 142:24;143:8,10,16; 144:2;146:23;147:8, 23;148:3,5,9,13; 157:16;175:11,12,19 dorsalis (10) 60:11;66:18,19; 99:23;143:12,13; 146:25;147:3;148:3,4 doses (1) 167:11 doubt (2) 108:25;127:5 down (69) 5:18;17:9,15,18; 18:24;19:2,5;22:21; 23:1,3;30:25;31:1; 47:12;56:5;57:6;59:19, 23;60:1,3;63:13;64:22; 71:14;75:8;82:12; 104:15,21,22,24;105:8, 12;113:18,21;114:1,2, 16,25;116:11,13,14; 117:22;118:16;120:11, 13,14,25;121:11,13; 125:16;127:13;129:3; 130:8,11,14;131:5; 133:18;136:12,13,16, 17;146:13;147:10; 149:21;169:13;172:5; 173:13;174:18,21,22; 175:6 downstream (3) 103:4;127:16;144:10 dozen (1) 27:4 Dr (40) 4:8,9,13;16:12,15; 19:16,16;32:11,16,23; 33:15,21;44:16,45;11; 51:19,24;53:1;70:22; 81:3;82:23;90:6,10,16; 91:5;92:12,14,15; 93:10;102:13;104:7, 12;129:13;137:6; 138:10,22;149:11; 151:8;157:19;167:7; 178:10 drag (1) 124:6	drags (1) 124:20 draw (2) 112:7;150:11 drawing (1) 40:14 drawn (2) 149:23;177:13 drew (1) 174:15 dropped (2) 113:17,21 Drug (1) 24:25 due (1) 110:8 duly (1) 4:3 Duplex (1) 44:11 duration (3) 147:1,21;155:15 during (4) 38:20;77:1;164:22; 165:7 dysfunction (2) 71:4;174:9	Elevated (5) 78:9;141:24;142:6, 11,15 elevation (1) 97:15 eliminate (1) 24:21 else (8) 5:23;34:20;36:23; 44:21;85:22;98:2; 153:16,18 embolic (1) 46:3 embolism (1) 161:15 Emergency (3) 33:20;45:3;158:15 emergent (2) 148:22,24 EMG (3) 94:8;95:3,5 Emily (1) 178:11 End (15) 12:14;31:16;34:18; 38:18;39:5,12;50:3,12; 66:12,15,20,20;75:3; 95:18;115:2 endothelium (1) 125:11 endothelium's (1) 125:14 energy (1) 161:3 engaging (1) 8:8 enough (7) 4:25;51:7;56:20; 111:6;151:16;153:1; 158:1 entire (7) 14:15;15:16,18; 23:10;93:7;139:15; 174:17 entity (1) 30:19 entry (1) 44:20 equal (2) 178:21,25 ER (4) 156:23,25;157:4,21 erectile (2) 71:3;174:8 especially (2) 40:23;113:19 essence (1) 134:24 essentially (1) 17:6 estimate (3) 27:1;103:24;176:19 evacuate (1)	102:24 evaluation (1) 38:1 even (13) 8:22;50:3;57:20; 70:12;73:21;76:25; 107:2;109:22;125:14; 140:18;147:19;155:11; 176:19 events (1) 116:9 Eventually (1) 52:10 everyone (1) 61:1 evidence (14) 73:7;88:7;95:7; 108:4;128:4,11,15; 129:2;131:24;139:18, 21;140:2;155:11; 173:15 ex (1) 178:16 exact (4) 31:6;33:22;54:14; 77:17 exactly (5) 87:24;91:3;118:11; 137:8;165:9 exam (1) 143:10 EXAMINATION (4) 4:5;119:20;121:15; 171:9 examinations (1) 9:25 example (1) 7:10 except (4) 6:6;23:4;103:11; 145:9 excess (1) 61:15 Excuse (2) 54:5;86:18 Exhibit (26) 6:16,17;34:21;35:5, 12,16,18,24;36:7,8,10; 37:5,6,23;39:22;40:1, 12,18;41:21;91:9; 137:16,18,23;172:14; 174:3,4 exhibits (5) 32:16,18,23;41:14; 42:20 exist (1) 123:10 existing (1) 53:21 exit (2) 125:21,23 expect (9) 65:13;99:20;100:6;	101:5,15;102:23; 107:1;135:25;156:9 expectancy (7) 150:19,20,21; 158:23;159:11,14; 160:25 expected (2) 78:24;124:4 expenditures (1) 161:3 expenses (1) 29:19 experience (3) 24:2;59:17;150:12 expert (1) 24:3 experts (1) 63:9 Explain (3) 47:21;79:3;117:14 explained (1) 120:4 explanation (2) 163:19;164:13 explore (1) 129:25 expose (3) 48:21;50:4;155:9 extending (1) 92:3 extent (1) 103:18 external (5) 63:20;64:22;118:15; 121:11;136:14 extremities (2) 40:15;43:20 extremity (3) 40:15;44:17;102:19
E		F		
earlier (1) 155:6 early (1) 163:6 easier (2) 7:23;162:22 east (1) 27:14 edition (1) 21:4 effect (3) 49:4;82:17;164:11 effective (2) 155:5;156:9 effects (2) 76:9;114:1 effort (1) 145:24 eight (1) 6:23 either (25) 10:17,21;24:4;62:8; 15:75;17:79;17:80;6; 84:24;99:23;100:17; 112:5;114:21;115:6; 116:15,22;121:8; 126:3;130:8;140:14; 148:16;149:9;150:9; 152:15;172:5 element (1) 167:12 elevate (1) 142:3	face (2) 117:25;168:23 facility (1) 18:13 fact (26) 39:10;68:24;70:7; 71:5;73:14;77:1;79:21, 24;80:18;84:12;92:7, 10;95:18;103:8;108:8, 15;110:10;124:1; 131:21;140:5;148:16; 158:19;160:23;161:1; 170:1;172:23 factor (12) 75:11,12;76:2,15,23; 77:2;78:5,14,14,20; 135:8;161:19 factors (7) 52:22;74:7;85:6; 154:21;159:2;162:9; 171:25			

<p>faculty (2) 59:2,3</p> <p>fail (2) 61:23;62:3</p> <p>failed (5) 74:8;79:3,24;92:10; 168:8</p> <p>fails (1) 62:1</p> <p>failures (1) 20:1</p> <p>fair (37) 4:21,25;7:7;8:21; 9:15;10:21,22;17:7; 20:12,13;49:12,22; 50:4,14;66:2,9;67:23, 25;68:11;71:8;72:18, 20,23;73:17;75:6;77:6; 79:22,23;81:5;101:24; 125:12;135:6,15; 138:23;151:20;155:16, 17</p> <p>fairly (2) 51:12;154:25</p> <p>fall (1) 60:25</p> <p>falling (2) 69:3,5</p> <p>family (1) 10:10</p> <p>far (7) 5:17;34:1;38:16; 49:17;57:6;109:3; 115:18</p> <p>fasciotomies (1) 175:10</p> <p>fasciotomy (1) 45:14</p> <p>fast (4) 8:10,13;129:8; 154:21</p> <p>faster (3) 128:24;152:5;165:17</p> <p>fast-moving (2) 89:6,13</p> <p>fast-progressing (1) 89:6</p> <p>February (2) 33:14;175:17</p> <p>fed (1) 127:17</p> <p>Federal (1) 30:12</p> <p>feeding (3) 66:10;127:23;128:1</p> <p>feel (8) 50:25;63:9;100:3,4; 129:14,24;158:2,9</p> <p>feeling (2) 83:12;136:1</p> <p>feet (8) 43:19,19;70:25;71:2, 15;109:5;135:1;174:8</p>	<p>Felix (1) 19:16</p> <p>Fellowship (4) 9:17;20:4;58:23; 61:22</p> <p>felt (1) 82:24</p> <p>fem (3) 55:19;82:18,18</p> <p>femoral (88) 44:11,12;45:10,12, 13;46:9,12,13;53:7,7, 10,23,24;56:17;57:18; 58:1;59:25;60:7,7,8,8, 8,9,9,10,10,11,12,13; 61:6;63:22,23;64:5,6,6, 23;82:10,11,17,17,19, 19;83:4,10,11,20; 87:15;89:11,14;90:2; 91:20,21,23;93:7,9; 100:13,15,16,18; 102:16,20;114:14,23; 116:24;117:11,21; 118:16,17,19;121:9,10; 129:14,24;136:14,15; 146:12;149:12;157:1, 5;158:6,9;174:10; 175:1,1,3,4,8;176:2</p> <p>femoral-peroneal (1) 58:7</p> <p>femoral-popliteal (1) 156:3</p> <p>femorals (2) 79:8;83:1</p> <p>fem-peroneal (1) 56:7</p> <p>fem-pop (40) 45:11,15;46:12; 47:17;52:8;54:1,22; 55:7,15;82:3,7,9; 104:13;114:6,12,13,21; 115:1,3,25;116:10,15, 16,23;120:14;121:9,13, 21;126:4;130:10,11; 131:2;136:17,22; 145:3;146:11;151:13; 172:5,11;175:17</p> <p>fem-pop's (1) 143:21</p> <p>fem-to-fem (4) 82:14,15,21;83:6</p> <p>fem-to-pop (1) 83:6</p> <p>few (9) 26:2,15;28:24;31:12; 156:16;159:1,6,8; 161:16</p> <p>fields (1) 10:21</p> <p>figure (3) 44:2;92:20;114:18</p> <p>figured (1) 24:20</p>	<p>fill (1) 118:15</p> <p>fills (1) 39:9</p> <p>films (2) 177:2,4</p> <p>final (1) 150:13</p> <p>find (7) 21:7;90:25;103:3; 131:24;153:24;158:1; 166:3</p> <p>finding (8) 48:8;49:10,20; 126:13,16;133:11; 157:4,22</p> <p>findings (4) 126:17,19;158:4; 176:1</p> <p>fine (13) 42:9;65:23;67:17; 68:25;95:1;111:14,17; 170:17;171:5;172:16, 21;173:2,8</p> <p>fingers (2) 129:14;158:3</p> <p>finish (3) 8:1,14;54:6</p> <p>Finished (2) 9:21;10:25</p> <p>firm (2) 26:11;38:21</p> <p>firms (3) 26:7;28:12,20</p> <p>first (25) 4:3;8:1;10:1;21:8; 31:14;44:11;54:15; 59:7;62:4,5;69:19; 70:21;71:19,25;72:17, 22;82:8;90:8;101:9; 102:16;129:16;130:3; 143:6;165:22;172:15</p> <p>fit (3) 99:5;157:17;163:18</p> <p>five (9) 17:19;26:3;27:21; 52:17;54:11;56:12; 159:9,14;166:20</p> <p>five-year (14) 52:7;53:25;55:6,17, 18;56:3,8,16;57:17,25; 60:19;61:12;78:24; 79:2</p> <p>flow (33) 44:11,20;45:21;47:8; 83:14;94:22;95:8;96:8; 100:2;104:19;107:15; 111:11;113:17,21; 117:15;118:1,20,23; 120:22,24;121:3; 126:6;130:2;131:8; 143:25;144:9;147:18; 149:12,15;154:14,15;</p>	<p>169:2,13</p> <p>flowing (1) 14:12</p> <p>flyer (1) 17:18</p> <p>focus (1) 43:9</p> <p>focused (3) 11:9;15:3;72:11</p> <p>Focusing (1) 63:10</p> <p>Fogarty (3) 174:15,18,21</p> <p>follow (2) 59:5;64:14</p> <p>followed (4) 150:25;159:5,6,21</p> <p>follows (1) 4:4</p> <p>follow-up (1) 52:20</p> <p>Food (1) 24:25</p> <p>foot (86) 42:8,13;43:13;44:5, 18;46:20,22,25;47:3, 12;63:14;64:11,12,17; 65:24;66:10,16;67:20; 68:15,17,21;69:2,4; 95:9;97:13;99:12,13; 104:20;105:17;106:3, 6;107:15;108:7; 111:12;112:3,8;113:3; 118:2,2,22;120:22; 121:4;126:23;127:17, 24;128:1,22,23,25; 129:6,7,7,12;132:5; 133:18,19,25,25;134:1, 10;136:16;137:5,18, 22;138:5;139:12,15, 24;140:4,8;143:1,2,5,6; 147:9,23,25;149:7,21; 157:14,17;158:20; 168:21,22;169:2; 172:16</p> <p>forget (3) 29:20;39:14;86:21</p> <p>fork (4) 66:12,15,16;67:5</p> <p>form (7) 73:8;86:4,7;91:24; 101:20;102:4;141:12</p> <p>formed (2) 101:11;167:22</p> <p>forms (1) 126:21</p> <p>forward (1) 100:11</p> <p>found (7) 52:1;80:19,22;81:4; 157:19;158:6;163:13</p> <p>foundation (8) 76:6;80:25;102:5;</p>	<p>108:23;109:10,19; 110:21;170:22</p> <p>four (8) 26:3;33:22;137:8; 138:12,23;166:19; 168:9,18</p> <p>four-page (1) 165:13</p> <p>fourth (2) 84:16;136:8</p> <p>Frenchman (2) 175:24;176:4</p> <p>frequent (1) 17:18</p> <p>fresh (4) 46:11;103:1;154:10, 12</p> <p>front (2) 34:24;36:11</p> <p>full (2) 5:2;167:10</p> <p>full-time (1) 19:1</p> <p>fully (1) 74:17</p> <p>function (8) 131:23;132:22; 137:21;138:13,14; 148:17;157:14;158:20</p> <p>funny (1) 26:23</p> <p>further (4) 59:19;141:19; 149:21;174:23</p> <p>future (3) 92:1,24;160:13</p>
G				
			<p>gangrene (2) 132:9;169:1</p> <p>gangrenous (3) 57:4,8;69:8</p> <p>garbage (1) 38:7</p> <p>Garcia (2) 32:14;42:11</p> <p>garden-variety (1) 163:5</p> <p>General (30) 4:10;5:25;6:3,5;9:12, 12,15;10:4;11:3,7; 12:10;13:20;14:23; 15:19,23;16:2,3,18; 19:17,18;32:13;33:18; 101:4;139:16;171:21; 178:6,17,21;179:5,12</p> <p>generally (14) 20:20,22;23:15; 48:15;50:16;62:2; 67:19;73:12;98:12; 100:5;125:6;151:14; 158:24;176:5</p>	

<p>geniculates (2) 105:23,24</p> <p>gentleman (1) 18:23</p> <p>germane (3) 20:15;134:22;135:17</p> <p>gets (4) 38:7;79:20;113:25; 164:5</p> <p>given (11) 27:16,22;28:5,23; 30:16;73:17;107:1; 115:18;159:15;169:14; 171:1</p> <p>gives (1) 159:13</p> <p>giving (2) 83:14;119:4</p> <p>glad (1) 43:9</p> <p>glossy (2) 35:9,19</p> <p>gnawing (1) 97:25</p> <p>goes (15) 12:18;28:2;30:21; 38:7;66:16;67:5;105:8; 120:25;123:18;124:11; 127:12;154:13;171:4; 174:16;176:15</p> <p>good (26) 20:24;21:1,9;52:15, 20;56:9;61:14;68:14, 16,20;69:5;77:22; 91:23;98:12;100:1,2; 108:17;139:6,9;151:4, 15;155:19;169:2,5; 176:23;178:13</p> <p>GORE-TEX (12) 53:6,11,17;54:8,22; 55:14;56:2,8,11;58:2, 6;62:24</p> <p>Gospel (1) 20:23</p> <p>gout (1) 168:1</p> <p>gradation (1) 138:16</p> <p>grade (2) 22:11,17</p> <p>graft (98) 19:22;20:1;45:10; 46:14;47:7,17;48:1,6, 16;50:2,7,8,11,13,16, 16;52:8;53:2,13,20,23; 54:1,23;55:7,15;56:17; 58:2;59:9,18,19,22,25; 62:1,10,18;69:18; 70:14;73:1;78:25; 79:24,25;82:7;83:3,6, 11,14,15;85:2;91:21, 25;92:3,4,10,24;93:8, 21;102:20;104:21,22;</p>	<p>114:6,14,15;115:25; 116:12;125:7;127:13; 129:23;131:4;135:25; 143:22,24;144:8; 145:20;146:8;149:9; 152:4,16,18,20;153:11; 154:14,25;155:20,22, 23;156:3,4;166:16,24, 25;167:9,16;170:2; 174:12;175:3;176:11, 12,14</p> <p>grafting (1) 20:12</p> <p>grafts (22) 48:9;49:18,18,21; 50:1;58:8;60:6;61:6, 23;62:3;74:8,17,22; 127:11;130:23;144:7, 11;145:14,16;164:4,9; 173:25</p> <p>graft's (1) 108:17</p> <p>granted (1) 92:4</p> <p>gravity (1) 133:18</p> <p>Greater (2) 12:18;103:25</p> <p>grew (1) 9:5</p> <p>groin (5) 48:3,4;82:16;99:12; 156:16</p> <p>group (3) 11:15,17,20</p> <p>Grove (6) 13:11,24,25;14:1,4,4</p> <p>grow (1) 15:3</p> <p>growing (3) 84:9,9,10</p> <p>guess (15) 24:14;25:2;27:4,17; 31:1;95:24;99:7; 100:23,25;123:17; 140:15;141:15;160:1; 170:18;176:21</p> <p>guessing (2) 101:2;104:1</p> <p>guesswork (1) 114:9</p> <p>guise (1) 179:11</p> <p>guy (1) 157:20</p> <p>guys (1) 155:7</p> <p>guy's (1) 156:16</p>	<p>149:13</p> <p>hairs (1) 65:24</p> <p>half (5) 15:1,1;27:4;73:13; 163:11</p> <p>half-life (1) 168:18</p> <p>hand (2) 32:7;34:2</p> <p>hands (1) 52:16</p> <p>handwritten (3) 34:24;91:3,16</p> <p>happen (5) 24:11;133:16,17,20; 152:13</p> <p>happened (4) 114:20;116:9;121:8; 178:4</p> <p>happens (6) 8:4;85:24;86:3; 105:7;124:7;167:22</p> <p>happy (2) 4:17;115:17</p> <p>hard (13) 48:3;100:10;116:5, 19;122:2;124:17; 129:4;134:2,3;138:17; 143:22;152:13;158:1</p> <p>heal (1) 169:11</p> <p>healed (1) 45:23</p> <p>Health (1) 33:23</p> <p>healthy (4) 111:10,11,14,17</p> <p>hear (9) 4:16;98:23;115:17; 147:6,9,13,18;148:11, 12</p> <p>heard (2) 4:24;19:3</p> <p>heart (4) 46:4;120:24;159:5; 160:17</p> <p>Heidenreich (12) 32:11;45:11;53:1; 102:13;104:7,12; 129:13;137:6;138:22; 149:11;151:8;157:19</p> <p>H-E-I-D-E-N-R-E-I-C-H (1) 32:11</p> <p>Heidenreich's (5) 32:16,23;44:16; 138:10;167:7</p> <p>held (2) 23:6;73:3</p> <p>help (8) 52:21;71:3;83:15; 96:5;125:14;135:3,13, 17</p>	<p>helpful (1) 23:1</p> <p>HEMASHIELD (3) 174:13;176:9,12</p> <p>heparin-induced (2) 162:15,20</p> <p>hereinafter (1) 4:3</p> <p>Here's (1) 167:6</p> <p>Heritage (5) 13:8;17:24;18:4,5,8</p> <p>heterozygous (3) 74:15;161:18;175:15</p> <p>high (6) 64:18;78:6,10,19; 114:1;168:16</p> <p>higher (3) 28:9;55:9;63:16</p> <p>highlight (1) 41:12</p> <p>highlighted (1) 41:11</p> <p>highlighter (1) 166:9</p> <p>highlightings (1) 41:13</p> <p>highlights (2) 41:8,17</p> <p>highway (3) 125:17,18,20</p> <p>himself (1) 51:19</p> <p>hip (3) 45:17,19,24</p> <p>history (6) 85:2;139:5,9;141:19, 20;159:12</p> <p>HIT (1) 162:17</p> <p>HITS (8) 161:25;162:7,11,13, 15,18,22;163:2</p> <p>hitting (1) 52:16</p> <p>hold (7) 5:22;10:16;109:25; 165:24;166:17,17,24</p> <p>homozygous (1) 74:15</p> <p>honestly (1) 27:7</p> <p>honesty (1) 19:3</p> <p>hope (2) 39:14;63:8</p> <p>hopefully (2) 75:12;159:3</p> <p>hospital (32) 6:7;9:13;12:22,23; 13:2,5,7,13,15;17:21, 22;18:2,8,9,14;19:4,11; 29:6;33:11,12,13,14,</p>	<p>17,25;58:20;61:19,19; 108:9;149:1;177:2; 178:7,13</p> <p>Hot (1) 6:20</p> <p>hour (5) 22:20;25:22,24;26:1; 28:3</p> <p>hours (12) 17:19;28:2,3;124:20; 125:2,9;136:1;163:11; 177:21,22,22,22</p> <p>hundreds (1) 58:9</p> <p>hurt (1) 135:16</p> <p>hypercoagulability (5) 74:21;163:9,19; 164:7;167:13</p> <p>hypercoagulable (14) 73:8,20;74:1,10,19; 161:8,10,12,22;162:24; 164:1,2,11;167:3</p> <p>hyperplasia (21) 47:24;48:11,12,14, 17,19;49:3,25;62:6,8,9, 20;79:12,14,21;80:6; 85:4;127:11;130:20; 173:18,23</p> <p>hypertension (1) 77:25</p> <p>hypogastric (4) 117:17,24;118:15; 121:11</p> <p>hypogastrics (1) 136:13</p> <p>hypoxia (1) 108:4</p>
I				
			<p>ICU (2) 18:12;26:20</p> <p>idea (9) 36:20;71:20;72:3; 138:21;145:21;164:19; 176:23,24;177:21</p> <p>ideas (1) 139:3</p> <p>identification (8) 6:18;35:6,17,25; 36:9;37:7;40:2,19</p> <p>identify (3) 35:14,21;137:16</p> <p>IIa (2) 97:21;98:11</p> <p>IIb (1) 98:14</p> <p>III (4) 44:14;45:9;98:17; 129:18</p> <p>iliac (9) 63:20,20;64:3,20,22;</p>	

