

# Exhibit 611

IN THE UNITED STATES DISTRICT COURT  
FOR THE EASTERN DISTRICT OF NORTH CAROLINA

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IN RE: )  
)  
CAMP LEJEUNE WATER LITIGATION ) Case No.  
) 7:23-cv-00897  
)  
This Document Relates to: )  
ALL CASES )

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This is the Videotaped Examination of  
HEIDI SCHWARZ, MD, FAAN  
taken on Tuesday, July 1, 2025, held at  
the law offices of Fitzsimmons, Nunn and  
Plukas, LLP, 957 Panorama Trail South,  
Suite 100, Rochester, New York,  
commencing at 9:04 a.m., concluding at  
5:11 p.m., taken before Renaye M.  
Siriani, Court Reporter and Notary  
Public in and for the State of New York.

1  
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23  
24 Also Present:

25 David Freedman, Videographer

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1  
2 STIPULATIONS:  
3

4 IT IS HEREBY STIPULATED, by and between the  
5 attorneys for the respective parties hereto, that  
6 all rights provided by the CPLR, and Part 221 of the  
7 Uniform Rules for the Conduct of Depositions,  
8 including the right to object to any question,  
9 except as to form, is reserved.

10 IT IS FURTHER STIPULATED AND AGREED that the  
11 filing of the deposition is waived.

12 IT IS FURTHER STIPULATED AND AGREED that the  
13 within examination may be signed and sworn to before  
14 any Notary Public with the same force and effect as  
15 though signed and sworn to before this court but the  
16 failure to do so or to return the original of this  
17 deposition to counsel, shall not be deemed a waiver  
18 of the rights provided by Rule 3116 of the CPLR, and  
19 shall be controlled thereby.

20 IT IS FURTHER STIPULATED AND AGREED that the  
21 witness shall read and sign the original deposition  
22 transcript within 60 days upon receipt.  
23  
24  
25

1  
2 THE VIDEOGRAPHER: Good morning.  
3 We are going on the record at 9:04 a.m.,  
4 on Tuesday, July 1, 2025. Please note  
5 that the microphones are sensitive and  
6 may pick up whispering, private  
7 conversations, and cellular  
8 interference.

9 Please turn off all cell phones or  
10 place them away from the microphones, as  
11 they can interfere with deposition  
12 audio. Audio and video recording will  
13 continue to take place until all parties  
14 agree to go off the record.

15 This is media unit 1 in the video  
16 recorded deposition of Heidi Schwarz,  
17 MD, FAAN, taken by counsel for defendant  
18 in the matter of Camp Lejeune Water  
19 Litigation versus United States of  
20 America, filed in the United States  
21 District Court for the Eastern District  
22 of North Carolina. Case number  
23 7:23-CB-897.

24 This deposition is being held at  
25 Fitzsimmons, Nunn & Plukas located at

1  
2 957 Panorama Trail South, Suite 100,  
3 Rochester, New York.

4 My name is David Freedman from  
5 Veritext, and I'm the videographer. The  
6 court reporter is Renaye Srianni from  
7 Veritext. I am not authorized to  
8 administer an oath. I am not related to  
9 any party in this action, nor am I  
10 financially interested in the outcome.

11 Counsel and all parties present in  
12 the room and everyone attending remotely  
13 will now state their appearances and  
14 affiliations for the record.

15 If there are any objections to  
16 proceeding, please state them at the  
17 time of your appearance beginning with  
18 the noticing attorney.

19 MS. HURT: Cindy Hurt for The  
20 United States.

21 MS. PLATT: Elizabeth Platt for The  
22 United States.

23 MR. MICELI: David Miceli for  
24 Plaintiff's Leadership Group.

25 THE WITNESS: Heidi Schwarz for

1  
2 Plaintiff.

3 MR. MICELI: And then Pat Telan is  
4 joining me on the Zoom. He is with the  
5 Plaintiff's Leadership Group in Bell  
6 Legal, as well. I should have said I'm  
7 with the Milberg firm.

8 MS. HURT: Joey Turner is also with  
9 The United States, and Camille Johnson  
10 is also with The United States.

11 MR. MICELI: And I think Anna  
12 Ellison is on.

13 MS. HURT: And Anna Ellison is also  
14 with The United States.

15 THE VIDEOGRAPHER: Joey Turner?

16 MS. HURT: Yes, Joey Turner.

17 THE VIDEOGRAPHER: Okay. Will the  
18 court reporter please swear in the  
19 witness?

20 H E I D I S C H W A R Z,  
21 having been first duly sworn by a Notary  
22 Public within and for the State of New  
23 York, was examined and testified as  
24 follows:  
25

1 HEIDI SCHWARZ, MD, FAAN by MS. HURT

2 EXAMINATION

3 BY MS. HURT:

4 Q. Good morning, Dr. Schwarz. Is that how you  
5 pronounce your last name?

6 A. Correct.

7 Q. Okay. Can you state your full name for the  
8 record?

9 A. Heidi Beck Schwarz.

10 Q. And what is your current address?

11 A. 20 Ellen Palimeni Boulevard, Apartment 431,  
12 Canandaigua, New York 14424.

13 Q. And you understand that you just took an  
14 oath, correct?

15 A. I do understand that.

16 Q. And that would be the same as if you're in  
17 court, an order you need to tell the truth. You  
18 understand that?

19 A. I do understand.

20 THE VIDEOGRAPHER: We need to go  
21 off the record for a second. Time on  
22 the monitor is 9:07. We're off the  
23 record.

24 (Brief recess.)

25 THE VIDEOGRAPHER: Time on the

1 HEIDI SCHWARZ, MD, FAAN by MS. HURT  
2 monitor is 9:08. This begins media 2.  
3 We're on the record.

4 BY MS. HURT:

5 Q. So a court reporter is taking down  
6 everything that we say. It's important to not --  
7 it's important that you answer questions verbally.  
8 For example, you must say yes or no, rather than  
9 shaking your head. Is that fair?

10 A. I understand that.

11 Q. Please talk at a reasonable pace. Like the  
12 pace I'm speaking now so the reporter can record  
13 everything. I'll try not to interrupt you. I ask  
14 for you to do the same just so that the court  
15 reporter can catch everything. Once the deposition  
16 is complete, unless your counsel waives it, you'll  
17 be given a transcript that you can make any  
18 corrections to.

19 I ask that if you don't understand the  
20 question, please let me know and I will try to  
21 clarify. If you do not ask for clarification, I  
22 will assume that you understand the question. Is  
23 that fair?

24 A. I understand that.

25 MR. MICELI: And just for the

1 HEIDI SCHWARZ, MD, FAAN by MS. HURT  
2 record, we'll reserve the right to read  
3 and sign.

4 MS. HURT: Okay. Great.

5 BY MS. HURT:

6 Q. During the deposition, you may hear counsel  
7 say "Objection." Unless your attorney instructs you  
8 not to answer the question, please answer the  
9 question after the objection has been made. Is  
10 there any reason why you're unable to give your most  
11 truthful and most accurate testimony today?

12 A. No.

13 Q. Is there any reason your memory might be  
14 impaired today?

15 A. No.

16 Q. Are you currently taking any medication  
17 that might impair you?

18 A. No.

19 Q. Of course, you can always ask for breaks.  
20 Please just answer any question I have asked before  
21 we take any break. Before we get started, I like to  
22 just put a few common abbreviations on the record to  
23 ensure that we are all on the same page. For  
24 trichloroethylene, it's TCE is -- and  
25 perchloroethylene or tetrachlorethylene is PCE or

1 HEIDI SCHWARZ, MD, FAAN by MS. HURT  
2 PERC, and Parkinson's disease is PD. Is that fair?

3 A. Yes. That makes life simpler.

4 MR. MICELI: For the court  
5 reporter, especially.

6 Q. I'm going to mark for the first exhibit,  
7 your subpoena.

8 MR. MICELI: You're doing the  
9 subpoena and notice separately?

10 MS. HURT: Yes. I'm doing them  
11 separately. This would be Exhibit 2,  
12 it's the notice of the deposition.

13 (EXHIBIT NO. 1 AND 2 WERE MARKED  
14 FOR IDENTIFICATION.)

15 Q. So starting with the subpoena, which is  
16 Exhibit 1. Have you seen this document before  
17 today?

18 A. Yes, I have.

19 Q. Okay. And then for Exhibit 2, which is  
20 your notice of deposition, if you turn to the --  
21 have you seen this document before, Exhibit 2?

22 A. Yes, I have.

23 Q. If you turn to page -- Attachment A, to the  
24 notice of the deposition, have you seen this  
25 attachment before today?



1 HEIDI SCHWARZ, MD, FAAN by MS. HURT

2 A. Yes, I have.

3 Q. And are there any materials responsive to  
4 this that you have been withholding?

5 A. No. There is not.

6 Q. Last night we received from counsel, some  
7 handwritten notes and a MOCA exam that you did of  
8 doctor -- I mean, sorry. You did of, Mr. Sparks and  
9 Mr. Welch. When did you prepare that document?

10 A. The handwritten notes were on the day that  
11 I did the virtual visits for each of them.

12 MS. HURT: Okay. We got that  
13 around, little after 5 p.m. last night.  
14 I'm going to request that we leave the  
15 deposition open so we have time to  
16 review it and can ask questions  
17 appropriately on it.

18 MR. MICELI: That's fine. Just so  
19 you know, the mistake in producing that  
20 is on me, not on the witness. I thought  
21 that those had already been produced.

22 MS. HURT: Okay.

23 BY MS. HURT:

24 Q. You prepared two reports in this  
25 litigation, correct?

1 HEIDI SCHWARZ, MD, FAAN by MS. HURT

2 A. Correct.

3 Q. One for Mr. Sparks, Richard Sparks, and one  
4 for Mr. Welch, Robert Welch, correct?

5 A. Correct.

6 MR. MICELI: And, again, Cindy,  
7 just for the record, the notice says  
8 document relates to all cases. But as  
9 you just confirmed with this expert, she  
10 is identified as a specific cause expert  
11 in the Welch and Sparks matters.

12 MS. HURT: Okay.

13 BY MS. HURT:

14 Q. Did you prepare any other reports in this  
15 litigation besides these two?

16 A. No. I did not.

17 Q. Okay. And did anyone assist you in writing  
18 these reports?

19 A. No. They were my reports.

20 Q. So Exhibit 3 is going to be the Richard  
21 Sparks. And Exhibit 4 is going to be the report for  
22 Mr. Welch. Starting with Exhibit 3, which is the  
23 report for Richard Sparks. Are you -- you recognize  
24 Exhibit 3?