75:1;118:16;136:14; 155:8	indicated (3) 69:20;70:20;173:16	insurance (1) 18:5	13:6;20:7;29:7;38:2	70:22;72:5,22;73:6; 78:23;80:10;86:13; 88:8,16,20;92:5; 118:13
iliacs (1) 136:13	indicates (2) 9:11;119:17	intend (1) 170:10	irrelevant (3) 90:11,13,19	
imaged (1) 129:13	indicating (1) 166:4	intent (1) 10:20	is/or (1) 97:17	K
imaging (12) 34:3,6;100:10;101:1; 104:9;105:20;115:4; 116:6;121:15;129:4, 10;177:7	indications (2) 125:25;126:5	interesting (4) 17:16;26:18;55:8; 175:13	ischemia (66) 20:15;22:8,12,15; 23:21,22;44:17;94:19; 95:23,25;96:1,3,4,6,7, 18,20;97:1,2;98:20,25; 99:7;106:10,19; 120:16;122:1,4,6,8,11, 13,18,21,23;123:5,9, 15,22;126:13,16,20; 129:19;132:25;133:1, 3,4,11,12,14,16,17,20; 140:24;142:18,21; 146:17,20,25;147:7,8, 20,24;148:1,8,13,18	kappa (1) 157:24
immediate (1) 141:9	indirect (1) 66:11	intermittent (4) 72:9,18;96:10,12	ischemic (22) 94:4,4,10,21;95:12, 15,16,18;97:9,11,12; 98:5;104:16;106:7; 108:12;109:2;110:11; 123:1,3;131:22;142:3, 8	keep (13) 14:11;22:20;38:11; 54:12;56:10;61:16; 83:15;98:6;106:3; 110:5;120:17;148:4; 155:3
immediately (1) 168:10	Infarction (1) 26:23	intermittently (1) 13:4	isolated (1) 140:17	key (1) 127:25
impact (1) 168:13	inferior (1) 105:24	intern (1) 178:13	Israel (1) 28:17	kick (1) 75:13
impact (1) 168:13	inflow (8) 129:16;130:13,14, 16,17;144:14;145:1; 151:14	internal (1) 136:13	issue (1) 151:25	kids (1) 178:12
impending (5) 123:21,24;124:3; 141:8;148:15	inflow-type (1) 128:6	interoperative (1) 151:19	issues (5) 7:3,13;20:17,18;38:1	kills (1) 151:2
impinging (1) 89:11	information (5) 115:21,22;138:2,7, 10	interpretation (1) 51:24		kind (4) 24:18;31:10;66:22; 103:7
implies (1) 116:24	ing (1) 132:19	interrupts (1) 51:15	J	kindly (1) 6:24
imply (1) 123:5	Ingersoll (1) 28:20	interrupt (6) 33:4;42:1;98:8; 115:9,13,15	jacket (1) 30:10	kinds (1) 96:2
important (4) 4:18;51:11;69:23; 87:3	initial (1) 62:1	intervention (2) 141:10;171:23	January (2) 47:16;48:19	knee (3) 45:16;117:15,16
impotence (1) 176:3	initials (1) 161:19	intimal (19) 47:24;48:10,14,17, 18;49:2,25;62:6,8,9,19; 79:11,20;80:5;85:3; 127:11;130:20;173:17, 23	Jennings (3) 4:13;33:21;42:15	knew (2) 24:14;129:22
improve (1) 21:18	inject (1) 154:10	into (52) 8:15;12:3;25:5; 41:22;46:20,21,25; 47:3,12,19;50:13; 53:23;56:11;58:6; 64:22,24;65:5,22; 84:22;85:2;86:12;93:8; 100:2;104:20;105:8, 14,15,17;112:5,7; 117:20;118:16;120:25; 123:7;124:15;129:6,7; 131:3;135:8;136:14; 145:11;146:13,14; 153:10;154:10,25; 161:19;163:18;168:21; 169:2;171:25;176:15	Jersey (1) 9:5	knock (1) 159:1
inability (1) 71:4	injured (1) 95:20	intima (19) 47:24;48:10,14,17, 18;49:2,25;62:6,8,9,19; 79:11,20;80:5;85:3; 127:11;130:20;173:17, 23	job (2) 36:19;178:25	knowing (4) 111:4;137:21;145:2; 157:18
inaccurate (1) 52:4	ink (1) 41:18	intimal (19) 47:24;48:10,14,17, 18;49:2,25;62:6,8,9,19; 79:11,20;80:5;85:3; 127:11;130:20;173:17, 23	Joe's (1) 32:19	knowledge (1) 41:4
inartful (1) 21:18	in-part (1) 74:9	intimal (19) 47:24;48:10,14,17, 18;49:2,25;62:6,8,9,19; 79:11,20;80:5;85:3; 127:11;130:20;173:17, 23	Joseph's (3) 33:16,25;177:2	known (2) 13:8;175:14
inaudible (3) 45:8;86:9;171:2	INR (3) 45:8;164:15;168:15	intimal (19) 47:24;48:10,14,17, 18;49:2,25;62:6,8,9,19; 79:11,20;80:5;85:3; 127:11;130:20;173:17, 23	journal (4) 20:19;21:5,6;22:1	knows (4) 22:9;104:2;154:19; 174:19
in-between (1) 69:4	insensate (1) 98:17	intimal (19) 47:24;48:10,14,17, 18;49:2,25;62:6,8,9,19; 79:11,20;80:5;85:3; 127:11;130:20;173:17, 23	journals (1) 21:4	
including (4) 9:14;11:10;21:12; 153:5	inserted (6) 50:13;152:24;153:4, 9,10,15	intimal (19) 47:24;48:10,14,17, 18;49:2,25;62:6,8,9,19; 79:11,20;80:5;85:3; 127:11;130:20;173:17, 23	Judge (1) 90:18	
income (2) 39:2,3	inserts (1) 24:12	intimal (19) 47:24;48:10,14,17, 18;49:2,25;62:6,8,9,19; 79:11,20;80:5;85:3; 127:11;130:20;173:17, 23	judging (2) 99:17,20	
incorrect (1) 158:4	inside (3) 86:1,1;155:20	intimal (19) 47:24;48:10,14,17, 18;49:2,25;62:6,8,9,19; 79:11,20;80:5;85:3; 127:11;130:20;173:17, 23	jump (4) 8:15;53:23;83:3; 152:16	
increase (3) 62:4;134:21;139:1	instance (4) 39:11;43:14;67:15; 126:25	intimal (19) 47:24;48:10,14,17, 18;49:2,25;62:6,8,9,19; 79:11,20;80:5;85:3; 127:11;130:20;173:17, 23	June (12)	
increased (17) 27:18;42:11;113:11, 14;120:4,6;123:6; 124:2;131:21;132:3; 135:2;142:16,17,20; 144:20;161:2;174:6	instituted (2) 101:16;152:8	intimal (19) 47:24;48:10,14,17, 18;49:2,25;62:6,8,9,19; 79:11,20;80:5;85:3; 127:11;130:20;173:17, 23		L
increasing (5) 119:8,14,21;126:7; 140:6	institution (1) 58:16	intimal (19) 47:24;48:10,14,17, 18;49:2,25;62:6,8,9,19; 79:11,20;80:5;85:3; 127:11;130:20;173:17, 23		labeled (1) 177:1
indefinitely (1) 151:1	institutions (1) 32:20	intimal (19) 47:24;48:10,14,17, 18;49:2,25;62:6,8,9,19; 79:11,20;80:5;85:3; 127:11;130:20;173:17, 23		laboratory (1) 11:5
	insufficiency (1) 134:16	intimal (19) 47:24;48:10,14,17, 18;49:2,25;62:6,8,9,19; 79:11,20;80:5;85:3; 127:11;130:20;173:17, 23		lack (5) 76:6;102:4;108:23; 109:10,19
	insult (3) 69:1;109:2;132:14	intimal (19) 47:24;48:10,14,17, 18;49:2,25;62:6,8,9,19; 79:11,20;80:5;85:3; 127:11;130:20;173:17, 23		lacked (1) 140:3
		intimal (19) 47:24;48:10,14,17, 18;49:2,25;62:6,8,9,19; 79:11,20;80:5;85:3; 127:11;130:20;173:17, 23		landing (1) 91:25
		intimal (19) 47:24;48:10,14,17, 18;49:2,25;62:6,8,9,19; 79:11,20;80:5;85:3; 127:11;130:20;173:17, 23		large (3) 104:24;105:14,18
		intimal (19) 47:24;48:10,14,17, 18;49:2,25;62:6,8,9,19; 79:11,20;80:5;85:3; 127:11;130:20;173:17, 23		larger (1)

<p>178:22 last (20) 8:5;14:20;15:17; 16:7,10,23;17:5;19:8; 25:3;26:2,14;27:21; 47:14,22;65:11;83:21; 125:23;137:5;150:14, 16 Later (11) 46:8;73:10;74:17; 80:22;88:12,15;91:22; 92:22;129:1;131:7; 149:17 lateral (7) 60:11,12,14,15;61:8; 69:23;100:4 law (1) 26:7 lawsuit (1) 38:2 lawyer (2) 26:13,17 lawyers (1) 24:14 lawyers' (1) 27:8 leads (1) 50:18 least (14) 11:8;15:14;26:3; 35:8;36:16;72:16,17; 100:12,14;137:25; 140:25;148:6;149:8; 163:19 leave (1) 148:4 lectures (1) 17:14 led (2) 82:25;83:13 left (40) 43:3,7,19,19;45:15; 46:8,20,21;47:2,11,17; 50:20;59:11;64:3;83:6, 7,8,10,24;86:20;87:17, 20;91:22;92:9;93:2; 107:23;133:25;134:2, 3,7,11;167:18;174:11, 13,19,20,25;175:17,18; 178:14 left-femoral (1) 91:24 left-hand (2) 39:23;40:13 leg (32) 43:10;45:21,23; 61:24;63:18;71:9; 93:23;94:14;98:17; 99:15,16,17;104:16; 106:5;107:2;108:10; 113:3,3,22,23;119:9; 129:12;136:25;141:25; 142:3,6,11,15;148:19;</p>	<p>149:18,21;174:16 legs (5) 58:15;59:19;159:6, 19;175:6 length (2) 174:16,17 Leriche (5) 174:10;175:20,21, 22,24 Less (9) 56:15;79:4;84:13; 88:12,14;159:14; 163:11;177:24,25 less-effective (1) 101:22 level (6) 57:8;99:22;110:21; 113:24;121:2;150:5 Level-1 (1) 18:17 Level-2 (1) 18:19 life (8) 75:9;79:21;158:23, 24;159:11,13,20; 160:24 lifestyle (2) 96:13;178:13 likelihood (2) 73:19,23 likely (36) 84:20,20,21;99:25; 101:24;104:4;115:5, 24;116:4,5;117:7; 121:18,20;127:15; 137:5,24;138:5; 139:11;142:2,10,14,20; 144:20;146:23;148:2; 156:18;159:11;162:25; 163:8;167:16,21,23; 171:19,24;172:11; 173:12 limb (27) 68:12,14;117:4,8,25; 118:9;122:4,8,11,18; 123:9,21,24;124:3,5, 25;141:9;145:20; 146:3;148:15;150:19, 20,21;151:1;172:6,12; 176:14 limb-threatening (2) 96:3;122:6 limit (1) 12:12 limited (5) 4:10;32:24;34:3; 109:13,14 limiting (1) 130:23 limits (1) 96:12 line (7) 44:21;47:14;65:11,</p>	<p>23;105:6;112:7;159:16 lines (1) 166:20 linger (1) 125:3 liquid (4) 125:4;154:13; 155:25;156:7 list (6) 30:15;32:8;34:15,16, 22,23 listed (9) 9:23;14:6;18:11; 25:3;41:14,16;82:10; 86:22;129:17 listen (1) 147:17 literature (9) 8:19;21:11,13,20,21; 22:4;24:9;57:17,21 little (17) 17:8;18:6;19:14; 48:5;55:9,10;63:15; 74:16;80:4;85:25; 109:14;128:7;134:8; 145:23;156:6;161:4,5 living (2) 128:22;129:5 localized (10) 63:25;65:3;67:7; 125:7;128:25;145:10, 18;147:5;152:14,16 long (17) 8:9;23:23;48:22; 59:9;96:11;104:15,16; 118:4;123:9;124:7,8; 136:25;137:19;140:20; 153:24;154:11;170:19 longer (2) 77:19;139:12 longevity (2) 75:8;168:22 look (21) 8:19;21:2;36:3;43:8, 9,20;48:22;50:6;51:14; 65:25;91:18;93:5; 107:12;114:11;123:13; 137:23;156:23;157:23; 161:1;168:5;171:22 looked (7) 21:25;43:13;90:24; 99:18;118:13;135:1; 177:20 looking (19) 43:7;52:15;69:22; 79:7;100:11;132:2; 134:13;135:11;137:15, 22;138:18;139:15; 140:7,17;143:24; 165:3,15;168:25,25 looks (11) 9:13;33:1,6,6;34:22; 36:14;138:19;144:13;</p>	<p>154:4;167:20;175:5 looms (1) 176:15 lose (5) 45:23;129:5;148:19; 150:14;151:2 loses (1) 118:19 loss (13) 97:18;123:21,25; 124:3;136:1,1;138:13, 13;139:19;141:9; 148:15;157:14,15 losses (1) 170:5 lost (6) 115:14;118:23; 128:21;136:25;150:15, 16 lot (11) 7:22;14:9;41:23; 50:2;55:20;108:14; 128:24;129:20;154:4; 155:24;169:12 low (4) 96:8;114:1;130:14; 131:8 lower (9) 40:14,15;43:20; 44:17;54:25;102:19; 121:2;156:2,22 lysis (1) 54:19 lytic (1) 149:10</p>	<p>132:20;140:1;142:18; 146:18;147:22;148:23; 149:22;160:21;162:12, 23 Mach (1) 140:12 mad (1) 178:20 main (4) 14:14;97:20;170:18; 178:7 maintain (1) 52:21 maintained (4) 8:16;30:15;114:23; 116:18 major (4) 15:5;64:16;125:19; 170:2 makes (3) 73:23;98:3;150:11 makeup (1) 32:18 making (2) 31:10;154:4 male (1) 159:14 malpractice (1) 90:10 man (1) 159:21 manage (1) 75:21 manifestations (1) 161:9 many (11) 18:9;25:6;27:15; 29:13;30:14;58:7;61:9; 77:18,23;121:19; 166:22 map (1) 129:11 March (128) 42:22;43:2,13;44:1; 68:21;70:12;93:13,19, 20,22,25;94:15;95:8, 23;96:17;98:20,25; 99:4,11;100:8,9,21; 101:16;102:1;103:14, 19;104:5,17,18;106:4, 10,18,24;107:8,18,24; 108:2,7;109:8,16,21; 110:3,7;111:10,20; 112:2;113:1,6,8;114:8; 115:25;116:2,11,20; 117:3,7,9,14;118:3,7, 24;119:7,17;120:1,5, 21;121:22;122:3,11, 19;123:20,25;124:4; 126:1,22;127:19,19,24; 130:6,25;131:9,18,19; 132:2,18,22;133:24; 135:2,5,24;136:20;</p>
M				
<p>ma'am (114) 4:22;5:1,16,21;6:22; 7:8,15,19;8:18;9:6,10, 16,22;10:2,9;11:13; 12:2,5,21,25;14:1; 16:19,22;19:9,13,18; 20:5;21:24;25:11,14; 26:6;28:25;29:2,5,12, 20;30:17,21;31:18; 32:6;34:9;35:4,10,15, 23;37:3,16;38:6,14; 39:21,25;40:11,17; 41:2,20;43:16;44:24; 47:5;50:22;51:22;52:2, 6,25;57:2;58:12,24; 59:16,20;60:18;63:4,8; 65:3;66:23;67:3;68:19, 22;72:19;73:1;74:11; 75:25;78:1,12;80:12, 17;81:22;83:25;85:14; 88:24;89:3;93:17,21; 98:21;103:23;110:4; 111:22,25;112:25; 113:12;118:4;119:8, 11,18;122:5;123:23;</p>				