25 (EXHIBIT NO. 3 AND 4 WERE MARKED

1 HEIDI SCHWARZ, MD, FAAN by MS. HURT  
2 FOR IDENTIFICATION.)

3 A. I do.

4 Q. And is this the report you prepared in this  
5 litigation for Mr. Sparks?

6 A. Yes, it is.

7 Q. And on page 13, is that your signature?

8 A. Yes, it is.

9 Q. Turning to Exhibit 4. Do you recognize  
10 this document?

11 A. I do.

12 Q. And this is your report for Mr. Robert  
13 Welch, correct?

14 A. Correct.

15 Q. And on page 16, is that your signature?

16 A. Yes, it is.

17 Q. And you said that no one helped you write  
18 these reports; is that correct?

19 A. That is correct.

20 Q. Did you have any staff do any editing?

21 A. The one -- or the two editorial comments  
22 which were discussed with me.

23 MR. MICELI: Do not discuss  
24 anything you have discussed with  
25 counsel. Or other experts.

1 HEIDI SCHWARZ, MD, FAAN by MS. HURT

2 THE WITNESS: No.

3 MR. MICELI: Not that I think  
4 that's pertinent to this report.

5 THE WITNESS: There was a  
6 discussion with counsel, but otherwise,  
7 no one else.

8 BY MS. HURT:

9 Q. And did you have any research assistance?

10 A. No. I did not.

11 Q. Are you planning on forming any additional  
12 opinions regarding Mr. Sparks?

13 A. Not at this time.

14 Q. So all of your opinions are reflected in  
15 this report?

16 A. Correct.

17 Q. And then for Mr. Welch, do you plan on  
18 forming any additional opinions for Mr. Welch?

19 A. Not at this time.

20 Q. And all of your opinions are reflected for  
21 Mr. Welch in this report?

22 A. Yes, they are.

23 Q. Okay. Because it's going to get unwieldy  
24 because there's two of these. I'm going to see if  
25 you're okay with doing this. So there's some

1 HEIDI SCHWARZ, MD, FAAN by MS. HURT  
2 general sections of both of these reports for Mr.  
3 Sparks and Mr. Welch that are the same in both  
4 reports, correct?

5 A. There are some portions that are the same.  
6 Absolutely.

7 Q. So for either reference, if there's common  
8 language in both reports, I will indicate as such  
9 and we can look at the language as indicated in the  
10 Mr. Sparks report. Is that okay?

11 A. That would be fine.

12 Q. And it's understood that the same language,  
13 if it's in Mr. Welch, pertains, correct?

14 A. Understood.

15 Q. How did you first become aware of the Camp  
16 Lejeune litigation?

17 A. I was approached by a colleague of mine,  
18 Ray Dorsey, who said that there was litigation going  
19 on, and would I be interested in learning more about  
20 it.

21 Q. And do you remember when this happened?

22 A. I would say it was probably in the spring  
23 of 2024.

24 Q. And what is your relationship with Mr.  
25 Dorsey?

1 HEIDI SCHWARZ, MD, FAAN by MS. HURT

2 A. Dr. Dorsey.

3 Q. Dr. Dorsey.

4 A. He is a colleague of mine. We have worked  
5 together on various research projects.

6 Q. And how long have you worked with Dr.  
7 Dorsey?

8 A. We have been colleagues for probably 10 to  
9 15 years.

10 Q. And when you say colleagues, what do you  
11 mean?

12 A. We both worked at the University of  
13 Rochester in the Department of Neurology, and we  
14 were also involved in similar programs through the  
15 American Academy of Neurology. And then in roughly  
16 2018 -- '17, '18, we started to work together on  
17 various studies in Parkinson's disease.

18 Q. And when Dr. Dorsey approached you, what  
19 did he mention about the Camp Lejeune litigation?

20 A. He mentioned that because I had been  
21 involved in research with him on the impact of TCE  
22 on a study that we did in Rochester, that I might be  
23 helpful in looking at the situation at Camp Lejeune.  
24 That I had the background and experience that may be  
25 helpful to the plaintiffs.

1 HEIDI SCHWARZ, MD, FAAN by MS. HURT

2 Q. And did he say anything else about the  
3 litigation?

4 A. No.

5 Q. And is there any communications with Dr.  
6 Dorsey responsive to the subpoena?

7 A. No. Since that initial communication where  
8 I said I would be interested in learning more, I  
9 have not spoken with Dr. Dorsey at all.

10 Q. And in spring of 2024, were you actively  
11 working on the TCE report on the Rochester  
12 attorneys?

13 A. It was published in January 2024. So that  
14 -- at that point, we were -- the study was done.

15 Q. And have you talked to anyone else about  
16 the Camp Lejeune litigation before you were  
17 retained?

18 A. Dr. Barbano and I, were both approached by  
19 Dr. Dorsey, and we discussed the potential of being  
20 involved in this litigation.

21 Q. And was this -- Dr. Barbano and you and Dr.  
22 Dorsey all in the same conversation together or are  
23 they separate conversations?

24 A. These were separate conversations. So my  
25 conversation was only with Dr. Barbano after Dr.

1 HEIDI SCHWARZ, MD, FAAN by MS. HURT

2 Dorsey reached out separately to him.

3 Q. And what did you and Dr. Barbano talk about  
4 prior to you being retained?

5 A. We talked about the potential of being  
6 involved, what was involved commitment wise, and  
7 what our hesitations might be about being connected  
8 with this litigation.

9 Q. And when you say "hesitations," what do you  
10 mean by that?

11 A. We were not sure what kind of records would  
12 be provided to us, whether they would be complete  
13 records, and whether they would be unbiased. And,  
14 at least for me, I felt that it was going to be  
15 important for me to be able to see the individuals  
16 whose cases I was reviewing to ensure the correct  
17 diagnosis.

18 Q. And did Dr. Barbano share those concerns?

19 A. I think he shared the concerns about the  
20 records. I'm not sure he felt as strongly about  
21 seeing the patients, the individuals.

22 Q. When you say you weren't sure what kind of  
23 records, what kind of records would you have -- were  
24 you want to see in order to be able to do your  
25 evaluation?



1 HEIDI SCHWARZ, MD, FAAN by MS. HURT

2 A. I wanted to see all medical records.

3 It's -- I would rather make the determination myself  
4 as to what's pertinent and what's not pertinent. So  
5 to see all medical records, and as I learned,  
6 depositions had already been performed, so I wanted  
7 to be able to see depositions of both the factual  
8 witnesses and medical testimony, and particularly to  
9 see Veteran's health records.

10 Q. Is there anything else?

11 A. And, I guess, the other thing would be  
12 that -- the ability for me to see the patient and do  
13 a virtual exam, in order to confirm diagnosis and  
14 severity of disease.