<p>137:12,12;138:6; 139:19,25;140:3,21; 141:22;142:9,19,25; 143:8;144:2,4,5,24; 145:6,13;146:3,4,16, 19,24;147:21;148:1,14, 22;149:5,20;150:4,19; 151:7;169:15,16,24; 172:5,21</p> <p>mark (11) 6:16;34:15,18,21; 35:11,18;37:4;39:22; 44:3;166:5;177:18</p> <p>marked (11) 6:18;32:23;35:6,17, 25;36:8;37:7;40:2,19; 42:19;172:14</p> <p>marker (6) 159:18,25;160:6,16, 20;163:23</p> <p>marking (1) 34:19</p> <p>markings (2) 41:17,18</p> <p>material (3) 53:3,13;172:3</p> <p>materials (6) 21:13,16;32:3;50:23; 173:22;176:20</p> <p>matt (1) 154:17</p> <p>matter (4) 22:23;103:8;124:20; 179:20</p> <p>May (33) 33:12;43:6;44:19; 51:19;63:10;64:9; 69:23;71:22;80:3,9,9, 23;81:3;82:13;83:8; 85:4;87:13;89:10; 95:18;100:14;107:4, 19;114:22;116:17; 134:15;140:17;141:1, 3,4;149:12;159:19; 165:11;175:9</p> <p>May/June (1) 94:6</p> <p>Maybe (8) 8:25;25:4;55:17; 96:5;109:25;135:10; 161:2;166:3</p> <p>McCamey (2) 28:15,16</p> <p>MD (3) 4:1;9:9;42:15</p> <p>mean (46) 15:2;20:23;21:15; 22:7,18,25;23:11;31:5; 33:3;37:13,19;45:20; 46:19;47:6;49:8;50:1; 51:3,4;54:12,13;62:14; 65:24;71:24,25;75:11; 77:8;78:5;81:22,25;</p>	<p>84:6;85:7;86:8,10; 88:2;92:12;95:24;96:8; 98:8;102:8,10;115:15; 124:22;125:13;127:1; 159:8;169:20</p> <p>meaning (5) 38:4;42:7;45:16,17; 124:8</p> <p>means (14) 37:13;42:3,12;47:20; 72:1;77:21;82:16; 86:11;91:13;108:17; 130:2;147:10;174:17, 20</p> <p>meant (3) 81:9;132:15;137:9</p> <p>measured (1) 144:17</p> <p>mechanical (3) 74:18,24;164:4</p> <p>medial (4) 60:12,15;61:6,8</p> <p>Medical (15) 9:8,18;13:11,25; 18:3;20:17,19;21:13, 20;22:4;34:3;90:10; 110:19;120:20;177:15</p> <p>medication (2) 75:16;159:4</p> <p>medicolegal (3) 25:13;30:19,24</p> <p>member (3) 59:2,3;63:2</p> <p>mention (3) 79:13,17;86:25</p> <p>mentioned (3) 61:5;99:2;139:13</p> <p>mentioning (1) 139:4</p> <p>mentions (2) 79:15,16</p> <p>Mercy (4) 33:16,23,25;177:2</p> <p>mere (1) 160:23</p> <p>merged (1) 18:2</p> <p>mess (1) 152:1</p> <p>methadone (1) 94:16</p> <p>mg (1) 175:6</p> <p>M-I (1) 26:22</p> <p>Michigan (5) 4:10;26:5;27:3,10; 29:21</p> <p>microcirculation (1) 150:1</p> <p>microvessels (1) 149:20</p> <p>middle (2)</p>	<p>164:24;165:21</p> <p>mid-foot (1) 57:9</p> <p>mid-superficial (3) 83:11;91:21;175:1</p> <p>might (11) 6:25;42:1;67:18; 68:2;100:4;124:13,14; 152:19,21;167:15; 178:24</p> <p>mild (4) 42:14;43:2;97:16; 140:13</p> <p>miles (2) 5:18;22:19</p> <p>mill (1) 163:4</p> <p>millimeter (3) 47:19;176:14,15</p> <p>mind (2) 22:21;42:2</p> <p>Mine (4) 65:12;165:17;166:2, 18</p> <p>minimal (1) 46:16</p> <p>minus (1) 113:6</p> <p>minutes (1) 154:17</p> <p>miraculously (1) 50:17</p> <p>mis-question (1) 88:3</p> <p>misread (1) 82:20</p> <p>missed (2) 28:21;86:25</p> <p>Mississippi (1) 27:14</p> <p>mistaken (1) 88:2</p> <p>mixing (1) 154:16</p> <p>Mm-hmm (1) 106:17</p> <p>moderate (3) 63:22;86:20;93:6</p> <p>moderately (2) 63:19;83:19</p> <p>mom (1) 178:12</p> <p>money (3) 30:23;31:3,10</p> <p>monitor (1) 52:21</p> <p>monkey (1) 103:6</p> <p>monophasic (1) 144:15</p> <p>Montefiore (3) 9:18;17:4;58:22</p> <p>month (3)</p>	<p>13:16;62:5;92:22</p> <p>months (13) 48:15;62:5;77:9,11; 79:24;80:22;88:17; 89:17;91:22;92:22; 124:8;173:14,14</p> <p>more (82) 12:12;13:2,3;15:3; 23:18,25;32:25;33:1; 50:25;72:12;74:12,18; 83:14;84:20,21;86:7; 91:25;92:23;97:24,25; 98:3;101:21,24; 102:17;104:4;109:4; 113:16;114:20;115:24; 116:5;117:7;121:17, 20,24;122:1;124:9,14; 126:17,21;127:10,14; 128:25;130:19,20; 132:25;133:10,15,19; 134:10;137:5,24; 138:4;139:7,11,15; 141:20;142:10,14,19; 144:20;147:24;150:2; 156:18;157:2;159:10; 160:8,15;161:14; 162:1,9,25;163:8; 167:16,22,23,23; 171:18,24;172:1,10; 176:16;178:12</p> <p>morning (2) 6:20;148:25</p> <p>most (18) 8:21;31:7;79:1; 84:19;99:25;111:21, 24;112:17,19;128:5; 129:22;142:2;155:4, 20,24;161:12;167:21; 173:12</p> <p>mostly (4) 13:18;27:13;58:17; 101:10</p> <p>motor (11) 98:15,15;131:23,25; 132:8,21;138:13; 148:17;151:23;157:14; 158:20</p> <p>mottled (2) 98:17;139:16</p> <p>mottling (1) 150:2</p> <p>move (2) 97:20;119:22</p> <p>moved (4) 82:12;152:5;178:10, 14</p> <p>movement (1) 136:2</p> <p>moving (1) 147:10</p> <p>MTHFR (1) 175:15</p> <p>M-T-H-F-R (2)</p>	<p>74:4;161:18</p> <p>much (16) 7:25;21:9;22:17; 24:9;30:23;31:3;38:12, 12,16;86:19;100:21; 109:13;149:11;158:25; 171:11;176:19</p> <p>multiple (3) 109:1;131:5;158:8</p> <p>Murphy (1) 28:19</p> <p>muscle (1) 95:19</p> <p>mutation (2) 74:4;175:15</p> <p>Myocardial (1) 26:22</p> <p>myself (2) 16:4;24:20</p> <hr/> <p style="text-align: center;">N</p> <hr/> <p>name (15) 4:11;5:2;11:17; 12:17;14:3;16:10; 17:25;19:6,8;22:13; 26:14,24;29:1,6;82:24</p> <p>named (1) 105:22</p> <p>names (3) 27:8;105:21,25</p> <p>narrowing (5) 48:16;49:10;50:11, 18;79:16</p> <p>National (1) 25:1</p> <p>native (2) 50:13,14</p> <p>natural (1) 85:2</p> <p>nature (3) 10:24;84:8;170:13</p> <p>nearly (1) 63:17</p> <p>necessarily (7) 22:6;75:10;80:2; 81:22;84:11;136:3; 163:23</p> <p>necessary (2) 70:2,16</p> <p>need (9) 22:13;50:25;68:9; 70:18,21;72:22;92:23; 169:8,9</p> <p>needed (8) 130:1;149:13;151:7, 17;152:12,15,16;169:4</p> <p>needing (3) 68:13;75:1;79:23</p> <p>needs (2) 44:8;149:1</p> <p>negated (1) 164:12</p>
---	---	---	--	--

<p>negative (3) 44:20;46:2;178:5 negatives (1) 121:19 neither (2) 170:3,3 nerve (5) 94:19;95:4;96:24; 98:2,4 nerves (6) 95:17,20;109:13; 113:18,19;140:7 neuropathic (2) 94:1;97:24 neuropathy (15) 69:1;94:5,9,10; 95:12,16;96:22;98:5; 106:8;108:12;110:11, 16;111:5,7;123:1 New (10) 9:5;42:11;53:20; 59:11;99:8;132:1,12, 15,23;140:24 next (7) 44:3,8;46:7;92:5; 115:19;124:7;125:21 nice (5) 39:17;51:3,6;75:20; 103:4 night (2) 178:19,20 Nobody (2) 104:2,6 none (2) 69:19;127:15 Nonetheless (1) 57:16 non-reversible (1) 168:17 nonviable (2) 44:18;129:8 nor (1) 170:3 normal (10) 66:16;95:6;143:5,9, 19,23,25;144:14; 159:14;168:19 notation (3) 91:15,17;172:16 notations (1) 77:19 note (26) 43:1;44:7;45:4; 79:10;91:6,14;102:15; 119:2,19;135:18; 165:4,14,19,23,25; 166:4,10,12,14,18,21, 23;167:7,7,8;175:16 noted (1) 46:15 notes (21) 8:16;34:24;37:1; 39:19;40:9,12,23;41:3,</p>	<p>23;44:16;50:21;71:13; 72:10;90:23;91:3,16, 18;113:4;119:16; 166:22;172:15 Notice (7) 36:24;37:2,4,9; 143:17;144:16,17 notorious (1) 163:3 November (1) 46:8 nowadays (2) 14:9;21:8 number (14) 17:13,14;21:5;27:1; 31:6;37:23;54:14; 131:15;137:16;144:8, 9;160:7,9;168:16 numbers (7) 54:19;56:21;133:3,6, 13,21;160:10 numbness (3) 71:2,6;174:8 nurse (2) 26:20;44:10</p>	<p>occluding (1) 150:10 occlusion (19) 63:25;65:4,15;66:8; 67:8;81:17;83:1,13,21; 88:13;103:12;104:10; 112:24;145:18;147:6, 15;150:2,5;175:25 occlusions (1) 155:8 occlusive (3) 63:17;103:20,21 occurred (1) 95:17 occurs (1) 133:14 October (1) 33:13 off (51) 6:20;12:8;23:6; 27:13;36:14;41:15,16; 49:21;63:1;67:6;69:3, 5,19;73:2,3;74:8,22; 80:18,19,22;81:25; 82:2,8;84:13;86:10; 90:2;97:8;103:14; 114:1;117:8,13; 124:24;125:8,22; 126:2;127:12,13,18; 128:23;129:5;135:24, 25;155:12;159:1,7; 161:2;164:8,14,18; 168:11;174:14 offer (5) 10:20;104:3;119:23; 137:13;170:10 office (5) 33:5,7,16;42:16;91:6 officially (1) 22:16 often (1) 27:21 Ohio (1) 5:18 old (4) 13:9;156:10;162:2; 178:9 older (2) 15:4;155:11 once (4) 38:25;56:25;108:9; 156:1 one (84) 6:25;7:7;13:1,2,3; 17:8,13;18:23;21:5; 23:18,20,21,22,25; 26:16;28:16;29:9; 33:22;34:9;35:11,12; 36:4,12,14;42:20;43:5; 46:24;52:14;53:20; 55:24;56:22;58:18; 72:14;74:7;76:20; 82:17,21;92:21;</p>	<p>114:20;116:6;117:12; 118:5,7;119:25;121:7; 123:17;125:13,22; 126:4,17,19;127:2,4, 21;128:23;129:5; 131:19;132:1;133:15; 134:2,5,18;135:3,8,14; 137:13;140:17;142:1, 7;144:6,8;153:20; 160:7,16;161:24; 163:2,19;168:15; 172:8,9;174:9,14; 177:1;178:9 one-minute (1) 69:11 ones (3) 67:14,22;177:1 one-to-two-month (1) 62:2 ongoing (3) 40:7;138:23;146:20 on-going (1) 94:16 only (25) 15:2;23:22;24:17; 26:19;38:19;50:21; 51:17;53:19;62:12; 87:19;102:18;138:7, 10;139:6;144:19; 147:11,22;151:6; 153:12;161:24;163:2; 169:8;174:21;176:3; 178:15 onset (2) 140:24;163:7 onward (1) 128:15 op (2) 79:10;165:19 open (35) 47:16,19,20;50:7; 56:10;64:7;67:23; 69:24;83:15;93:18,21; 100:5;124:13;130:1; 131:2;136:17;143:21; 144:11;145:8,9,14; 146:5,8,10;150:24; 151:15;152:4,20; 153:14;154:25;155:1; 156:1,15;174:20 opened (6) 46:9;149:9;152:9,21; 156:16;170:2 opening (2) 102:15;151:9 opens (2) 124:9;156:2 Operate (1) 13:19 operated (1) 81:3 operation (4) 59:4;93:11;152:6;</p>	<p>156:15 operations (2) 108:13;109:1 operative (3) 165:13;167:7;171:23 opinion (79) 51:10;68:6;69:16; 71:19;73:6;93:18; 98:19;103:13,22; 104:3;106:18;107:9; 110:19;112:14;115:24; 116:20;117:6;118:24; 119:6;120:5,19; 121:17,20;122:3,10,18; 123:20;126:22;127:2, 14,21,25;128:20; 130:5;131:11;135:8, 12,13,14,16,17,18; 137:14;139:24;142:19; 143:7,9;144:1,24; 145:5;146:16;147:20; 148:14;149:3,19; 150:5,17;151:6;152:7, 11;158:22;159:10; 162:10,19;163:17; 164:6;167:11;168:3,4, 7;169:14,17,22;170:15, 18;171:18,18;172:4; 173:17 opinions (3) 22:4;51:1;170:9 opposed (5) 14:18;15:23;102:25; 128:25;148:23 order (1) 14:11 origin (4) 89:11,24;90:1; 100:19 others (1) 19:13 Otherwise (1) 6:11 out (50) 5:17,22;7:6;8:24;9:1, 4;10:16;18:6;20:4; 24:20;25:5;26:22,22; 27:2,10,19;36:3;38:24; 39:9;44:2,45:15;46:10, 12;52:18;53:20,22; 71:17;86:24;92:20; 96:10,15;104:25; 108:11;114:18;124:21; 128:8;129:11;133:8,9; 141:21;148:5;153:25; 154:14;155:7;156:7; 165:6,12;167:17; 174:13,13 outcome (2) 31:23;32:2 outdated (1) 21:4 outflow (33)</p>
O				
	<p>Oaks (1) 26:19 Object (13) 76:5;78:16;80:24; 90:8;102:4;108:22; 109:9,18;110:18; 131:13;141:11;164:17; 170:13 objection (8) 76:18;77:5;78:18,22; 81:7;101:19;165:1; 170:21 obstruction (6) 82:25;87:16;101:18; 128:3;144:14;145:10 obstructions (1) 164:5 Obviously (5) 26:8;47:6;130:18,21; 155:12 occasions (1) 29:13 occlude (2) 125:2,2 occluded (36) 57:14;63:24;64:4,8; 81:5;84:10;88:22,23; 93:14,17;101:9; 102:17,22;104:12,13, 14;114:22;115:1; 116:1,10,16,21,23,23; 124:23;129:24;143:12, 13,16,18;145:17; 146:11;147:4;150:10; 155:20;176:8</p>			

<p>79:9;80:3;82:25; 83:3,12,16;84:23,24; 102:19;120:16;128:11, 16;130:6,7,13,15,23, 24;131:1;145:5,6,14, 19;146:2,7,12;149:16; 152:12,17;155:18; 156:21;168:21;169:3</p> <p>output (1) 127:12</p> <p>outside (3) 62:5;63:17;152:17</p> <p>Over (30) 14:19,20;15:6,8,17; 16:4;24:18;25:8,18; 27:18;28:2;31:9,12; 45:14;61:4;80:21; 89:16;96:15;98:16; 100:17;120:23;124:21; 125:4,9;128:7;136:11; 154:18;169:23;170:10; 172:3</p> <p>over-broadening (1) 170:13</p> <p>own (5) 18:6;28:19;67:23; 68:3;158:3</p> <p>owner (1) 12:20</p> <p>oxygen (2) 113:18,25</p>	<p>120:2,4,6;123:6,17; 124:2,11,16;126:7; 131:21,22;132:3,3; 134:22;135:2;139:2; 140:6;142:3,16,17,20; 144:21;154:2;158:8; 173:4</p> <p>pallor (6) 97:19;142:4,8,9,11, 15</p> <p>palpable (2) 99:10,22</p> <p>palpate (1) 156:25</p> <p>paper (5) 24:6,10,19;25:1,2</p> <p>papers (4) 19:25;20:3,10,14</p> <p>paracardial (1) 46:10</p> <p>part (7) 14:13;21:21;75:20; 88:23;156:2,22;179:5</p> <p>partially (1) 103:21</p> <p>particular (2) 42:21;54:22</p> <p>partner (2) 16:8,11</p> <p>partners (1) 178:16</p> <p>passed (2) 9:24;111:24</p> <p>past (2) 14:17;99:18</p> <p>patch (3) 46:10;152:15;175:5</p> <p>patency (20) 52:7,12,13,21;53:25; 54:11,18,21;55:6,18; 56:3,8,14,16;57:11,18, 25;61:13;78:24;79:2</p> <p>patent (23) 46:20;47:12;59:10, 11,13;64:8,21;80:10, 12,13,15,16;86:14,16; 88:9;89:23;90:1; 102:18;104:17;105:6, 7;143:22;144:7</p> <p>patentcy (2) 52:14;60:19</p> <p>pathway (2) 104:19;117:15</p> <p>pathways (1) 66:11</p> <p>patient (24) 25:20;28:9;31:22,25; 57:4;59:5;73:7;101:4; 120:1;141:13;142:8; 147:20;148:15;149:3; 150:18;151:7;161:10; 162:11,19,24;168:1; 169:16;170:5;172:20</p>	<p>patients (4) 14:12;52:20;62:25; 141:8</p> <p>patient's (7) 67:20;137:4;144:25; 154:1,2;158:23;160:4</p> <p>pattern (5) 22:19,24;77:13; 128:5;144:10</p> <p>patterns (1) 8:3</p> <p>PAUL (3) 4:1,9;5:3</p> <p>pay (1) 39:15</p> <p>payment (2) 39:6;176:18</p> <p>pedis (10) 60:11;66:18,19; 99:24;143:12,13; 146:25;147:3;148:3,5</p> <p>pelvis (5) 59:23,25;60:2;63:13, 17</p> <p>pelvis-down (1) 40:15</p> <p>Pennsylvania (5) 5:8;9:8;28:10,13; 178:2</p> <p>people (22) 6:9;12:9;13:17; 39:14;62:17;73:11; 79:1;85:25;97:8; 108:14,16;111:6; 125:21,23;133:3,7; 163:6,11;168:5;178:8; 179:7,8</p> <p>people's (1) 58:15</p> <p>per (5) 36:5;44:8;77:18,18; 174:9</p> <p>percent (34) 15:7,12,13,15,16; 16:4,5;25:19;28:6; 31:1;52:16,23;54:10, 20,25;55:11,16,22; 56:6,12;61:15;73:22; 79:2,2;103:25,25,25; 104:2;121:24;157:25; 158:12;160:11,11; 163:18</p> <p>percentage (8) 14:16;15:8,22;25:16; 28:4;133:8;178:22; 179:3</p> <p>perception (1) 157:23</p> <p>percutaneously (1) 48:2</p> <p>perfect (2) 149:15;169:9</p> <p>perform (1)</p>	<p>19:11</p> <p>performances (1) 6:7</p> <p>performed (8) 46:13;58:13;59:22; 61:10;142:24;143:8; 144:2;165:23</p> <p>performing (1) 59:18</p> <p>perhaps (7) 36:17;47:9;72:2; 86:24;88:2;108:20; 109:4</p> <p>period (11) 25:25;31:9;38:20; 59:6;62:2;76:11;77:2; 79:14;92:8;109:7; 173:13</p> <p>periodically (2) 13:19,21</p> <p>periods (1) 76:25</p> <p>peripheral (9) 96:19;159:13,17,18, 24;160:8,16;163:7; 168:23</p> <p>permanent (1) 67:12</p> <p>permanently (2) 110:7,15</p> <p>peroneal (17) 44:13;46:24;55:19, 25;56:11;60:10;64:23; 66:13,15;67:4;100:2; 105:16;112:2,9; 114:12;145:8;174:19</p> <p>person (2) 39:8;75:5</p> <p>phantom (1) 46:7</p> <p>phlebitis (1) 161:15</p> <p>phone (1) 44:9</p> <p>photo (2) 42:18,21</p> <p>photograph (2) 35:12;36:5</p> <p>photographs (8) 34:10,12,25;35:7,13, 19;36:2;142:5</p> <p>photos (12) 34:23;42:14,19,21; 43:1,12,18;134:25; 135:2;137:12,15,17</p> <p>phrase (2) 88:7;145:23</p> <p>physical (1) 139:5</p> <p>physician (5) 10:13,14;156:25; 157:4,21</p> <p>picked (2)</p>	<p>27:20;146:24</p> <p>pickup (1) 147:3</p> <p>picture (11) 14:24;43:8;87:9; 118:13;135:4,10; 138:19;139:7;149:25; 174:11,15</p> <p>pictures (13) 43:21;51:14;65:25; 69:25;79:7;112:15,21; 135:12;138:1,3,9,9; 177:13</p> <p>piece (4) 53:6;56:11;58:6; 79:19</p> <p>pills (1) 124:16</p> <p>piss (1) 63:1</p> <p>Pittsburgh (3) 5:14,17;12:18</p> <p>place (5) 50:20;59:25;116:14; 153:12;155:2</p> <p>placed (1) 49:19</p> <p>plaintiff (4) 25:16;28:5,7;178:1</p> <p>planning (2) 22:3;92:5</p> <p>plantar (25) 56:17,19,20,23; 57:10,18,21;58:1,6,19; 60:12,15,16;61:6; 65:18,22;66:6,22; 69:21;70:15;105:3; 112:6;145:11;147:17; 148:12</p> <p>plantars (2) 61:8;64:25</p> <p>plaque (15) 81:24;84:9;85:1,12, 18,19,23;86:1,2,3,7,10, 12;87:18;102:9</p> <p>plaquing (3) 63:22;86:21;93:6</p> <p>platelet (2) 162:1,8</p> <p>platelets (3) 162:7;168:17,19</p> <p>play (3) 85:16;151:20;168:11</p> <p>played (2) 74:21;164:8</p> <p>plays (2) 85:12;164:7</p> <p>please (1) 115:13</p> <p>plug (1) 156:6</p> <p>Plus (6) 29:19;74:16;85:1;</p>
P				
<p>PA (2) 32:14;42:11</p> <p>pacemakers (2) 11:5,8</p> <p>pack (1) 174:9</p> <p>package (1) 24:12</p> <p>packs (1) 77:18</p> <p>page (14) 4:20;7:10;36:11,19; 39:23;40:3,12;41:24; 91:9;165:18,21;166:1, 7;172:15</p> <p>pages (3) 6:23;35:8;39:19</p> <p>paid (4) 38:7,16,25;39:8</p> <p>pain (76) 42:11;46:7;69:6; 71:1;93:22;94:2,3,4,14, 17,20,21,22;95:4,5,11; 96:13;97:9,10,11,12, 12,14,19,20,23,23,25; 98:1,3,10,11,14;109:5, 12;113:11,14,19,20; 118:21,21,22,25;119:7, 8,10,11,12,15,17,21;</p>				

139:16;157:6,17 PM (2) 36:12;179:20 point (26) 14:25;34:9;62:19; 68:13;70:23;76:14; 86:24;94:23;95:2,21; 96:23;114:3;116:23; 121:25;123:18;124:13; 129:19;155:4;159:3; 165:3,14,17,18;173:6, 21;179:15 points (3) 20:25;21:1,10 poor (4) 75:8;94:11;113:15; 168:20 poor-quality (1) 119:19 pop (1) 83:9 popliteal (29) 44:12;46:14,17,22; 60:8;64:7,23;80:16; 82:12;91:24;105:1,2,6, 10,14,15;117:22; 121:12,14;136:16; 144:12;145:7,15,16; 146:13;151:15;157:1, 5;175:8 popliteals (1) 151:3 positive (2) 74:6;157:4 possess (1) 37:20 possibilities (3) 117:12;118:6,8 possibility (3) 114:17;123:23; 134:17 possible (7) 45:17;102:18; 108:12;111:8;156:11, 18;171:16 posterior (33) 44:13;47:1,3,11; 57:12;60:10;63:25; 64:24;65:2,7,16,19,21; 66:4,7,23;67:1,5,11,16; 99:24;100:3;105:11, 16;112:6,10;114:13; 145:9;147:4;148:11; 174:19;175:11,18 post-ischemic (1) 111:6 Postoperatively (1) 175:10 posttibial (1) 145:18 potential (2) 122:2;148:19 Potentially (2)	7:15;161:6 power (1) 141:22 practice (21) 6:1;10:24,25;11:11, 20;12:4,6,12,16;14:14, 16;15:9,16,16,19,22; 17:21;29:18;31:2; 178:22;179:3 practicing (1) 16:15 practitioner (1) 10:10 pre-clot (1) 176:13 predating (1) 120:12 predict (1) 124:17 predispose (2) 161:13,16 predominant (1) 62:13 premature (2) 161:20;163:12 premise (1) 164:17 preoperative (1) 151:19 preoperatively (1) 129:10 preparation (2) 7:20;21:22 prepared (1) 37:25 presence (1) 160:19 present (4) 43:3;166:15,23; 167:9 presentation (1) 8:23 presentations (2) 7:5;8:17 presented (1) 25:1 press (1) 6:20 pressure (3) 75:19;144:17;174:6 pretty (13) 21:9;22:17;24:9; 51:13;61:14;65:9; 129:8;149:11;151:3; 154:5,13;158:21,25 prevent (1) 45:17 primary (5) 13:5;52:12,14;54:15, 16 printer (2) 36:4,4 printer's (1)	34:23 printing (1) 35:11 printout (1) 35:19 prior (10) 15:1,21;17:3;47:7; 49:18;50:10;51:3;69:1; 152:22;168:10 privileges (1) 13:14 probable (1) 171:16 probably (69) 9:4;14:25;15:5,6; 16:4,5;21:4,7;25:8,19; 27:11,17,23;28:8,14; 29:14;30:10;31:6,12; 33:6;34:18;38:21;40:4; 42:10;45:18;47:24; 52:16,23;54:10,24; 55:9,10,16,21;56:5,19; 60:25;61:11,14;62:19; 79:9;83:21;85:19;87:1; 91:17,23;92:23;99:19; 100:20;101:12,13; 103:16;113:6,11,4,5; 122:1;131:1,15; 137:19,24;145:25; 149:18;150:16;152:15; 159:1;168:5;174:18; 177:23,24;178:18 problem (30) 8:5;24:21;63:5; 70:17;74:12,19,19,24; 80:4;88:4;95:21;96:23, 24;98:5;100:15; 107:14;114:17;115:20; 125:7;129:15,23; 130:6,7,17;131:6; 151:13;155:21,22; 162:8;176:22 problems (18) 13:17;72:11,12; 83:13,16;95:13,15; 107:11,21;128:6,11,16; 130:25;134:6,6;164:5, 24;169:23 procedure (6) 47:22;48:20;51:21; 59:1;68:7;92:6 procedures (8) 15:20;19:12;58:14; 59:18,21,22;60:20; 61:9 process (3) 24:5;125:3;150:10 professional (3) 4:13;5:6;37:15 profile (1) 163:16 Profound (1) 44:16	profunda (44) 46:11;80:13;86:14; 87:14;88:9,12,21; 89:12,14,21;100:16,18, 18;104:14,24;105:8, 13;114:24,25;116:13, 19;117:20;118:10,17; 120:7,10;121:12,14; 130:3;136:15,20,21; 146:12;149:12,16; 150:6,6,9,15;151:9,15; 152:13,16,20 profundus (8) 100:7;101:7,18; 102:1;103:9,13,19; 104:5 profusion (2) 140:3,6 prognosticator (3) 75:8;168:22;169:6 program (1) 150:25 progress (1) 154:4 progressed (1) 82:1 progressing (2) 130:22;173:15 progression (4) 62:20,21,22;76:10 progressive (3) 84:14;89:1,2 project (1) 20:6 pronounced (1) 5:9 Prospectively (2) 157:13,18 protein (1) 163:22 protocol (1) 97:5 protocols (1) 97:4 proud (1) 25:2 prove (1) 116:6 provide (2) 83:2;118:1 provided (2) 6:15;50:24 proximal (7) 62:9;70:17;82:10; 88:23;100:13;101:7; 175:3 PT (10) 67:22;68:8;112:3,22; 146:24;147:11,14,15; 148:2;174:13 PTFE (3) 45:13;53:11;175:9 publications (1)	37:18 published (2) 20:10;24:11 pull (1) 156:7 pulling (1) 165:6 pulmonary (1) 161:15 pulse (17) 91:23;99:10,22; 100:3,4,5;117:11; 129:15,25;148:6,9,11, 12;157:20;158:1,2; 174:10 pulses (12) 97:18;148:3;157:5, 14,16,24;158:3,6,10, 20;175:11;176:2 Puntil (1) 28:17 pure (2) 176:21,22 purple (2) 157:13;158:19 purpose (1) 172:2 purposes (4) 4:10;30:5;90:13,19 pursuant (1) 4:9 pushes (1) 98:15 put (29) 14:12;24:12,20;40:6; 47:7,19;48:16;53:19, 23;55:21;56:11;58:6; 69:21;78:23;87:9; 104:8;114:10,19; 115:23;116:7;133:18; 150:12,24;151:13; 152:18;153:1;156:5; 174:17,25 puts (2) 123:6;132:1 Putting (1) 133:6
Q				
			qualifications (1) 37:15 qualified (1) 119:23 quality (1) 34:20 questionable (1) 45:15 quickly (3) 124:24;154:5,13 quit (12) 76:7,8,20,25;77:10, 20,21;109:21,23;110:5,	

5;174:10 Quite (1) 27:7 quote (1) 167:8 quoted (2) 58:11;79:1	reasonable (1) 120:20 reasons (2) 131:5;168:15 recall (1) 53:19 receive (2) 69:18;176:18 received (2) 39:11;69:24 receiving (2) 65:1;66:3 recent (3) 8:22;32:25;33:2 recently (2) 12:12;92:17 Recess (2) 69:13;135:21 recollection (2) 177:10,14 reconstitute (1) 104:25 reconstituted (2) 65:8;105:3 reconstitution (3) 65:17,19,23 record (9) 8:4;23:7;33:7;41:22; 73:2,4;85:21;109:20; 172:24 recorded (1) 44:10 recording (1) 23:5 records (44) 32:12,12,19,21; 33:10,12,14,15,16,18, 19,20,24;34:3;37:24; 38:6,11;40:4,6,23;41:9, 15;44:4;48:8,25;51:17, 23;61:16;65:14;71:17; 72:13;94:25;109:12; 110:4;142:5;172:20, 22;173:1,6,7,9;176:22; 177:4,11 recreate (1) 38:16 red (5) 140:17;162:4,8; 163:1,4 reestablish (1) 130:2 refer (4) 111:17;113:5; 158:24;176:9 reference (2) 87:14;91:4 referenced (1) 48:25 referred (1) 169:16 referring (10) 42:18,20;62:22;70:5;	82:6;117:3;136:5; 137:17;138:22;161:6 reflect (1) 4:7 regard (1) 48:9 regarding (1) 173:12 regular (1) 162:2 regulated (1) 45:8 relapse (1) 76:20 relate (1) 141:12 related (1) 176:5 relation (2) 48:19;49:17 relative (2) 89:16;133:9 relevant (5) 7:2,2,6,12;8:24 reliable (3) 20:20,22;23:16 relieved (1) 97:14 rely (4) 22:3,6;39:16;51:14 relying (4) 39:10;172:22,23; 173:1 remained (1) 12:6 remember (19) 26:20,24,25;27:5,8; 29:8;34:5;42:24;43:7; 45:2;49:2;65:14;70:25; 71:12,15;88:19;91:3; 96:21;130:12 remind (1) 43:25 render (1) 50:25 rendered (2) 37:25;90:6 rendering (1) 51:10 Rene (1) 175:24 reopened (1) 67:15 repair (2) 47:25;92:10 repeat (4) 4:17;22:22;36:21; 81:1 rephrase (5) 4:17;21:17;32:21; 53:18;117:1 report (10) 40:25;52:4;65:6;	81:13,15,16;87:10; 89:20;110:20;160:9 reporter (1) 23:2 reports (3) 28:11;51:7,12 represent (1) 4:12 re-put (1) 103:15 requested (1) 37:10 require (4) 82:3;83:5;91:24; 92:9 required (4) 39:17;82:22;94:15; 100:25 requires (1) 141:9 research (8) 19:20,23;20:6,8,10; 97:4,5;123:14 residency (2) 9:12,14 resident (1) 178:9 residents (3) 17:10,13,16 rest (26) 15:18;69:6;71:1; 82:2;93:23;94:3,14,16, 20,21,22;95:4,11; 96:13;118:21,22,25; 119:6,10,11,13,17; 120:2;123:17;124:10; 163:3 restore (2) 149:11;169:2 restored (2) 149:15;152:17 restoring (1) 151:14 result (8) 44:22;49:11;92:25; 93:1;94:11;115:3; 142:21;144:21 resulted (1) 72:21 Retrospectively (1) 157:18 return (1) 26:21 reversible (2) 67:24,24 reverts (1) 118:12 review (11) 21:21;25:12,22; 31:20;34:7;48:7;51:17, 18;90:9,22;110:22 reviewed (26) 7:17;21:11,20;23:8,	10;24:9,16,18;25:7,17, 18;26:4;27:6,10,11; 28:13;32:3,9,22;34:12; 36:23;39:13;41:16; 51:19;63:6;173:22 reviewing (2) 24:3;176:20 reviews (1) 178:1 rhabdo (1) 175:13 rhabdomyolysis (4) 94:5;95:19;132:14; 175:14 Right (110) 25:24;43:4,5,10,19, 20;44:11,17;45:10,11, 12,14,14;46:5,6;63:14, 18;64:11,12,17;65:7, 16,17;66:6;67:11; 69:17;71:9;80:20;82:4, 9,18;83:9,17;86:21; 87:15,18,19;88:9; 93:23;94:14;95:9; 99:16,17;100:8,13; 101:7;102:19;104:20; 105:12;106:5;107:7; 108:7,10;111:12; 112:2;113:3,3;115:9; 117:4,8,25;118:2,2,9; 120:22;121:4,21; 122:12,14,19;124:25; 126:23;127:17,24; 129:12;132:4,22; 133:25;134:1,5,7,9,15; 143:1;145:20;146:2; 150:6,22;151:25; 157:4,6,14;158:2,20; 165:21;166:4,5,22; 168:21;172:6,6,12,17; 174:5,16;175:3,8,12; 176:4;179:14 rises (1) 110:21 risk (6) 52:22;75:11,12; 78:13,19;159:2 RITE (1) 89:21 River (1) 5:19 road (1) 75:8 role (8) 74:21;85:12,16,20; 151:20;164:7,8;168:11 R-O-M-I (1) 26:21 Room (3) 33:20;45:3;158:15 roughly (1) 12:1 Royal (1)
--	--	--	--	---