15 Q. Would it be helpful for you if the exam had  
16 been in person?

17 A. No. I -- no.

18 Q. So you don't think there has been any added  
19 value to taking the exam in person?

20 MR. MICELI: Object to the form.

21 A. I do not.

22 Q. Okay. You've written a lot of articles on  
23 the value of virtual --

24 A. Yes, I have.

25 Q. Okay. Virtual exams. You also mentioned

1 HEIDI SCHWARZ, MD, FAAN by MS. HURT  
2 that you were worried about bias. What would you --  
3 what did you mean by that statement?

4 MR. MICELI: Object to the form.

5 A. If medical records had been provided that  
6 were selective in the sense that I would have seen  
7 records that would support, for instance, the  
8 diagnosis or the exposure, but be denied information  
9 that would have presented a different perspective.

10 Q. And did you see that to be the case when  
11 you received the files?

12 A. I found --

13 MR. MICELI: Object to the form.

14 Excuse me.

15 A. I found no bias.

16 Q. Were you concerned at all about the  
17 toxicology aspect of -- let me rephrase that. Did  
18 you think that you had the requisite experience to  
19 be able to make an epidemiological decision in this  
20 case?

21 MR. MICELI: Object to the form.

22 A. I'm not an epidemiologist, but I have many  
23 years of experience of reviewing epidemiologic  
24 studies in various disease entities, not only in  
25 movement disorders. And so I felt that I had the

1 HEIDI SCHWARZ, MD, FAAN by MS. HURT  
2 scientific basis to objectively review the  
3 epidemiologic evidence.

4 Q. And we'll talk -- we'll talk more about  
5 that as the day progresses. Are you aware that  
6 there's only -- only three of the nine water systems  
7 was found to be contaminated by ATSDR?

8 A. I was not aware of that. I was not aware  
9 of that.

10 Q. And would you agree that if someone did not  
11 live or work at the contaminated part of the base,  
12 they would not have been sufficiently exposed to  
13 develop Parkinson's disease?

14 MR. MICELI: Object to the form.

15 A. I would have to defer. I'm not sure on  
16 that question because they may have still had  
17 exposure through aerosolized, or other ways of using  
18 water buffalos, and et cetera.

19 Q. But you would agree that if you didn't live  
20 on the contaminated part of the base that you would  
21 have less exposure than someone who lived on the  
22 contaminated part of the base, correct?

23 MR. MICELI: Object to the form.

24 A. I think that's an assumption that is  
25 probably true, but I cannot be sure that there was

1 HEIDI SCHWARZ, MD, FAAN by MS. HURT  
2 no toxic exposure.

3 Q. And who -- or like, what would be your  
4 basis for determining whether or not there was  
5 sufficient toxicological exposure?

6 MR. MICELI: Object to the form.

7 A. The calculations done by Dr. Kelly Reynolds  
8 have documented that the exposure for both of the  
9 individuals that I studied was significant and  
10 prolonged, well over the three-month criteria that  
11 has been shown to be associated with an increased  
12 risk of Parkinson's disease.

13 Q. Did you do any evaluation yourself and  
14 determine the sufficiency?

15 A. I did not. I relied on the experts in this  
16 case.

17 Q. Have you ever given a presentation or  
18 spoken publicly about Camp Lejeune?

19 A. I have not.

20 Q. So when were you first contacted by counsel  
21 about working on this litigation?

22 A. The first correspondence that I have was  
23 the beginning of March 2024.

24 Q. And earlier, you said you talked to Dr.  
25 Dorsey in spring of 2024. Did counsel reach out to

1 HEIDI SCHWARZ, MD, FAAN by MS. HURT  
2 you shortly after that?

3 MR. MICELI: Object to the form. I  
4 think that misstates.

5 A. I don't have a definitive recollection, but  
6 I do not believe they reached out to me before I had  
7 a discussion with Dr. Dorsey.

8 Q. Okay. Let me rephrase the question. It  
9 was not very clear. So after you talked to Dr.  
10 Dorsey, how long was it before counsel reached out  
11 to you?

12 A. I don't recall. It could have been a few  
13 weeks. It could have been a month.

14 Q. Okay. Did you sign a retainer agreement in  
15 this litigation?

16 A. I do have an agreement that I signed in  
17 June of 2024.

18 Q. Did you start working on the litigation in  
19 March of 2024?

20 A. I did not.

21 Q. Okay. Were you first retained as an  
22 expert, like a testifying expert in this litigation?

23 MR. MICELI: Object to the form.

24 A. I was retained as a specific causation  
25 expert.

1 HEIDI SCHWARZ, MD, FAAN by MS. HURT

2 Q. Okay. And who specifically retained you?

3 A. The Mike Dolan firm.

4 Q. And what is the scope of your assignment  
5 for this litigation?

6 MR. MICELI: To the extent you can  
7 answer that without divulging  
8 discussions with counsel, you can  
9 answer.

10 A. Could you clarify that question.

11 Q. Sure. What were you asked to opine on?

12 MR. MICELI: Same objection.

13 A. I was asked to render an opinion regarding  
14 whether each of these individuals had Parkinson's  
15 disease and whether I thought it was as likely as  
16 not that their Parkinson's disease was related to  
17 their exposure at Camp Lejeune.

18 Q. And where did the "as likely as not" come  
19 from?

20 A. The Camp Lejeune Justice Act.

21 Q. And had you ever heard of the phrase "as  
22 likely as not" before?

23 A. That concept was new to me. I had not  
24 heard of it before I read the Camp Lejeune Justice  
25 Act.

1 HEIDI SCHWARZ, MD, FAAN by MS. HURT

2 Q. And what does "as likely as not" mean?

3 A. It means -- to me it means clinical  
4 equipoise. Meaning, it's as likely as not that X is  
5 a cause of this person's symptoms. 50/50.