26:19 rubor (19) 42:14;43:3;106:23; 107:3,5,9,12,13; 126:15;132:24;133:10, 24;135:7;140:9,12,13; 141:8,14,17 ruborous (3) 134:4,10,14 Rule (3) 26:22,22;128:8 ruled (1) 108:11 Rules (1) 4:11 run (4) 105:15;127:20; 148:25;174:14 runoff (4) 46:18;47:2;112:2; 151:4 runoffs (1) 46:15 run-of-the (1) 163:4 runs (1) 18:12 rupture (6) 85:1,13,18,19,23; 86:2 ruptured (2) 81:24;102:8 Rutherford (10) 23:9,19,25;99:2,3,5, 7;131:10,17;158:13 Rutherford's (8) 21:3;22:7,10,13; 23:14;44:14;97:6; 129:18	44:6;137:5,10,19,23, 25;138:5,15;139:12; 149:18 same (27) 4:20;11:11;30:22; 34:16;36:13;40:22; 53:13;54:25;58:19; 60:25;63:9;76:17;77:4; 78:21;81:6;83:18,23; 88:12;117:21;124:13; 127:1,5;131:14;145:4; 164:25;166:6;172:3 Sandhu (1) 19:7 S-A-N-D-H-U (1) 19:7 save (1) 45:16 saw (4) 48:25;90:24;104:6; 132:7 saying (11) 24:10;49:2;71:13; 77:8,10,19;88:14; 91:22;92:23;110:5; 148:4 Scale (6) 22:7,10,11,14;23:19, 25 scan (2) 33:22;46:2 scanned (1) 144:11 scar (1) 49:16 scaring (1) 49:4 scarring (3) 48:2;49:6,20 scars (1) 158:8 scenario (2) 115:23;146:10 schedule (1) 17:18 schematic (1) 40:14 School (2) 9:9;19:4 scientific (1) 37:17 scribbled (1) 40:5 second (9) 26:9;36:12;40:12; 44:19;71:22;90:9; 137:6;138:11;157:2 secondary (2) 52:13;54:18 section (1) 83:22 seeing (5) 34:5;69:25;89:8,9;	112:15 seem (2) 35:8;72:11 seemed (4) 8:6;74:23;95:1; 107:15 seems (2) 6:23;36:12 segmental (1) 112:24 selective (1) 32:12 send (3) 38:6,24;73:12 sends (1) 39:9 sensation (4) 132:11;148:16; 157:16;158:21 sense (2) 25:15;92:2 sensorimotor (5) 42:12,12;137:21; 152:2;154:3 sensory (11) 97:21;98:11,14; 131:16,23,25;132:7,12, 15;138:14;151:22 separate (1) 30:18 sequence (2) 114:19;116:8 sequences (1) 114:11 series (1) 4:14 service (1) 25:13 services (1) 25:10 set (1) 25:4 seven (1) 168:18 severe (10) 63:19;72:20;73:18; 75:23;83:19;97:16; 110:8;111:19;159:23; 169:10 sew (2) 79:19;85:2 sewed (1) 131:3 Sewickley (15) 5:7,11;11:6,9,19; 13:7,8,9;14:7,13;17:22, 24;18:9;58:17;61:19 SFA (8) 80:10,20,21;81:8,9; 93:14;174:13,20 sheer (2) 133:2,6 sheet (1)	140:16 shift (1) 16:2 shingle (1) 14:12 short (10) 53:23;76:11,25;83:3, 10;92:8;112:24;162:5; 173:13;174:25 shortcut (1) 96:5 shorten (2) 160:24;161:4 shortly (1) 134:20 short-term (1) 96:11 shot (2) 119:4;156:17 show (7) 17:14;43:18,18; 72:13;104:9;149:25; 173:22 showed (5) 19:25;42:14;94:8; 95:3;172:20 showing (1) 123:2 shown (1) 74:13 shows (1) 157:25 shut (7) 104:15;116:11,13, 14;120:14;130:8,11 sic (2) 81:4;92:12 side (3) 64:3;100:14;174:21 sides (2) 87:21;116:24 sign (12) 79:25;81:20;84:1,14; 88:25;89:2;107:14; 108:3,17;140:6,9; 142:18 signal (3) 146:24;147:6;175:19 signals (4) 98:13;147:8,23; 148:13 Signature (1) 179:18 significance (5) 91:5,15;92:7;135:5; 167:2 significant (21) 71:6;76:2,14;78:13; 81:23;85:12,16;101:6; 107:14;108:3,6; 127:15;128:9,11,14,16; 139:2;159:24;160:5, 20;170:4	signs (2) 96:14;132:7 similar (3) 24:16;28:6;48:8 simply (1) 138:25 single (1) 178:11 sit (2) 17:19;172:10 sits (2) 154:6,16 situation (7) 70:1,4,4,6;124:15; 125:15;148:21 six (6) 17:19;119:3;146:21; 148:1;155:14;172:24 six-days (1) 147:1 sleep (1) 178:19 slice (1) 18:6 slow (4) 7:23;22:25;27:19; 125:3 slowed (1) 30:25 slower (1) 8:11 slowing (1) 22:21 slowly (2) 41:22;174:4 slows (1) 23:3 SMA (2) 81:4,8 small (3) 63:24;78:5;128:19 smaller (2) 66:5;127:22 smoke (5) 76:14,21;77:11,23; 159:5 smoked (1) 77:1 smoking (11) 75:14,22;76:7,9; 77:13,22;85:12; 109:17,22,23;110:3 sneak (1) 13:20 snuck (1) 77:9 Society (2) 63:2,7 sole (1) 12:20 solo (3) 11:16;12:3,6 Solow (3)
S				
sa (1) 169:2 Salter (2) 30:2;31:17 Salter-Ferris (46) 26:8;28:23;30:9; 31:18;34:14;36:6;38:8; 54:2;55:23;60:21;76:5, 17;77:4;78:16,21; 80:24;81:6,12;87:4,6, 23;90:7,17;92:14; 93:24;98:22;100:24; 101:19;102:3;108:22; 109:6,9,18;110:17; 115:8,12;131:12; 141:11;164:16,25; 166:8,11;167:4;170:6, 12;179:16 salvage (3) 68:13,14;149:7 salvageable (10)				

16:12,15;178:10 S-O-L-O-W (1) 16:12 somebody (8) 13:21;16:5;58:4; 67:18;77:20;163:15; 168:25;169:12 somebody's (2) 15:13;98:4 someone (5) 62:14;73:10;75:1; 96:7;158:7 sometime (2) 71:10;92:1 sometimes (7) 50:5;62:25;85:24; 86:2;97:19,19;154:6 somewhere (4) 31:7;55:21;87:10; 91:2 sooner (2) 31:22;32:1 sorry (34) 6:13;7:21;9:2;11:14; 22:10;28:8;29:5;31:24; 33:3;37:23;41:15;47:9; 53:9;55:23;56:3;57:7; 58:16,17;60:13;61:4; 62:7;70:8;79:13,23; 81:1;82:13;92:15; 98:22;105:9;111:15; 116:25;117:1;122:6; 130:13 sort (18) 40:6;49:20;63:16; 73:13;75:15,17;76:9; 77:8,11;79:9;82:15; 97:2;100:16;105:20; 114:19;154:16;161:20; 163:13 sorts (4) 34:10;56:9,13; 105:24 source (4) 46:3;120:21,24; 121:3 south (1) 7:24 sown (1) 84:22 speaker (1) 7:24 speaking (6) 48:15;50:16;98:12; 100:5;125:6;151:14 speaks (1) 74:11 specialties (2) 10:17;14:10 specific (7) 51:7,12;113:16; 122:17;137:15;139:4; 157:2	specifically (9) 21:23;26:12;42:24; 43:7;45:4;51:2;136:6; 173:7,8 spectrum (1) 75:4 speech (3) 8:2;22:19,24 spent (3) 38:12;176:20;177:21 splice (1) 65:24 St (3) 32:19;33:16;177:2 stack (2) 160:10;176:22 staff (1) 18:22 stages (1) 96:9 standard (3) 10:20;51:21;119:23 standpoint (5) 90:22;107:10,13,16, 22 stapled (2) 34:22;36:2 start (12) 41:21;61:4;63:15; 64:17,17,19;80:20; 81:23;130:16;131:3; 152:23;153:13 started (8) 15:2;24:5,22;27:19; 44:1;139:8;145:15; 171:15 starting (6) 20:24;21:1,10;63:13; 92:18;151:23 starts (3) 123:17;124:19; 129:15 state (13) 26:4;27:2;73:8,20; 74:1,10;161:9,10,22; 162:25;163:20;164:11; 167:3 stated (1) 101:14 statement (5) 85:10;133:5;138:11; 167:2;171:21 states (3) 27:9,12;161:12 statin (2) 75:15;159:4 stationed (1) 18:24 statistics (2) 73:21,22 status (5) 100:7;104:4;107:2; 110:2;112:22	stayed (2) 59:10;124:12 Stays (1) 124:16 stenoses (1) 63:19 stenosis (9) 47:18;49:5;63:18; 84:5,25;155:10;156:2, 4;160:5 still (10) 13:9;16:15;20:9; 96:21;100:1;138:16; 146:17;147:25;148:24; 151:3 stop (5) 42:17;44:19;168:8; 178:4,6 stopped (4) 6:5;11:7;14:23; 75:15 straight (2) 108:25;154:8 Street (1) 5:7 strictly (1) 6:2 stricture (1) 50:11 strike (2) 119:22;129:9 struggle (1) 158:10 stuck (1) 125:24 studies (3) 34:4;171:22;177:7 study (2) 44:23,25 stuff (3) 15:5;75:20;156:7 stunned (1) 23:4 stupid (1) 13:24 substantially (1) 77:21 suburb (1) 5:14 succeed (1) 57:1 success (1) 58:10 successful (1) 21:19 sucked (1) 113:25 sudden (2) 87:21;97:3 suffered (3) 127:17;128:1;169:18 sufficient (4) 117:24;118:1,20;	128:15 suggest (2) 128:5;167:12 suggests (1) 89:20 summarizing (1) 37:14 summary (1) 175:13 superficial (13) 44:12;63:23;64:6,23; 82:11,19;83:4,19;93:7, 8;118:17;161:15;175:4 superior (1) 105:23 supply (2) 94:11;111:11 supplying (4) 64:10,11,16,21 support (3) 22:4;135:14;137:13 sure (63) 8:12;9:4;20:13; 23:24;31:5;32:10;33:8; 36:21;37:1,11;38:23; 39:16;53:12;64:14; 65:5,9;66:14,18,22; 67:8,13;69:12;70:20; 75:14,15,16,18;78:5; 81:2;94:20;96:20;98:8; 101:2;104:11,11; 106:15;109:2;111:7; 112:19;113:9;115:7; 117:10,16;118:5; 121:16,23;124:24; 127:21;128:8;134:11, 17;137:8,11;138:17; 141:3;143:23;144:5; 151:5;155:1;171:17; 172:1;173:19;177:3 surgeon (15) 5:20,25;16:18;19:1; 22:9;46:15;49:10; 82:24;102:24;149:4; 150:18;158:11;169:17; 170:17;171:5 surgeons (9) 11:21;12:10;14:11; 16:2;18:21;19:10,17; 51:13;63:3 surgeries (2) 19:22;50:10 surgery (57) 6:2,3,5,12;9:12,15, 18;10:4,5;11:4,4,7,8, 9;12:13;13:20;14:23; 15:19,23,23,24;16:3; 19:19;21:3,6;22:8; 23:9;32:14;33:19; 70:13,22;71:22;72:17, 22,24;76:13;80:10; 88:8;102:1;110:22; 129:11;151:8;152:22;	164:14,22,24;165:7; 170:2;178:6,17,21,23; 179:6,9,11,12 Surgical (5) 11:19;12:19;20:17; 141:10;154:9 surprise (2) 110:14;160:12 surprised (2) 111:2;167:20 surprisingly (1) 155:25 surveillance (2) 54:9;150:24 swelling (11) 108:6,10,10,13,15, 16,20;126:9,10,12; 134:6 sworn (1) 4:3 symptom (1) 142:17 symptomatic (2) 106:13;123:3 symptoms (16) 42:8;69:9;106:21; 119:2;122:20;123:3; 137:7;138:12,22; 140:10,23;142:12,16; 151:22;154:2;156:14 syndrome (5) 162:16,21;174:10; 175:20,23 synthetic (1) 53:3 System (3) 33:23;40:16;113:2
T				
				table (1) 158:1 tables (1) 158:25 tad (1) 28:8 tagalong (1) 161:20 talk (4) 8:10;113:8;133:7; 161:8 talked (8) 45:9;61:2;95:11; 122:25;128:17;131:5; 146:14;148:7 talking (32) 15:20;44:15;53:4,8; 59:24;60:4;61:1,20,21; 68:17;70:9;71:25; 76:12;77:16;80:19; 87:6,19,20;88:15;97:7; 105:10;107:6;109:7; 124:25;139:1;145:21;

161:14;164:19;165:10; 166:24;168:9;171:4 talks (1) 118:14 tamponade (1) 24:8 tarsal (3) 60:11;69:23;100:4 tax (1) 39:3 taxes (1) 39:15 Taylor (1) 28:19 teach (1) 17:10 technical (1) 37:18 technique (1) 47:20 telling (2) 38:17;76:21 ten (15) 14:17,19;15:6,8,17; 25:4;52:18,24;55:12, 17;56:4,5;88:17;89:17; 178:18 tend (2) 161:23;163:8 tended (1) 17:14 ten-year (2) 54:21;56:14 term (3) 49:7;89:16;117:2 terms (10) 7:1;10:23;12:22; 24:2;27:15;29:10; 57:17;144:25;145:4; 167:2 test (1) 154:24 testified (4) 29:21;30:12;76:7; 171:11 testify (1) 137:15 testimony (7) 10:20;30:1,16;63:6; 119:24;128:10;172:19 testing (1) 104:7 tests (1) 123:14 textbook (6) 20:19;21:2;22:1; 23:9,10,24 textbooks (1) 21:12 that' (1) 169:2 therapy (1) 149:10	therefore (2) 68:10;146:19 thigh (3) 48:5;104:25;143:20 thinking (2) 23:21;93:10 thinner (1) 75:17 third (3) 25:20;36:13,19 THOMAS (8) 55:2,4;87:2,5; 119:22;170:20;171:10; 179:14 thoracic (6) 11:4,8;15:24;179:5, 8,10 though (2) 26:24;109:1 thought (16) 17:16;26:23;48:3; 53:15;71:6,16,24;83:2; 91:8;109:22;114:7; 115:14;123:16;133:15; 168:6;177:11 thousand (1) 22:19 threatened (1) 67:20 threatening (1) 122:8 three (21) 6:6;11:2,6;26:3; 33:24;34:1,8;35:19; 36:2;59:15;77:9,11; 88:12,14;91:22; 125:19;132:5;137:2; 143:17;163:10;168:9 three-and-a-half (5) 6:6;11:3,6;15:21; 16:9 three-lane (1) 125:18 thrombectomy (6) 45:10;54:18;149:10; 167:22;175:4,7 Thrombocytopenia (1) 162:16 thrombocytopenic (1) 162:20 thrombolysis (1) 171:23 thrombosed (1) 85:1 thrombosis (2) 108:11;161:14 thrombus (3) 166:15,23;167:9 tibia (2) 66:23;151:4 tibial (48) 44:13;47:1,3,11; 57:12,12;60:9,10;	63:24;64:1,7,24;65:2,7, 16,19,22;66:4,8,17,20; 67:1,2,3,5,10,11,17; 99:24;100:3;105:11, 16;112:6,10;114:13; 143:15,18;145:9,17,18; 147:5;148:11;151:2; 169:10;174:19;175:11, 12,18 tie (1) 30:11 timed (1) 43:1 times (7) 50:2;108:14;154:5; 155:24;156:16;167:23; 178:24 timing (1) 151:24 tissue (2) 49:16;139:19 today (5) 4:15;6:16;32:5; 37:21;38:8 toe (2) 57:4,9 toes (6) 97:13;107:17,20,25; 108:2,3 together (9) 34:22;36:2;40:6; 103:15;114:10,19; 115:23;116:8;150:13 told (3) 121:7;152:25;163:10 Toledo (5) 33:11,12,13,14; 174:6 took (2) 46:10;170:18 top (10) 39:23;40:13;100:17; 105:13;129:3;130:14; 153:14;155:23;156:6; 174:5 Topaz (1) 171:22 total (1) 83:20 totally (7) 64:4;103:20;110:7, 15;124:23;140:18; 144:15 toward (1) 49:20 town (1) 14:3 TPA (30) 67:15,16;101:16; 151:17,18,19,19,24; 152:3,8,18,19,24; 153:2,4,8,21;154:5,10, 17,18;155:1,4,16,24;	156:9;171:12,13,19; 175:6 tractor (1) 125:19 trailer (1) 125:19 train (1) 115:14 trained (1) 179:8 training (3) 10:25;17:6;20:4 transferred (1) 45:4 transition (1) 138:18 Trauma (3) 18:17,19,20 travel (1) 29:19 treated (4) 31:22,25;94:2; 150:18 treatment (4) 32:24;90:6;146:20; 149:5 tremendous (1) 120:15 tremendously (1) 168:16 trial (5) 29:11,15,23;30:1,5 trials (1) 29:10 tricks (1) 56:10 tried (1) 67:18 triphasic (1) 144:12 trucks (1) 125:20 true (5) 9:4;83:23;133:4; 141:15;147:19 truly (1) 140:8 try (6) 16:2;21:7;27:12; 115:23;158:1,9 trying (14) 21:18;24:20;31:5; 44:2,4;83:15;92:2; 103:3,15;114:10,18; 116:7;150:12;172:2 turn (1) 124:15 turns (1) 65:22 twice (1) 13:16 two (34) 4:12;17:15;19:13;	20:5;35:8,13;39:19; 46:14,18,19,21,23; 48:15;59:14;62:5;64:8; 67:21;88:17;89:17; 97:4;108:21;121:7; 123:15,19;144:6,9; 154:3;160:7,9;161:6; 168:15,16;176:15; 178:8 two-thirds (2) 25:19;28:6 type (14) 18:13;40:7;68:7; 94:7;96:16;97:24,25; 98:3;101:21;107:21; 110:20;161:17;175:2; 176:11 types (1) 161:23
U				
UCLA (1) 154:23 ulceration (3) 69:7;96:14;132:8 ulcering (1) 169:1 ulcers (1) 169:11 unable (1) 109:4 Unbeknownst (1) 24:11 uncover (3) 50:20;152:19;155:24 undeniably (1) 49:9 under (11) 4:10;37:12;38:20; 45:12,15;65:15;73:11; 91:9;130:4;163:15; 179:11 undergo (1) 170:1 undergone (2) 149:6,7 undergrad (1) 9:8 understood (2) 4:20,25 underwent (1) 92:10 unfortunate (1) 125:22 unfortunately (1) 95:21 uninitiated (1) 167:15 University (1) 9:7 Unless (9) 38:18;41:5;50:4;				