6 Q. And how did you determine the as likely as  
7 not to your clinical ex -- I can't say the word,  
8 equipoise?

9 A. That's sort of a detailed answer. It  
10 involved reviewing the history of each of these  
11 individuals, their testified exposure to water,  
12 their duration of their time at Camp Lejeune, and  
13 then reviewing epidemiologic toxicology and  
14 mechanistic data.

15 Q. Okay. So let me rephrase my question  
16 because I don't think it was clear. How did you  
17 determine that clinical equipoise is the same thing  
18 as like -- is as likely as not?

19 MR. MICELI: Object to the form.

20 A. Well, clinical equipoise means that there  
21 is as much of a possibility that X causes something  
22 as there is that it doesn't cause something.

23 Q. And you're not a lawyer, correct?

24 A. I am not a lawyer.

25 Q. And you've never went to law school,

1 HEIDI SCHWARZ, MD, FAAN by MS. HURT  
2 correct?

3 A. Correct.

4 Q. And as you just said, "as likely as not"  
5 came from the Camp Lejeune Justice Act, correct?

6 A. Correct.

7 Q. Had you read the Camp Lejeune Justice Act  
8 before you were retained by counsel?

9 A. No. I had not.

10 Q. And did counsel provide you with a copy of  
11 the Camp Lejeune Justice Act?

12 A. They did.

13 Q. What was your compensation for this  
14 litigation?

15 A. \$650 an hour for review of records and  
16 supportive material, and discussion with counsel,  
17 and virtual visit with patient, and then a separate  
18 fee for testimony.

19 Q. And how much have you been paid to date?

20 A. To date, I have been paid roughly \$40,000.  
21 I have worked about 100 hours, so there are --  
22 there's parts of my work that has not been  
23 reimbursed yet.

24 Q. And so the pay-to-date with the 40 -- let  
25 me rephrase that. The 40,000, does that include



1 HEIDI SCHWARZ, MD, FAAN by MS. HURT  
2 work for Mr. Sparks and Mr. Welch?

3 A. Yes, it does.

4 Q. Do you receive a bonus for anything?

5 A. Not that I'm aware of.

6 MR. MICELI: Me either.

7 Q. So you don't receive any type of incentive  
8 for if the plaintiffs prevail at trial?

9 A. No.

10 Q. Did you receive any written directions  
11 regarding the issues you should address?

12 MR. MICELI: Object to the form.  
13 Do not discuss any communications  
14 between counsel and yourself, whether  
15 written or verbal.

16 MS. HURT: But you can --

17 MR. MICELI: You can ask her if she  
18 -- if we gave her any data or  
19 assumptions.

20 MS. HURT: Correct.

21 BY MS. HURT:

22 Q. Did you receive any written instructions?  
23 You don't -- I don't want to know what the content  
24 of the instructions were, just whether or not you  
25 received any?

1 HEIDI SCHWARZ, MD, FAAN by MS. HURT

2 A. No. I did not.

3 Q. Did you perform any work in this matter  
4 prior to executing the retainer agreement?

5 A. No. I did not.

6 (EXHIBIT NO. 5 WAS MARKED FOR  
7 IDENTIFICATION.)

8 Q. In Exhibit 5, what I just handed you, is a  
9 letter that was received from Plaintiff's Counsel,  
10 it has the Bates stamp, CL\_PLG-EXPERT\_SCHWARZ\_, with  
11 the Bates number ending in 5. And the heading says  
12 "Camp Lejeune Justice Act Plaintiff's Leadership  
13 Group," and it's addressed to Dr. Schwarz.

14 Doctor, have you seen this letter before  
15 today?

16 A. Yes.

17 Q. And when did you receive this letter?

18 A. This is not dated, but my recollection is  
19 that I received it in June of 2024.

20 Q. And this is not the retainer agreement you  
21 signed, correct?

22 A. I'm not sure. I don't know that -- I don't  
23 think this was what I assumed was my affiliation  
24 with this litigation and with this firm.

25 MR. MICELI: For the record, this

1 HEIDI SCHWARZ, MD, FAAN by MS. HURT  
2 is all I'm aware of.

3 MS. HURT: Okay.

4 BY MS. HURT:

5 Q. Are you reimbursed for any expenses or  
6 cost?

7 A. If I were to travel for testimony I would  
8 be reimbursed for that, but I have not needed to  
9 travel.

10 Q. What percentage of your annual income is  
11 earned from performing expert services?

12 A. That varies from year to year. Usually,  
13 it's about 50 percent, but I am not working  
14 full-time, I am working per diem at the university.

15 Q. Did you just say that it's usually about 50  
16 percent?

17 A. Correct.

18 Q. And what types of cases do you provide  
19 expert services on?

20 A. I, in the past, have provided services on  
21 medical malpractice cases. I've also served as a  
22 consultant for a select few lawyers on workers'  
23 compensation cases. Those are really the only legal  
24 work that I've done.

25 Q. And prior to working on this litigation,

1 HEIDI SCHWARZ, MD, FAAN by MS. HURT  
2 how much of your annual income was based on expert  
3 services.

4 A. Prior to working on this, it would be 40 to  
5 50 percent.

6 Q. And the other 50 percent of your annual  
7 income, where does it come from?

8 A. I work per diem for the Department of  
9 Neurology supervising residents. And so I get paid  
10 for that when I do it. I do editorial work for a  
11 subset of EBSCO, E-B-S-C-O, called DynaMed, where  
12 I'm a topic editor for general neurology. And  
13 really, of late, those are the other sources of  
14 income that I have.

15 Q. And what does per diem of supervising  
16 residents mean?

17 A. It means that if I supervise residents in  
18 their outpatient clinic for a half day, I get paid  
19 \$600. And I do that, roughly, one to two times a  
20 month.

21 Q. And what's involved when you supervise  
22 these residents?

23 A. They -- the residents see a patient, either  
24 a new patient or a follow-up patient. They come in  
25 and present the patient to me, then the resident and

1 HEIDI SCHWARZ, MD, FAAN by MS. HURT  
2 I go in and meet the patient and whoever accompanies  
3 them. I do focused history and focused exam, and  
4 then we discuss management. And then the resident  
5 writes their note. I cosign and attest the note  
6 with my own addendum. And then if tests are  
7 ordered, I follow-up with that.

8 Q. And how many would you estimate of these  
9 patients have Parkinson's disease?

10 A. Of those patients, I would say probably 10  
11 to 15 percent have Parkinson's disease or  
12 Parkinsonism.

13 Q. And how long have you been doing per --  
14 supervising residents per diem?

15 A. So I've been supervising residents for, 30  
16 years, but I left my practice at the University of  
17 Rochester in September of 2021, due to illness and  
18 COVID.

19 Q. And was there any point in time when you  
20 were not working?

21 A. There was a period of time in 2013 to 2014  
22 where I stepped away from my practice to care for my  
23 father.

24 Q. And we'll talk more about your prior work  
25 history a little bit. I want to go back to some

1 HEIDI SCHWARZ, MD, FAAN by MS. HURT  
2 invoices that you provided.

3 (EXHIBIT NO. 6 WAS MARKED FOR  
4 IDENTIFICATION.)

5 Q. So Exhibit 6 is an invoice, 001. It's  
6 dated February 6, 2025. It's directed to Lori Merz,  
7 and the Bates number is CL\_PLG-EXPERT\_SCHWARZ\_ Bates  
8 number ending in one. This begins Bates. Dr.  
9 Schwarz, have you seen this document before today?

10 A. Yes.

11 Q. And is that your signature on the second  
12 page?

13 A. Yes, it is.

14 Q. And the first sentence of the letter  
15 states, let this serve as the first bill rendered  
16 for my services regarding the above litigation. Did  
17 I read that correctly?

18 A. That is correct.

19 Q. Can you confirm that this is the first  
20 invoice you sent to the plaintiffs in this  
21 litigation?

22 A. Yes, it is.

23 Q. And ask that you take a moment to just  
24 review the invoice, and let me know when you're  
25 ready to continue.

1 HEIDI SCHWARZ, MD, FAAN by MS. HURT

2 A. I'm ready.

3 Q. Can you confirm that the details provided  
4 in this invoice are accurate?

5 A. Yes, they are.

6 Q. And you don't have any revisions, correct?

7 A. I do not.

8 Q. According to this letter, you began working  
9 on Mr. Sparks' case in July of 2024; is that  
10 correct?

11 A. That is correct.

12 Q. And you began working on Mr. Welch's case  
13 in October of 2024, correct?

14 A. That is correct.

15 Q. And the total amount due for Mr. -- so I'm  
16 going to quote here at the bottom of the first --  
17 second paragraph. The total amount due for Mr.  
18 Richard Sparks' case is \$30,387.50. If you would  
19 like a complete accounting of time, hours spent,  
20 please let me know. What did -- did I read that  
21 correctly?

22 A. You did.

23 Q. What does complete accounting mean?

24 A. To me, it meant if they wanted a statement  
25 saying how much of my time was spent on conferences

1 HEIDI SCHWARZ, MD, FAAN by MS. HURT  
2 with counsel, versus review of medical records,  
3 versus review of reports and literature, I would be  
4 able to provide that to them.

5 Q. So would that be like a line by line  
6 invoice?

7 A. I guess so. Or an Excel spreadsheet. Yeah.

8 Q. And did counsel ever ask for that complete  
9 accounting?

10 A. No. They did not.

11 Q. For Mr. Welch, did you provide counsel of a  
12 complete accounting for that time?

13 A. I did not.

14 Q. Did you look at the medical records for any  
15 other plaintiff, besides Mr. Sparks and Mr. Welch?

16 MR. MICELI: Object to the form of  
17 the question. If you did any consulting  
18 outside of what you were testifying  
19 about for Mr. Welch and Mr. Sparks, I'm  
20 going to instruct you not to answer.

21 THE WITNESS: I did not.

22 (EXHIBIT NO. 7 WAS MARKED FOR  
23 IDENTIFICATION.)

24 BY MS. HURT:

25 Q. Handing you what is Exhibit 7. It is



1 HEIDI SCHWARZ, MD, FAAN by MS. HURT  
2 another invoice. It's invoice 002. It's dated June  
3 8, 2025. It's Bates stamped CL\_PLG-EXPERT\_SCHWARZ\_  
4 Bates number ending in three for the begin Bates.  
5 Dr. Schwarz, do you recognize this letter?

6 A. I do.

7 Q. And is that your signature on the second  
8 page?

9 A. It is.

10 Q. And do you remember providing this to  
11 counsel?

12 A. I do.

13 Q. The first sentence of the letter states,  
14 "Let this serve as the second bill rendered for my  
15 services regarding the above litigation." Did I  
16 read that correctly?

17 A. Yes, you did.

18 Q. Can you confirm that this is the second  
19 invoice you sent to counsel in the litigation?

20 A. It is.

21 Q. Okay. Can you take a moment to look at  
22 this invoice, as well, and let me know when you're  
23 ready?

24 A. I'm ready.

25 Q. Okay. Can you confirm that the details

1 HEIDI SCHWARZ, MD, FAAN by MS. HURT  
2 provided in this invoice are accurate?

3 A. They are.

4 Q. And you don't have any revisions, correct?

5 A. I do not.

6 Q. And can you confirm that these are the only  
7 two invoices that you've sent to Plaintiff's  
8 Counsel?

9 A. They are.

10 Q. And did you end up providing counsel the  
11 complete accounting for the billed amount in this  
12 invoice?

13 A. I did not.

14 Q. Thank you. Okay. So I'm going to preface  
15 before I start asking these questions. I don't want  
16 to know of any substantive discussions that you had  
17 with counsel. So that because that would be covered  
18 by attorney-client -- I mean, attorney work product.