67:20;92:17;128:19; 136:16;141:12;167:19 Unlike (1) 125:10 unlikely (2) 155:14;156:12 unmistakably (2) 49:8;158:6 unusual (3) 24:7;129:9;130:4 up (50) 6:7;8:19;9:5;11:2; 24;13:16,18,19;14:12; 17:14;21:25;22:20; 27:20;28:18;34:19; 45:23;52:16;57:5,8; 64:18;70:13;76:12,14, 22;99:8;114:1;118:5, 15;124:9,13;129:3; 130:14;146:24;149:9; 151:7,9,18;152:1,4,9; 156:1,2,5,15,16; 160:10;166:20;167:20; 168:5;171:23 UPMC (1) 18:7 upon (1) 110:19 upper (2) 153:19;176:14 up-to-date (3) 6:19,21;10:8 Urgent (1) 148:23 urgently (1) 149:2 use (13) 53:1,2,2,16,17; 54:17;56:10,13;89:18; 97:4;123:14,15;132:7 used (6) 28:16;49:7;53:6,14; 61:17;154:23 using (10) 34:16;52:8;54:4,8; 55:7,14,19;56:2,8; 117:2 Usually (26) 23:2;27:7;40:7;48:1, 17;50:15,17;62:4;72:1; 82:16;95:4;97:12,18, 23;103:5;107:13; 130:2;150:1,13;151:2; 156:4,6;157:15;162:7; 175:25;176:23	variable (4) 54:19;96:16;98:1; 154:12 variables (1) 154:20 varies (2) 15:11;27:23 variety (1) 85:5 vascular (52) 5:20;6:2,11;9:18; 10:4;11:4,5,9,21; 12:12;14:11;15:15,23; 16:4,6;18:21;19:1; 21:3,6;22:8,9;23:9; 32:13;33:19;40:14,16; 51:13;63:3;69:1;94:9; 96:19,23;102:24; 110:22;120:13;141:9; 142:24;149:4;150:18; 158:11;159:17,19; 160:8,16;169:17; 170:17;171:1,4; 178:17,23,25;179:2 vein (15) 13:17;14:7,10,13,17; 15:1;46:14;52:9;53:2; 55:1,7,19;56:18;57:19; 161:14 venous (3) 24:8;74:12;134:15 veins (6) 6:12,14;11:10;14:14; 15:2;50:14 venous (6) 107:11,20;134:5,9; 135:9;141:17 versus (6) 25:16;28:5,7;34:20; 133:22;172:11 vessel (12) 46:15,18;70:18;82:2; 84:22;92:19;102:11, 17;103:3,5;154:25; 174:14 vessels (9) 46:19,21;64:8;66:5; 85:25;143:17;146:14; 149:17;151:3 via (2) 104:24;105:16 viability (1) 118:2 viable (2) 139:24;147:25 video (1) 30:4 view (2) 118:7;132:16 Virginia (1) 178:10 visit (1) 156:23	Vitae (1) 37:14 volume (2) 133:8,9 W W-2 (2) 39:4,7 W-2s (1) 38:18 wait (4) 129:20;153:24; 166:11,12 waiting (1) 17:19 waived (1) 179:18 wake-up (2) 159:3,22 walk (4) 70:24;71:5,13;109:4 walking (4) 68:25;95:10;109:14; 174:7 walks (1) 42:13 wall (1) 125:10 wants (1) 13:21 warning (1) 75:13 wars (1) 18:6 waste (3) 17:11,12,20 waveform (2) 144:13,15 way (35) 7:7;38:5,15,21; 40:22;48:6;52:5;63:9; 72:14;75:10;80:6; 104:3,10;105:12; 116:7;120:1;121:19; 123:17;124:2;127:2,4, 22;134:18,19;135:3,8, 11,14;137:13;142:1,7; 144:2;147:22;153:20; 157:19 way-distal (1) 61:1 ways (1) 54:12 weakness (1) 106:5 week (1) 77:10 weeks (4) 97:5;123:15,19; 132:5 welcome (1) 63:8	well-documented (2) 49:24;79:6 weren't (1) 18:7 west (2) 27:14;178:10 What's (9) 13:23;19:6;34:7; 56:8;68:23;91:14; 97:22;131:20;157:11 whenever (2) 124:19;153:7 When's (1) 16:23 Whereupon (1) 179:19 white (7) 140:16;159:14; 162:1,4,6,25;163:3 whole (4) 41:23;129:20; 151:13;165:4 who's (2) 158:7,8 wife (1) 26:20 Wilcox (1) 19:16 wire (3) 154:24;155:18; 156:22 within (6) 62:10;97:4;120:19; 124:19;125:2;135:25 without (13) 69:25;89:8;93:10; 105:20;109:5;112:15; 129:4;131:25;134:20; 138:16;141:19;146:20; 156:15 witness (11) 4:2;35:1;36:20;55:3, 25;60:24;69:10;81:14; 87:8;88:4;98:24 woman (1) 16:13 Wood (1) 28:17 word (2) 38:2;89:18 words (3) 32:2;49:4;169:19 work (16) 8:10;13:18;14:10,18; 15:10,11;16:3;19:14, 21;28:2,18;30:20;44:4; 154:6,17,18 worked (2) 12:9;71:14 working (7) 8:13;24:23;38:20; 43:25;105:12;108:18; 154:7	works (3) 154:15,21,22 workup (1) 73:12 world's (1) 24:9 worn (1) 30:10 worse (9) 43:6;74:16;80:4; 97:15;126:25;127:5; 128:24;134:7;169:12 worsen (3) 127:8,9;128:13 worsened (3) 62:16;85:9;138:19 worsening (4) 69:8;70:23;84:7; 173:4 worst (1) 145:25 worth (1) 156:17 wounds (3) 6:12,14;11:10 Wrangler (1) 26:14 writings (2) 21:12;41:14 written (7) 7:18;24:6;37:12,19; 38:3;41:5,7 wrong (3) 90:25;105:5;157:22 wrote (5) 24:10,19;25:2;42:25; 174:14
X				
Xeroxed (1) 33:7				
x-rays (1) 177:9				
Y				
Yale (1) 9:8				
year (21) 12:11,13,14;20:5; 27:22;30:24;38:19; 39:5,12;52:17;59:8,13; 77:23;79:4;84:13; 108:20;141:4;161:2,6; 174:25;178:10				
years (44) 6:6;11:3,7,15,18; 14:17,19;15:6,8,17,21; 16:9;25:4,6,18;26:2, 16;27:18,21;28:24; 30:14;31:6,11,12; 52:18,24;54:11;55:12;				

56:4,12;59:14,15; 71:16;88:12,14,17; 89:17;124:8;155:9; 159:1,7,8,15;178:18 York (1) 59:11 young (6) 73:10,15,18;74:25; 75:3,7 younger (1) 155:12 youngest (1) 75:4	31:8 100-to-150- (2) 70:25;174:8 10-7-2008 (2) 91:5,7 10-8-7 (2) 91:13;175:16 1099 (3) 39:4,7,11 11 (4) 46:8;79:24;80:22; 173:14 12 (12) 5:18;7:11;11:15,18; 27:23;156:10;174:13, 20,21;176:9,13,14	2 2 (21) 33:17;34:21;35:5; 37:17;44:18;53:5,20; 70:13;76:12;77:16; 88:16,21;102:2; 117:12;129:11;137:18; 157:6;164:14;165:8; 167:7;177:3 20 (6) 56:12;61:11;177:22, 23,24,25 200 (2) 18:11;109:5 2006 (33) 33:11;49:19;51:19, 25;63:10;64:9;68:18; 69:16;70:9,22;71:10, 15;72:5,17,22;73:6; 74:2,5;75:24;77:14; 78:24;80:9,10;86:22; 87:13;89:9,20;93:6; 99:21;107:3,4;128:15; 174:6 2007 (13) 33:13;71:22;74:4,9; 80:23;81:4;82:4,13; 86:14;88:8,16;91:13; 95:19 2008 (3) 33:14;126:24;175:17 2009 (1) 14:21 2010 (56) 12:14;14:23;32:25; 33:2,17,20,23;42:22; 43:2;46:6,8;68:21; 70:12,13;74:2,9,17; 76:4,13,22;77:14,16; 88:16,21;93:13;94:15; 95:23;96:18;98:20,25; 99:4,11;100:8,9,21; 103:19;104:18;106:24; 107:6,8;108:7,21; 109:8,17,22;110:3,7; 111:10,20;112:2; 117:3;122:19;126:23; 127:24;133:24;172:21	146:3,4,16,19,24; 147:21;148:1,15,22; 153:3;169:15,16 24th (9) 113:5;117:11;119:2; 131:15;152:1,8;153:5; 170:16,23 25 (2) 27:12;61:11 26 (2) 47:16;48:19 29 (1) 33:12 29th (3) 137:10,14;153:6	35:21 4-2 (1) 44:9 4-2-10 (2) 44:18;45:7 4-2-2010 (1) 35:21
Z				5
zero (1) 99:7 Zewickie (1) 5:9 Zewickley (2) 5:10,12 zone (1) 91:25	125 (1) 27:17 12-day-old (2) 171:13,19 13 (1) 7:11 14 (1) 171:24 15 (7) 5:18;15:6;27:24; 177:22,23,24,25	200 (2) 18:11;109:5 2006 (33) 33:11;49:19;51:19, 25;63:10;64:9;68:18; 69:16;70:9,22;71:10, 15;72:5,17,22;73:6; 74:2,5;75:24;77:14; 78:24;80:9,10;86:22; 87:13;89:9,20;93:6; 99:21;107:3,4;128:15; 174:6 2007 (13) 33:13;71:22;74:4,9; 80:23;81:4;82:4,13; 86:14;88:8,16;91:13; 95:19 2008 (3) 33:14;126:24;175:17 2009 (1) 14:21 2010 (56) 12:14;14:23;32:25; 33:2,17,20,23;42:22; 43:2;46:6,8;68:21; 70:12,13;74:2,9,17; 76:4,13,22;77:14,16; 88:16,21;93:13;94:15; 95:23;96:18;98:20,25; 99:4,11;100:8,9,21; 103:19;104:18;106:24; 107:6,8;108:7,21; 109:8,17,22;110:3,7; 111:10,20;112:2; 117:3;122:19;126:23; 127:24;133:24;172:21	3 3 (13) 33:23;35:12,16; 37:24;101:9;102:16; 137:23;148:24;149:18; 158:17;165:18;166:1; 177:3 3/1-17 (1) 42:8 30 (10) 27:12;29:14;43:24; 137:12;149:5,20; 150:4,19;151:7;175:9 30th (16) 137:10,24,25;138:4, 14,20;150:7;151:18,18, 22,25;152:5,23,25,25; 153:5 31 (6) 43:24;44:1,7;137:13; 138:6;172:16 3-18 (1) 42:10 31st (6) 137:10,20;138:1,20; 139:8,14 3-24-2010 (6) 35:13;36:12,17; 39:24;42:7;43:17 3-30-2010 (1) 35:13 3-31-2010 (1) 35:20	5 (5) 36:7,8,11;46:6; 177:21 5:03 (1) 179:20 50 (13) 15:12;16:4;56:5; 73:11,22;103:25,25; 104:1;121:24;163:12, 14,15,18 50:50 (3) 73:24;137:11;138:1 5-29 (1) 174:24 5-29-07 (1) 91:20
0				6
06 (2) 118:13;148:6 07 (5) 33:12;94:6;108:24; 132:14;174:24	150 (1) 71:14 15143 (1) 5:8 16 (1) 31:1 17 (2) 18:12;172:16 18 (33) 18:12;62:5;113:6,7, 8;116:11,21;117:7,9, 14;118:3,7,25;120:5, 21;121:6,22;122:3,11, 19;123:20,25;124:4; 126:1;127:19,24; 130:6,25;131:9;135:2, 24;172:5;173:14 180 (1) 18:12 18th (9) 119:4,5;121:5;122:5, 7;123:5;136:23; 140:23,25 19 (1) 9:13 1953 (1) 5:5 1984 (1) 9:14 1986 (5) 9:21;11:1,12,24;13:1 1987 (1) 8:23 19th (1) 119:3	2007 (13) 33:13;71:22;74:4,9; 80:23;81:4;82:4,13; 86:14;88:8,16;91:13; 95:19 2008 (3) 33:14;126:24;175:17 2009 (1) 14:21 2010 (56) 12:14;14:23;32:25; 33:2,17,20,23;42:22; 43:2;46:6,8;68:21; 70:12,13;74:2,9,17; 76:4,13,22;77:14,16; 88:16,21;93:13;94:15; 95:23;96:18;98:20,25; 99:4,11;100:8,9,21; 103:19;104:18;106:24; 107:6,8;108:7,21; 109:8,17,22;110:3,7; 111:10,20;112:2; 117:3;122:19;126:23; 127:24;133:24;172:21	30 (10) 27:12;29:14;43:24; 137:12;149:5,20; 150:4,19;151:7;175:9 30th (16) 137:10,24,25;138:4, 14,20;150:7;151:18,18, 22,25;152:5,23,25,25; 153:5 31 (6) 43:24;44:1,7;137:13; 138:6;172:16 3-18 (1) 42:10 31st (6) 137:10,20;138:1,20; 139:8,14 3-24-2010 (6) 35:13;36:12,17; 39:24;42:7;43:17 3-30-2010 (1) 35:13 3-31-2010 (1) 35:20	6 (13) 33:14;37:5,6;42:7,8, 10;47:19;65:15;113:5, 6;147:21;175:17; 176:15 6:17 (1) 36:12 60 (9) 15:13,15,16;54:25; 55:2,3,17;56:5;157:25 6-14-06 (1) 174:12 6-5-07 (1) 175:13 6-something (1) 36:17
1				7
1 (65) 6:16,17;33:20;37:12; 43:13;68:21;93:13,19, 20,22,25;94:15;95:8, 23;96:17;97:9;98:20, 25;99:4,11;100:8,9,21; 102:1;103:14,19; 104:5,17,18;106:4,10, 18,24;107:8,18,24; 108:2,7;109:8,16,21; 110:3,7;111:10,20; 112:2;114:8;115:25; 116:2;126:22;131:15; 137:19;142:25;143:8; 144:4;148:24;156:24; 157:3;158:14;168:10; 169:24;172:21;175:6, 6;177:2 1.5 (1) 46:10 10 (4) 27:23,23;103:24; 177:22 100 (3) 71:14;109:4;158:11 100,000 (1) 31:13 100-to- (1)		2011 (1) 47:16 2012 (1) 31:16 24 (42) 5:5;42:22;43:2; 101:16;113:6;119:7, 17;120:1;127:19; 131:18,19;132:2,18,22; 133:24;135:5;136:20; 139:19,25;140:3,12,21; 141:22;142:9,19; 144:2,5,25;145:6,13;	4 4 (12) 28:1,2;35:18,24; 45:8;101:9;102:16; 137:18;164:15;168:15; 174:15,17 400 (1) 25:8 4-1 (2) 44:20,23 4-1-2010 (1)	7 (7) 7:10;33:13;39:22; 40:1;41:21;172:14; 174:3 70 (7) 15:12;16:5;25:19; 28:6;55:22;160:10,11 701 (1) 5:7 70-percent (1) 160:5 75 (1) 52:23

8				
8 (4) 40:12,18;91:9;174:4				
80 (7) 52:23;54:10,20; 55:13,16,22;61:15				
80-percent (1) 54:11				
85 (1) 24:4				
86 (3) 11:14;16:25;24:4				
87 (1) 16:25				
9				
90 (4) 52:16;55:11,13;79:2				
95 (2) 79:2,2				
98 (5) 11:16,24,25;12:1,3				

CURRICULUM VITAE

Paul E. Collier, MD
Scaife Road
Sewickley, Pennsylvania 15143



Home Telephone: 412-741-0115
Email Address: vascsurg@comcast.net
Date of Birth: December 24, 1953

Office Telephone: 412-749-9868
Office Fax: 412-749-9729

EDUCATION

St. Joseph Regional High School Montvale, New Jersey	High School Diploma 1967 – 1971
University of Pennsylvania Philadelphia, Pennsylvania	B.S. Biology 1971 – 1975
Yale University School of Medicine New Haven, Connecticut	M.D. 1975 – 1979

TRAINING AND RESEARCH EXPERIENCE

Resident in General Surgery Allegheny General Hospital Pittsburgh, Pennsylvania	1979 – 1982
Chief Resident in General Surgery Allegheny General Hospital Pittsburgh, Pennsylvania	1982 – 1984
Fellow in Vascular Surgery Montefiore Medical Center Bronx, New York	1984 – 1986

CURRENT STATUS

Board Certified in General Surgery	1985
Medical Director, Non-Invasive Vascular Laboratory, Sewickley Valley Hospital	1986 – Present
Added Qualification in Vascular Surgery	1987
Fellow of the American College of Surgeons	1987
Recertified in General Surgery	1995, 2004
Recertified in Vascular Surgery	1996, 2006
Chief of Surgery, Sewickley Valley Hospital	1997 – 2001
Director, The Sewickley Vein Center	2006 – Present
Grove City Medical Center	2013 - Present

LICENSED

ORGANIZATIONS

Allegheny Vascular Society
 Peripheral Vascular Surgical Society
 Society for Clinical Vascular Surgery
 Eastern Vascular Surgery Society
 American College of Surgeons
 Society for Vascular Surgery

BOARD POSITIONS

Board of Directors, Pittsburgh Zoological Society	1996 – 2003
Exam Consultant, American Board of Surgery	1997 – 2003
Chairman, Department of Surgery, Sewickley Valley Hospital	1997 – 2001

OFFICERS POSITIONS

Secretary, Allegheny Vascular Society	1991 – 1994
President, Allegheny Vascular Society	1994 – 1996

SEWICKLEY VALLEY HOSPITAL COMMITTEES

Critical Care Committee	1986 – 1996
Chairman, Utilization Review Committee	1990 – 2000
Clinical Management Committee	1992 – 1998
Chairman, Distinguished Service Award Committee	1992 – 1995
Surgical Committee	1992 – Present
Value Analysis Committee	1993 – Present
CME Committee	1993 – Present

EXTERNAL COMMITTEES

Society for Vascular Surgery Membership Committee	1997 – 2001
Chairman	2000 – 2001

EDITORIAL REVIEWER

Journal of Vascular Surgery	http://journals.elsevierhealth.com/periodicals/ymva
Pediatrics	http://pediatrics.aappublications.org/
American Journal of Kidney Diseases	http://journals.elsevierhealth.com/periodicals/yajkd

AWARDS

Salutatorian, St. Joseph Regional High School	1971
Alpha Epsilon Delta, Premedical Honor Society	1974
Phi Beta Kappa, University of Pennsylvania	1975

Summa Cum Laude, University of Pennsylvania 1975

Merck Award for Clinical Excellence,
Yale University School of Medicine 1979
First Place, Resident's Presentation, Southwestern
Pennsylvania Chapter of the American College of
Surgeon's "Axillary Vein Thrombosis" 1983
First Place, Original Paper by a Resident,
Contemporary Surgery, "Streptokinase and
Percutaneous Angioplasty for Salvage of
Hemodialysis Fistula" 1984

PRESENTATIONS

1. Collier PE. Streptokinase and percutaneous transluminal angioplasty for reclamation of subcutaneous hemodialysis fistulas. Presented to the *National Kidney Foundation's Interdisciplinary Strategies in Renal Care*. September, 1983.
2. Collier PE. Axillary vein thrombosis. Presented to the *Southwestern Pennsylvania Chapter of The American College of Surgeons*. November, 1983.
3. Collier PE. Is percutaneous insertion of the intra-aortic balloon pump via the femoral artery the safest technique? Presented to the *Pennsylvania Association for Thoracic Surgery*. September, 1984.
4. Collier PE. Re-operations on failed anatomic and extra-anatomic prosthetic reconstruction. Presented to the *Joint Annual Meeting of The New York Society for Cardiovascular Surgery and The New York Regional Vascular Society*. May, 1985.
5. Collier PE. Re-operations on failed infrainguinal prosthetic reconstructions: Factors influencing long-term, graft patency. Presented to the *Peripheral Vascular Surgery Society*. June, 1985.
6. Gupta SC, Veith FJ, Samson RH, Scher LA, Ascer F, White-Flores SA, Collier PE, Nunez A. Application of microcomputers in surgical education and research. Presented as a scientific exhibit at the *American College of Surgeons, 71st Annual Clinical Congress Meeting*. Chicago, IL. October, 1985.
7. Ascer E, Collier PE, Veith FJ. The influence of dextran 40 and graft diameter on low flow bypass graft patency. Presented to the *Society for Clinical Vascular Surgery, 14th Annual Symposium on Vascular Surgery*. Orlando, FL. April, 1986.
8. Collier PE, Ascer E, Gupta SK, Veith FJ. Re-operation on failed PTFE bypasses: The importance of proper technique and outflow site. Presented to the *Society for Clinical Vascular Surgery, 14th Annual Symposium on Vascular Surgery*. Orlando, FL. April, 1986.
9. Gupta SK, Veith FJ, Ascer E, Scher LA, White-Flores SA, Collier PE, Nunez A, Wengerter K, Samson RH. Use of microcomputers in peripheral vascular laboratory research. Presented at the *Symposium on Noninvasive Diagnosis of Vascular Disorders: Review and Update*. Orlando, FL. April, 1986.
10. Collier PE. Role of duplex scanning in distal bypass evaluation: Detection of failed grafts. Presented at the *2nd Annual Vascular Fellows Abstract Presentation*. New York, NY. May, 1986.
11. Collier PE, Ascer E, Gupta SK, Veith FJ. Reoperation for PTFE bypass failure: The importance of distal outflow site and operative technique in determining outcome. Presented at the *34th Annual Meeting of the North American Chapter of the International Society for Cardiovascular Surgery*. New Orleans, LA. June, 1986.
12. Nunez A, Collier PE, Veith FJ. Duplex scanning of bypass grafts and anastomoses related to infrapopliteal arterial reconstructions. Presented to the *Peripheral Vascular Surgery Society*. New Orleans, LA. June, 1986.