19 Did you do anything in preparation for  
20 today's deposition?

21 A. Yes, I did.

22 Q. And what did you do today -- to prepare for  
23 today's deposition?

24 A. Reviewed prior reports that I had seen  
25 before, reviewed prior literature that I had

1 HEIDI SCHWARZ, MD, FAAN by MS. HURT  
2 reviewed before, and had conferences with counsel.

3 Q. And you said review prior literature. What  
4 do you mean?

5 A. I have a set of references at the back of  
6 both of my expert witness statements, and I reviewed  
7 again some of those references. And then I believe  
8 you've been provided with some new articles that  
9 I've also reviewed.

10 Q. What new articles are these?

11 A. There was an article by Sallmen, an article  
12 by Nielsen. Nielsen was actually already in my  
13 report. There were -- there was a article from  
14 Korea about epilepsy and Parkinson's disease; and  
15 another article from JAMA Neurology regarding  
16 anticonvulsants and Parkinson's disease; and there  
17 was a review article by Dorsey and Boehme about  
18 epidemiology of Parkinson's disease.

19 MS. HURT: Can we go off the record  
20 for --

21 THE VIDEOGRAPHER: Time on the  
22 monitor is 9:51. We're off the record.

23 (Brief recess.)

24 THE VIDEOGRAPHER: Time on the  
25 monitor is 10:00. This begins media 3.

1 HEIDI SCHWARZ, MD, FAAN by MS. HURT

2 We're on the record.

3 BY MS. HURT:

4 Q. Dr. Schwarz, I'm looking at the  
5 supplemental materials that your counsel provided.  
6 It lists on here draft deposition transcript of John  
7 Lipscomb?

8 A. Correct.

9 Q. And you reviewed that document?

10 A. Yes, I did.

11 Q. And why did you review that transcript?

12 A. Because it was referred to by two of the  
13 expert witnesses from the DOJ that were rebuttals to  
14 my report, and I felt that I needed to understand  
15 what they were basing their opinions on.

16 Q. And you say to the DOJ experts, who are you  
17 referring to?

18 A. I'm referring to Dr. Young and Dr. Gollump.

19 Q. And did reading the transcript, did it  
20 answer any questions for you?

21 A. It helped me to understand the concept of  
22 risk assessment and the fact that it was not an  
23 argument or a science that can be used to prove  
24 causation.

25 Q. And you agree with that, what you just

1 HEIDI SCHWARZ, MD, FAAN by MS. HURT  
2 said?

3 A. Yes, I do.

4 Q. And you didn't know that before you read  
5 the transcript?

6 A. I actually didn't know much about risk  
7 assessment until I read the transcript.

8 Q. And have you read Lipscomb's report?

9 A. No. Just the deposition.

10 Q. Have you asked counsel to see the Lipscomb  
11 report?

12 MR. MICELI: Object to the form.  
13 Do not discuss any discussions you and I  
14 have had. You and any of our counsel  
15 have had.

16 Q. Let me rephrase the question. Did counsel  
17 provide you the Lipscomb's report?

18 A. No.

19 Q. And what was your understanding of risk  
20 assessment before you read the transcripts?

21 A. I actually wasn't sure what risk assessment  
22 was, and I wasn't aware that that's what's used, for  
23 instance, by the EPA to set levels, et cetera.

24 Q. So how are you able to determine that there  
25 was sufficient level of exposure if you hadn't

1 HEIDI SCHWARZ, MD, FAAN by MS. HURT  
2 looked at risk assessment?

3 MR. MICELI: Object to form.

4 A. The exposure that has been documented in  
5 articles by Kelly Reynolds is magnitudes higher than  
6 what is currently acceptable. In fact, at this  
7 point, the EPA has completely banned TCE, so no  
8 exposure is acceptable.

9 Q. And isn't it true that the EPA set  
10 standards that are based on a cumulative dose rather  
11 than a situational dose?

12 MR. MICELI: Object to the form.

13 A. That is -- as far as I know, that is true.  
14 Yes.

15 Q. And EPA sets standards that are,  
16 preventative in nature, correct?

17 MR. MICELI: Object to the form;  
18 foundation.

19 A. I would have to ask an EPA expert.

20 Q. Okay. And did you know what the EPA  
21 standards were before reading Lipscomb's report -- I  
22 mean, Lipscomb's transcript?

23 A. Did I know -- could you clarify that?

24 Q. Yeah. That wasn't very clear. Do you know  
25 -- did you know the EPA's levels for the

1 HEIDI SCHWARZ, MD, FAAN by MS. HURT  
2 contaminants of concern in this litigation before  
3 you reviewed Lipscomb's transcript?

4 A. Yes.

5 Q. And does risk assessment interact with your  
6 professional life at all?

7 MR. MICELI: Object to the form.

8 No objection there.

9 A. No. Not in a substantive way.

10 Q. And you haven't taken any courses on risk  
11 assessment, correct?

12 A. I have not.

13 Q. Did you meet with counsel to prepare for  
14 today's deposition?

15 A. I have.

16 Q. And how many times did you meet with  
17 counsel to prepare for today's deposition?

18 A. I am going to estimate that I have met with  
19 counsel four times.

20 Q. And how long did each of those meetings  
21 last?

22 A. Between an hour and fifteen and an hour and  
23 thirty minutes.

24 Q. And was anyone else present during those  
25 meetings?

1 HEIDI SCHWARZ, MD, FAAN by MS. HURT

2 A. Just myself and counsel.

3 Q. Okay. Did you review any documents with  
4 counsel during those meetings?

5 A. I reviewed the expert witness statements  
6 from the DOJ experts.

7 Q. And the DOJ experts you're referring to,  
8 which ones are those?

9 A. It's doctors Michael Young and Steven, I  
10 believe, Gollump.

11 Q. Did you take any notes during any of these  
12 prep sessions?

13 A. These were discussions.

14 Q. And did counsel provide you any additional  
15 documents to prepare for your deposition?

16 MR. MICELI: Object to the form.

17 Do not discuss anything we discussed to  
18 the extent you can answer without  
19 divulging discussions.

20 A. I don't have anything to add to that.

21 Q. Okay. With the additional documents that  
22 are on your supplemental reliance list, when did you  
23 review those?