13. Nunez A, Collier PE, Ascer E, Veith FJ. Use of middle and distal thirds of the deep femoral artery for origin of insertion of limb salvage bypasses. Presented at the *2nd International Vascular Symposium*. London, England. September, 1986.
14. Collier PE, Ascer A, Veith FJ. Reoperations on failed anatomic and extra-anatomic prosthetic bypasses. Presented at the *2nd International Vascular Symposium*. London, England. September, 1986.
15. Collier PE, Laffey S, Dalton T, Wilcox G, Brooks DH. Angioplasty for claudication: Improved patient selection with color doppler imaging. Presented to the *Society for Clinical Vascular Surgery*. Palm Desert, CA. March, 1990.
16. Collier PE, Laffey S, Dalton T, Wilcox G, Brooks DH. Limb salvage surgery without arteriography, is it possible? Presented to the *Eastern Vascular Society*. Boston, MA. May, 1990.
17. Collier PE. Use of the non-invasive vascular laboratory. Presented at the *Update on Vascular Disorders of Lower Extremities*. Pittsburgh, PA. February, 1991.
18. Collier, PE. Atraumatic vascular anastomoses using a tourniquet. Presented to the *Peripheral Vascular Surgery Society*. Boston, MA. June, 1991.
19. Collier, PE. Surgery for chronic venous disease. Presented at the *2nd Annual Allegheny General Hospital Vascular Symposium: Venous Duplex Imaging and Treatment of Venous Disease*. Pittsburgh, PA. June, 1991.
20. Collier PE. Non-invasive evaluation of the carotid artery. Presented at the *Advances in Diagnosis and Treatment of Carotid Artery Disease*. Pittsburgh, PA. February, 1992.
21. Collier PE. Carotid endarterectomy: A safe, cost-effective approach. Presented to the *Eastern Vascular Society*. New York, NY. May, 1992.
22. Collier PE. Improving efficiency for carotid endarterectomy. Presented to the *Southwest Pennsylvania Chapter of American College of Surgeons*. Pittsburgh, PA. May, 1992.
23. Collier PE. Surgery for chronic venous insufficiency. Presented at the *Advances in Diagnosis and Treatment of Venous Diseases Symposium*. Pittsburgh, PA. March, 1993.
24. Collier PE. Follow-up examination of lower extremity bypasses. Presented at the *New Modalities in Vascular Technology Symposium*. Pittsburgh, PA. March, 1994.
25. Collier PE. Are one day admissions for carotid endarterectomy feasible? Presented to the *Society of Clinical Vascular Surgery*. Ft. Lauderdale, FL. March, 1995.
26. Collier PE. How the non-invasive vascular laboratory can help in the diagnosis of peripheral vascular disease. Presented at the *Advances in Diagnosis and Treatment of Arterial Disease*. Pittsburgh, PA. April, 1995.
27. Collier PE. One-day admission for carotid endarterectomy. Presented to the *Southwestern PA Chapter of the American College of Surgeons*. Pittsburgh, PA. April, 1995.
28. Mantia A and Collier PE. Does cervical plexus block for carotid endarterectomy affect hospital length of stay? Presented to the *Society of Cardiovascular Anesthesiologists*. Philadelphia, PA. May, 1995.
29. Collier PE. Surgical options for lower limb salvage. Presented at the *2nd Annual Symposium on Peripheral Vascular Disease: New Horizons in Patient Management*. Pittsburgh, PA. December, 1995.
30. Collier PE. Changing trends in the use of preoperative carotid arteriography: The community experience. Presented to the *Southwestern PA Chapter of American College of Surgeons*. Pittsburgh, PA. April, 1996.
31. Collier PE. Cost efficient carotid surgery: A clinical pathway. Presented at the *Symposium on Advances and Treatment of Carotid Artery Disease*. Pittsburgh, PA. April, 1996.
32. Collier PE. Carotid angioplasty or endarterectomy: A cost analysis. Presented at the *10th Annual Eastern Vascular Society Symposium*. Washington, DC. May, 1996.
33. Collier PE. Changing trends in the use of preoperative carotid arteriography: The community experience. Presented at the *1996 Joint Annual Meeting of the N.A. Chapter of the ISCVS and the Society for Vascular Surgery*. Chicago, IL. June, 1996.

34. Mantia AM, Collier PE, O'Day TL. Does anesthetic choice following a defined clinical pathway for carotid endarterectomy affect length of stay? Presented at the *American Society of Anesthesiologists Annual Meeting*. New Orleans, LA. October 1996.
35. Collier PE. Carotid endarterectomy: What's new in 1996? Columbus, OH. July, 1996.
36. Collier PE. The nursing aspects of carotid endarterectomy. Presented to the *Western Pennsylvania Perioperative Nurses Society*. Pittsburgh, PA. February, 1997.
37. Collier PE. How essential is the intensive care unit after carotid endarterectomy? Presented at the *Symposium on Vascular Surgery*. Naples, FL. March, 1997.
38. Collier PE. Do clinical pathways for major vascular surgery improve outcomes and reduce cost? Presented at the *Symposium on Vascular Surgery*. Naples, FL. March, 1997.
39. Collier PE. Office removal of silastic catheters and ports is safe and cost effective. Presented at the *Symposium on Vascular Surgery*. Naples, FL. March, 1997.
40. Collier PE. Are preoperative antibiotics administered preoperatively? Presented at the *Symposium on Vascular Surgery*. Naples, FL. March, 1997.
41. Collier PE. Do clinical pathways for major vascular surgery improve outcome and reduce cost? Presented at the *American College of Surgeons 43rd Annual Meeting*. Pittsburgh, PA. April, 1997.
42. Collier PE. Venous complications of central venous catheters and their treatment. Presented at the *7th Annual Vascular Conference* at Sewickley Valley Hospital. Pittsburgh, PA. April, 1997.
43. Collier PE. Cardiac tamponade from central venous catheters: A totally preventable complication. Presented to the *Society for Clinical Vascular Surgery*. San Diego, CA. March, 1998.
44. Collier PE. Current results for aortic surgery-the results of a clinical pathway. Presented at the *8th Annual Vascular Conference*. Pittsburgh, PA. April, 1998.
45. Collier PE. Efficiency in the OR: Developing critical pathways for vascular surgery. Presented at the *Symposium for Controlling Costs in Surgery: Strategies for Cost Reduction and Outcomes Improvement*. Washington, DC. September, 1998.
46. Collier PE. Update on carotid artery surgery. Presented at the *14th Annual P.O.M.A. Seminar*. Hidden Valley, PA. January, 2001.
47. Collier PE. To drain or not to drain. Presented at the *29th Annual Symposium on Vascular Surgery of the SCVS*. Boca Raton, FL. April, 2001.
48. Collier PE. Peripheral vascular disease. Presented to *P.O.M.A.* Hidden Valley, PA. January, 2002.
49. Collier PE. Counter incisions improve primary healing of inframalleolar bypass wounds. Presented to the *16th Annual Eastern Vascular Society Meeting*. Boston, MA. May, 2002.
50. Collier PE. Carotid endarterectomy under siege. Presented to the *2nd Annual Pittsburgh Vascular Symposium*. Pittsburgh, PA. September, 2003.
51. Collier PE. Bypass strategies in the absence of saphenous vein. Presented to the *3rd Annual Pittsburgh Vascular Symposium*. Pittsburgh, PA. September, 2004.
52. Collier PE. The carotid endarterectomy: The venerable standard or outdated surgery. Presented at the *Pittsburgh Vascular Symposium*. Pittsburgh, PA. September, 2005.
53. Collier PE. Carotid endarterectomy vs. stenting: Where do we stand? Presented to *P.O.M.A.* Farmington, PA. January, 2006.
54. Collier PE. Modern results of distal bypass surgery: Do patients really still need this operation? Presented at the *Pittsburgh Vascular Symposium*. Pittsburgh, PA. September, 2006.
55. Collier PE. Limb salvage surgery. *P.O.M.A.* Farmington, PA. January, 2007.
56. Collier PE. New advances in chronic venous disease. Presented to *P.O.M.A.* January, 2008.
57. Collier PE. Vascular Ultrasound. Presented to the *American College of Osteopathic Surgeons' In-Depth Review 2009*. San Antonio, TX. February, 2009.
58. Collier PE. Ankle-Brachial Index and Transcutaneous Oxygen. Presented to the *American College of Osteopathic Surgeons' In-Depth Review 2009*. San Antonio, TX. February, 2009.
59. Collier PE. Medical and Surgical Prophylaxis/Treatment for Deep Vein Thrombosis: The Surgical Patient. Presented to *Heritage Valley Health System*. Sewickley, PA. February, 2009.

60. Morrison, S, Collier PE, Marinelli R, et al. Methodology for Retrospective Inquiry of Perioperative Glycemic Control in Vascular Surgery Patients. Presented to the *American Association of Nurse Anesthetists*. Las Vegas, NV. August, 2013.

PROGRAM DIRECTOR

1. Update on Vascular Disorders of Lower Extremities. Pittsburgh, PA. February, 1991. *Program Director and Organizer*.
2. Advances in Diagnosis and Treatment of Carotid Artery Disease. Pittsburgh, PA. February, 1992. *Program Director and Organizer*.
3. Advances in Diagnosis and Treatment of Venous Diseases. Pittsburgh, PA. March, 1993. *Program Director and Organizer*.
4. Advances in Diagnosis and treatment of renal, aortic and mesenteric vascular disorders. Pittsburgh, PA. March, 1994. *Program Director and Organizer*.
5. Symposium on New Modalities in Vascular Technology. Pittsburgh, PA. March, 1994. *Program Co-Director and Organizer*.
6. Advances in Diagnosis and Treatment of Arterial Disease. Pittsburgh, PA. April, 1995. *Program Director and Organizer*.
7. Symposium on Advances and Treatment of Carotid Artery Disease. Pittsburgh, PA. April, 1996. *Program Director and Organizer*.
8. Symposium on advances in diagnosis and treatment of venous disease. Pittsburgh, PA. April, 1997. *Program Director and Organizer*.
9. New approaches to intraabdominal vascular problems. Pittsburgh, PA. April, 1998. *Program Director and Organizer*.
10. Advances in diagnosis and treatment of lower extremity arterial disease. Pittsburgh, PA. April, 1998. *Program Director and Organizer*.
11. Advances in diagnosis and treatment of lower extremity arterial disease. Pittsburgh, PA. October, 1999. *Program Director and Organizer*.
12. Advances in diagnosis and treatment of cerebrovascular diseases. Pittsburgh, PA. April, 2001. *Program Director and Organizer*.
13. Vascular surgery in the 21st century. Pittsburgh, PA. May, 2002. *Program Director and Organizer*.
14. 2nd Annual Pittsburgh Vascular Symposium. Pittsburgh, PA. September, 2003. *Program Director*.
15. 3rd Annual Pittsburgh Vascular Symposium. Pittsburgh, PA. September, 2004. *Program Director*.
16. 4th Annual Pittsburgh Vascular Symposium. Pittsburgh, PA. September, 2005. *Program Director*.
17. 5th Annual Pittsburgh Vascular Symposium. Pittsburgh, PA. September, 2006. *Program Director*.

PUBLICATIONS

1. Curtis AM, Ravin CE, Collier PE, Putman CE, McLoud T, Greenspan RH. Detection of metastatic disease from carcinoma of the breast: Limited value of full lung tomography. *American Journal of Roentgenology*. 134:253-255, 1980.
2. Curtis AM, Ravin CE, Collier PE, Putman CE, McLoud T, Greenspan RH. Detection of metastatic disease from carcinoma of the breast: limited value of full lung tomography. *American Journal of Roentgenology*. 134:253-255, 1980.
3. Collier PE, Diamond DL, Young JC. Nontraumatic clostridium septicum gangrenous myonecrosis. *Disease of the Colon & Rectum*. 26:703-704, 1983.
4. Collier PE, Diamond DL, Young JC. Axillary vein thrombosis. *Journal of Vascular Surgery*. 18:174-178, 1984.

5. Collier PE, Ryan JJ, Diamond DL. Cardiac tamponade from central venous catheters. Report of a case and review of the English literature. *Angiology*. 35:595-600, 1984.
6. Collier PE, Saracco GM, Diamond DL. Streptokinase and transluminal angioplasty in reclamation of AV fistula. *What is Cont. Surg.* 24:69-71, 1984.
7. Collier PE, Turowski P, Diamond DL. Small intestinal adenocarcinoma complicating regional enteritis. *Cancer*. 55:516-521, 1985.
8. Collier PE, Saracco GM, Young JC, Fragola JA, Contractor FM, Diamond DL. Non-operative salvage of subcutaneous hemodialysis fistulae. *The American Journal of Nephrology*. 5:333-337, 1985.
9. Collier PE, Liebler GA, Park SB, Burkholder JA, Maher TD, Magovern GJ. Is percutaneous insertion of the intra-aortic balloon pump through the femoral artery the safest technique? *Journal of Vascular Surgery*. 3:629-634, 1986.
10. Collier PE, Ryan JJ, Fazi B, Diamond DL. Can aortography precipitate mesenteric infarction in patients with chronic intestinal ischemia? *Vascular and Endovascular Surgery*. 20:262-268, 1986.
11. Collier PE. Small bowel lymphoma associated with AIDS. *Journal of Surgical Oncology*. 32:131-133, 1986.
12. Ascer E, Collier PE, Gupta SK, Veith FJ. Reoperation for polytetrafluoroethylene bypass failure: The importance of distal outflow site and operative technique in determining outcome. *Journal of Vascular Surgery*. 5:298-310, 1987.
13. Nunez AA, Veith FJ, Collier P, Ascer E, Flores SW, Gupta SK. Direct approaches to the distal portions of the deep femoral artery for limb salvage bypasses. *Journal of Vascular Surgery*. 8:576-581, 1988.
14. Collier PE, Wilcox G, Brooks D, Laffey S, Dalton T. Improved patient selection for angioplasty utilizing color doppler imaging. *The American Journal of Surgery*. 160:171-174, 1990.
15. Collier PE. Atraumatic vascular anastomoses using a tourniquet. *Annals of Vascular Surgery*. 6:34-37, 1992.
16. Collier PE. Carotid endarterectomy: A safe cost-efficient approach. *Journal of Vascular Surgery*. 16:926-933, 1992.
17. Collier PE. Are one-day admissions for carotid endarterectomy feasible? *The American Journal of Surgery*. 170:140-143, 1995.
18. Collier PE. Are one-day admissions for carotid endarterectomy feasible? *The American Journal of Surgery*. 170:140-143, 1995.
19. Collier PE, Goodman GB. Cardiac tamponade caused by central venous catheter perforation of the heart: A preventable complication. *The Journal of the American College of Surgeons (JACS)*. 181:459-463, 1995.
20. Collier PE, Friend SZ, Gentile C, Ruckert D, Vescio L, Collier NA. Carotid endarterectomy clinical pathway: An innovative approach. *American Journal of Medical Quality*. 10:38-47, 1995.
21. Mantia AM, Collier PE, O'Day TL. Does anesthetic choice following a defined clinical pathway for carotid endarterectomy affect hospital length of stay. *Anesthesia and Analgesia*. 1996.
22. Collier PE. Do clinical pathways for major vascular surgery improve outcomes and reduce cost? *Journal of Vascular Surgery*. 26:179-185, 1997.
23. Collier PE. How essential is the intensive care unit after carotid endarterectomy? *Vascular and Endovascular Surgery*. 31:563-566, 1997.
24. Collier PE. Office removal of silastic catheters and ports is safe and cost effective. *Vascular and Endovascular Surgery*. 31:567-569, 1997.
25. Collier PE, Rudolph M, Ruckert D, Osella T, Collier NA, Ferrero M. Are preoperative antibiotics administered preoperatively? *American Journal of Medical Quality*. 13:94-97, 1998.
26. Collier PE, Blocker SH, Graff DM, Doyle P. Cardiac tamponade from central venous catheters. *The American Journal of Surgery*. 176:212-214, 1998.
27. Collier PE. Fast tracking carotid endarterectomy: practical considerations. *Seminars in Vascular Surgery*. 11:41-45, 1998.

28. Collier PE. Changing trends in the use of preoperative carotid arteriography: The community experience. *Cardiovascular Surgery*. 6:485-489, 1998.
29. Scott W, Collier PE. The vessel dilator for central venous catheter placement – forerunner for success or vascular misadventure? *Journal of Intensive Care Medicine*. 16:263-269, 2001.
30. Race TK, Collier PE. The hidden risk of deep vein thrombosis-the need for risk factor assessment: Case reviews. *Critical Care Nursing*. 30:245-254, 2007.

BOOK CHAPTERS

1. Veith FJ, Gupta SK, Ascer E, Sprayregen S, Collier PE. Reoperations and other reintervention for thrombosed and failing polytetrafluorethylene grafts. *Reoperative Arterial Surgery*, 377-392, 1986. J.J. Bergan and J.S.T. Yao. Grune & Stratton. New York, NY.
2. Collier PE, Ascer E, Veith FJ, Gupta SK, Nunez A. Acute thrombosis of arterial grafts. *Vascular Surgery Emergencies*, 517-528, 1987. J.J. Bergan and J.S.T. Yao. Grune & Stratton. New York, NY.
3. Collier PE, Ascer E, Nunez A, Gupta SK, Veith FJ. Arterial reconstruction after previous femorotibial bypass. *Reoperative Vascular Surgery*, 211-224, 1987. H.H. Trout. Marcel Dekker, Inc. New York, NY.
4. Collier PE. How can I balance patient safety and cost-effectiveness in planning early postoperative care and hospital discharge? *Carotid Artery Surgery, A Problem Based Approach*, 354-357, 2000. A.R. Naylor and W.C. Mackey. W.B. Saunders. London.

ABSTRACTS

1. Veith FJ, Samson RH, Ascer E, Gupta SK, White-Flores S, Sprayregen S, Collier PE, Scher LA. Tibiotibial vein bypass grafts: A new operation for limb salvage. *The Journal of Cardiovascular Surgery*. 26:29, 1985.
2. Mantia AM, Collier PE, O'Day TL. Does anesthetic choice following a defined clinical pathway for carotid endarterectomy affect length of stay? *Anesthesiology*. 85:A938, 1986.

Hand-written notes on backs of photographs

Re: George Boltz v. Coreen Garcia, PA-C, Larry Jennings, M.D., and Larry Jennings, M.D., P.C.
Case No. 12-2490-NH

A: 3/30/10
B: 3/24/10 6:17 p.m.
C: 3/24/10 6:17 p.m.
D: 3/31/10
E: 3/30/10
F: 4/1/10
G:
H:
I:
J: 4/1/10 6:48 p.m. ER @ ALLEGIANCE
K:
L:
M: 4/2/10 3:46 p.m.
N: 4/2/10 3:45 p.m.
O: 4/2/10 3:46 p.m.
P:
Q: 4/23/10 7:07 p.m.
R:
S:
T:
U:
V:
W: 4/1/10 6:48 p.m.
X:
Y: 3/30/10
Z: 3/31/10
AA: 3/29
BB: 4/2/10
CC: 3/29

EXHIBIT

2

4.25

PENGAD 800-831-8989



A



B





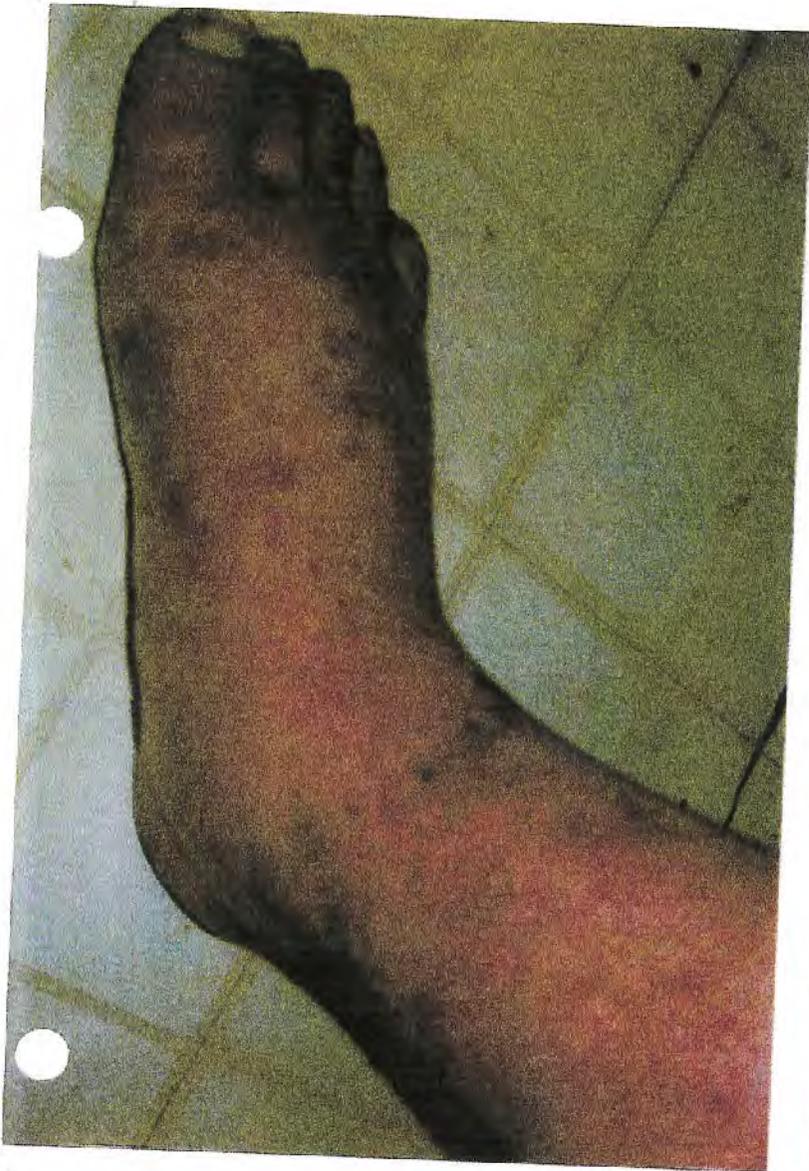
D



E



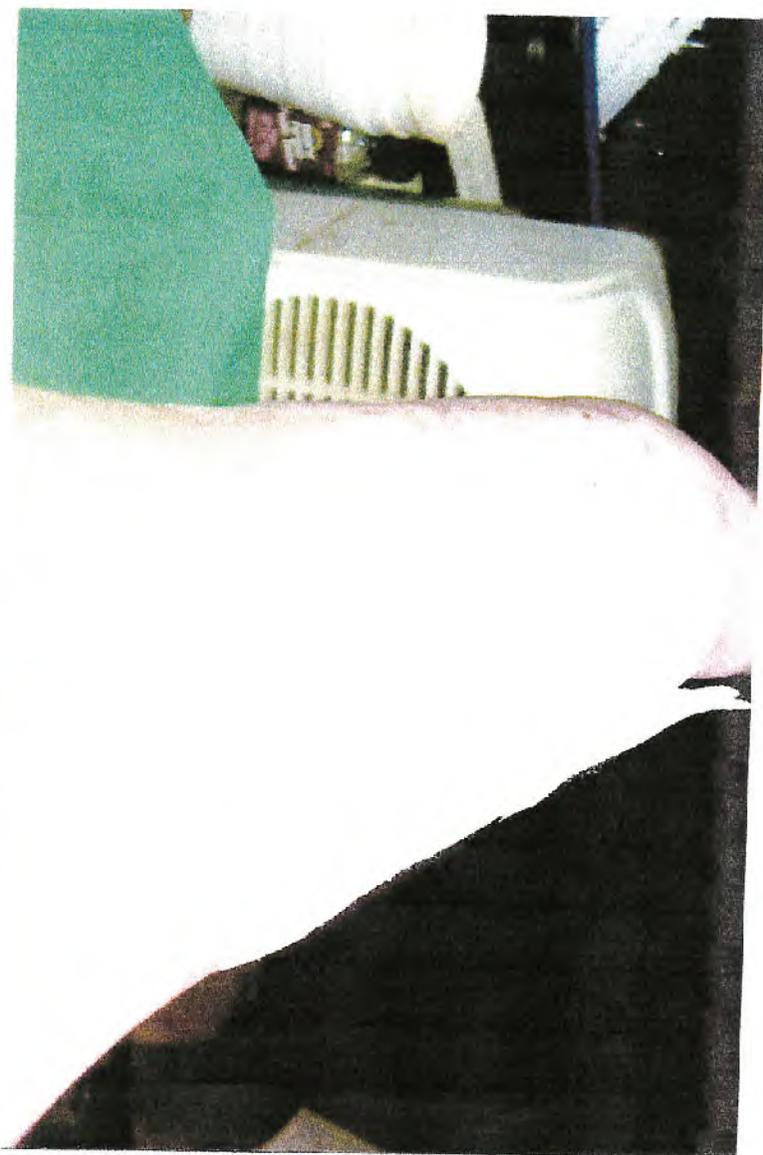
F



6

4

I



j

k

l



2



W

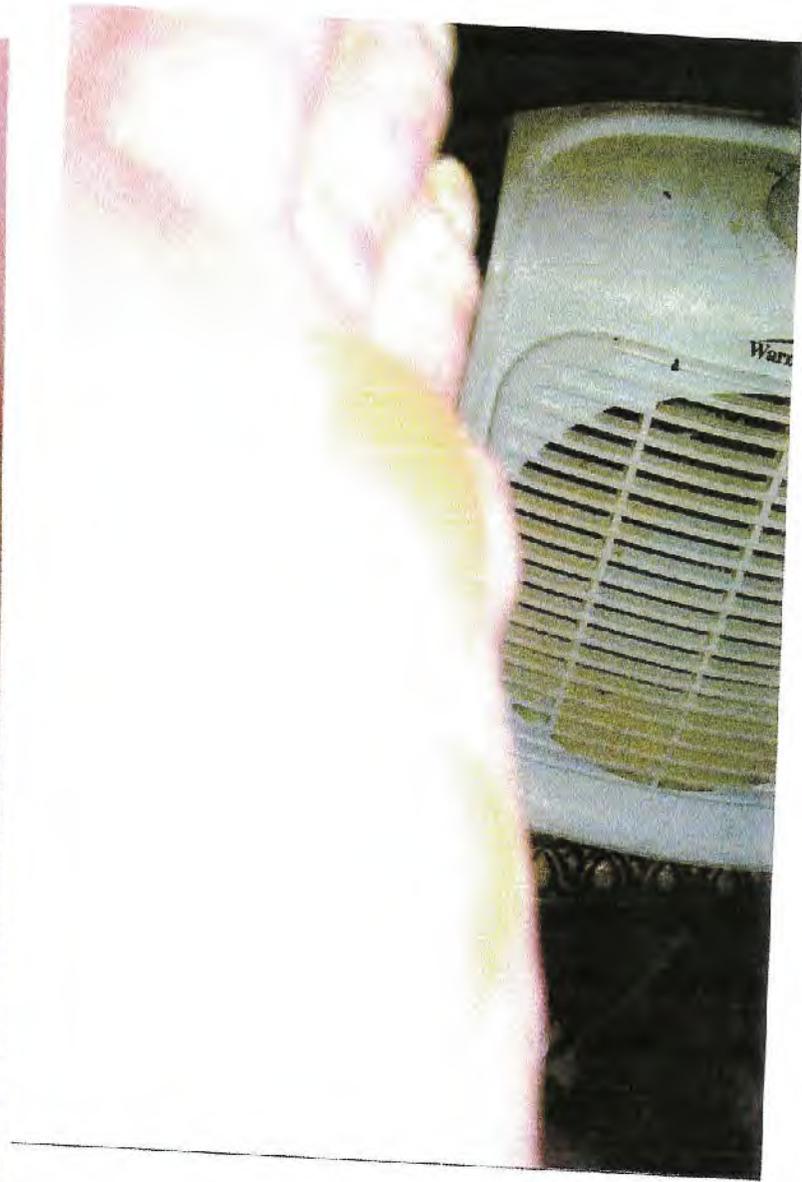
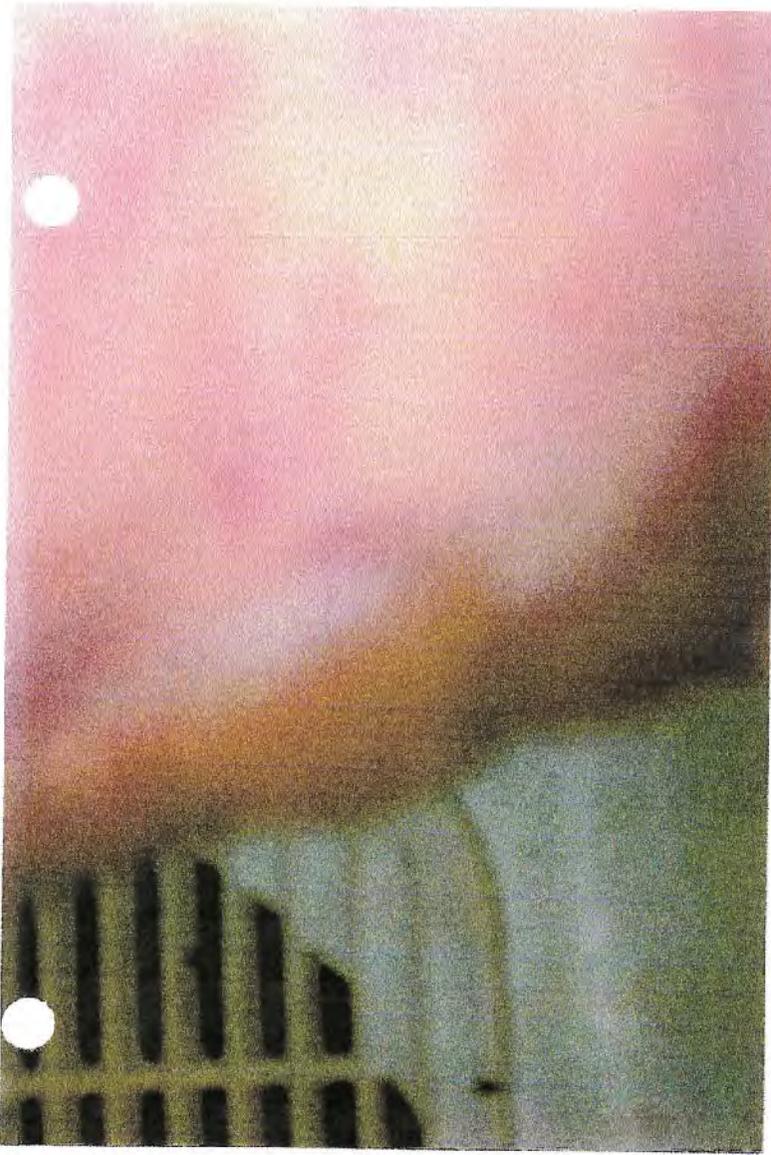




P

Q

R





V



W



X



X

Z



AA



BB



CC



5
2/24/10 6:10pm



Sb 3/24/10 6:17pm



3/24/10



3/30/10



3/30/10



PENGAD 800-631-6989

EXHIBIT

3

4.25

PENGAD 800-681-6889
EXHIBIT
4
4-25



4/1/10



3/31/10



4/2/10

PENGAD 800-051-8088

EXHIBIT

5

4-25



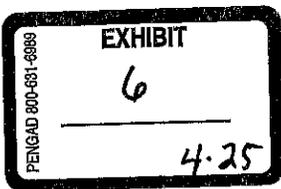
SL 314110 6:17pm



Case 2104/17



Left -
Right -



STATE OF MICHIGAN

IN THE CIRCUIT COURT FOR THE COUNTY OF JACKSON

GEORGE BOLTZ,

Plaintiff,

Case No. 12-2490-NH

vs.

Hon. Thomas D. Wilson
(P-42371)

LARRY JENNINGS, M.D., COREEN
GARCIA, PA-C, AND LARRY
JENNINGS, M.D., P.C.,

Defendants.

HEIDI L. SALTER-FERRIS (P-41481)
Attorney for Plaintiff
4158 Washtenaw Avenue
Ann Arbor, MI 48108
(734) 677-2020
(734) 677-3277 Fax

PAUL J. MANION (P-17049)
MATTHEW J. THOMAS (P-60283)
Attorney for Defendant-Garcia
333 West Fort Street
Suite #1600
Detroit, MI 48226
(313) 965-6100
(313) 965-6558 Fax
pmanion@rmrmtt.com
mthomas@rmrmtt.com

CLYDE M. METZGER (P-31040)
Attorney for Defendants-Dr.
Jennings and PC
38777 Six Mile Road
Suite #300
Livonia, MI 48152
(734) 742-1800

**NOTICE OF TAKING DISCOVERY DEPOSITION
AND REQUEST FOR PRODUCTION OF DOCUMENTS
OF PAUL COLLIER, M.D.**

**TO: HEIDI L. SALTER-FERRIS (P-41481)
ATTORNEY FOR PLAINTIFF**

PLEASE TAKE NOTICE that on **Friday, the 25th day of April, 2014,** commencing at 1:00 p.m. in the afternoon, in the offices of Edgeworth Club, 511 East Drive Sweickley, PA, 15143, (412-741-8500), (Witness Location) and Huron Court Reporting, 623 W. Huron

Street, Ann Arbor, MI, 48103 (734-761-5328) (Attorneys' Location), Defense Counsel will take the discovery deposition, upon oral examination of **PAUL COLLIER, M.D.** This deposition is to be taken in accordance with the Michigan Court Rules and is to be used for impeachment purposes only at the time of the Trial of this matter.

The deponent is to bring:

1. A professional resume' or Curriculum Vitae summarizing your professional qualifications. *OK*

2. Copies of all scientific and technical publications authored by you. *don't have*

3. All time records, diaries and bills prepared and rendered in connection with your investigation and evaluation of the issues involved in the lawsuit. *them*

4. Your complete file in connection with your investigation and evaluation of the issues involved in the lawsuit, including but not limited to:

- a.) All documents furnished to you by anyone.
- b.) All documents obtained or created by you.
- c.) All documents you reviewed, referred to or relied upon in arriving at any of your opinions or conclusions concerning the issues involved in the lawsuit, including but not limited to all scientific and technical articles, publications, codes, standards and other literature.

d.) All models, illustrations, photographs or other exhibits or documents of any kind which you intend or contemplate using to explain, illustrate or support your testimony at Trial.

This deposition is to be taken before a Notary Public duly authorized to administer oaths in accordance with Michigan Court Rules 2.302 and 2.306. You are invited to attend and cross-examine the witness.

RUTLEDGE, MANION, RABAUT,
TERRY & THOMAS, P.C.

BY: _____
PAUL J. MANION (P-17049)
Attorney for Defendant-Garcia
333 West Fort Street
Suite #1600
Detroit, MI 48226
(313) 965-6100

DATED: MARCH 3, 2013

6D 3/1-17 foot fine then D
3/17

3/24/10 PA GARCIA (pam) no need send/motor walk
photo mild dependent subor Jennings MD

30
31 - needs to be seen per DJ (next appt 4/2)

4/1 Duplex @ flow @ DFA, SFA, pop PT per

12R4 CLASS III profound RLB ischaemic distal calf &
4/2/10 Thromb @ Aof & @ Fem Pop
foot nonviable

@ Aof → DFA PTFE @ calf fasciotomy
TO SAVE BK prevent pass rip 3 LFP
out

embolic source

4/1/10 RBKA (phantom)

11/11/10 @ Aof open Bovine Pouch 1.5cm fresh Heartless
occlude pop DFA FP out
BR pop → 2 vessel Rto VEIN
MIN AS

1/24/10 open @ distal anast 6mm PTA



↑BP

Tatebo - 2006

↓ walking distance

↓ to 100-150

some numbers

ETD



cis tipped ⊕

⊖ Fem

LETUETS

6/14/06

ABF

12 hemashield

⊕ SFA out
PT out distally
↑ reveal PTO

4 F ⊕

goes length

⊕ SFA open 12cm

7/29/07

short

⊕ CFA → mid SFA (distal flow)

⊕ CFA → prox SFA thrombectomy Dacron patch 1.0 TPA ⊕
ABF thrombectomy 1.0x R FP PTFE 5/30

⊕ ant comp fasciotomy

⊕ PTD R A D

DI

6/05/07

Rhabdo

hetero MTHFR mutation

COUMADIN

see pathology 1/8/7 mole

2/6/08

⊕ FP distal flow

⊕ PTD



EXHIBIT
8 4.25