24 A. I would say that I reviewed them during the  
25 month of May 2025 and early June 2025.



1 HEIDI SCHWARZ, MD, FAAN by MS. HURT

2 Q. And were these documents that you found  
3 yourself or were they provided by counsel?

4 A. A combination.

5 Q. Okay. So I'm using that. I don't have a  
6 printed copy. So the first one listed is Belete is  
7 the first author. It's in "Association Between  
8 Antiepileptic Drugs and Incident Parkinson's  
9 Disease." Was that provided by counsel or did you  
10 find that yourself?

11 A. I found that myself.

12 Q. Okay. The next one is -- Hwang is the  
13 first author listed in an "Increasing Incidence of  
14 Parkinson's Disease in Patients With Epilepsy." Was  
15 that provided by counsel or did you -- was that  
16 provided by counsel?

17 A. Counsel mentioned there was an article. I  
18 found it.

19 Q. Okay. And then there's an article the next  
20 one's Nielsen, "Solvent Exposed Occupations and Risk  
21 of Parkinson's Disease." Was that provided by  
22 counsel?

23 A. That actually, I think, was in my original  
24 documentation, so I believe I found that.

25 Q. And then the draft deposition transcript,

1 HEIDI SCHWARZ, MD, FAAN by MS. HURT  
2 was that provided by counsel?

3 A. That was.

4 Q. And then the specific causation expert  
5 report of Dr. Leykind, was that provided by counsel?

6 A. Yes.

7 Q. And when were you provided that document?

8 A. I would say in late May or early June 2025.

9 Q. And the specific causation expert report of  
10 Dr. Bailey, did counsel provide you that document?

11 A. Yes, they did.

12 Q. And when did they provide it to you?

13 A. Late May or early June 2025.

14 Q. Are there any documents that you reviewed  
15 but you decided not to rely on in your report?

16 A. There were a number of documents that I  
17 reviewed but did not rely on.

18 Q. Can you name those for me?

19 A. No. I cannot name those for you.

20 Q. Can you give me an example?

21 A. Documents would be studies that I found  
22 that were not peer reviewed, or were not well  
23 designed, or were not relevant to the individuals  
24 that I'm representing.

25 Q. And what does "not well designed" mean?

1 HEIDI SCHWARZ, MD, FAAN by MS. HURT

2 A. So it's probably easier for me to describe  
3 a well designed study. So a randomized controlled  
4 double blind study is the gold standard. We do use  
5 case control studies, but they have more potential  
6 for bias. But case reports and articles that don't  
7 have, for instance, a control arm of one sort really  
8 are not scientifically sound. So judgment has to be  
9 suspended on their conclusions.

10 Q. And when you don't rely on them, does that  
11 mean that they're not -- let me rephrase this. Let  
12 me think of how to phrase it. If you don't rely on  
13 them, does that mean that they don't go into the  
14 conclusions that you reach in this litigation?

15 A. By and large, they are not the foundation  
16 on which I base my conclusions.

17 Q. Have you been subject to any disciplinary  
18 action or censure by any licensing body?

19 A. I have not.

20 Q. And have you ever been subject to any  
21 disciplinary action by a court or tribunal?

22 A. No. I have not.

23 Q. You know Dr. Barbano, correct?

24 A. I do.

25 Q. How would you define the relationship

1 HEIDI SCHWARZ, MD, FAAN by MS. HURT  
2 between you and Dr. Barbano?

3 A. We have been colleagues for at least 30  
4 years. We've worked alongside each other. We've  
5 shared interesting cases and challenges in the field  
6 of medicine.

7 Q. And you both worked at the University of  
8 Rochester; is that correct?

9 A. That is correct.

10 Q. And are you peers? Would you consider you  
11 guys -- yourselves to be peers?

12 A. Yes.

13 Q. And what types of projects have you and Dr.  
14 Barbano worked on together?

15 A. The only study that we've worked on  
16 together is the study by Dorsey, et al. Regarding a  
17 cluster of Parkinson's patients in Rochester, New  
18 York.

19 Q. And did -- how did you end up working on  
20 that study?

21 A. Dr. Dorsey approached me and asked me if I  
22 would be interested in being part of the study.

23 Q. And had you worked on any other studies  
24 with Dr. Dorsey before this one?

25 A. I worked on several. Two or three

1 HEIDI SCHWARZ, MD, FAAN by MS. HURT  
2 telemedicine in Parkinson's disease studies.

3 Q. Had you worked on any toxic or chemical,  
4 like, reports with Dorsey before?

5 A. I have not.

6 Q. Prior to this litigation, have you worked  
7 on any other legal matters with Dr. Barbano?

8 A. I have not.

9 Q. And when working with Dr. Barbano on the  
10 Dorsey study regarding the cluster of patients in  
11 Rochester, what type of work did you do?

12 A. So I guess I would be best characterized as  
13 a site investigator. So I was a blinded examiner of  
14 both control group and the studied group in  
15 gathering a history and doing a complete neurologic  
16 exam and the unified Parkinson's disease rating  
17 scale on participants. And then once the data was  
18 produced, worked on creating our conclusions and  
19 publishing the article, editing.

20 Q. Okay. There's a lot to unpack there. So  
21 the first thing you said is you did a site  
22 investigation. What did that involve?

23 A. Yeah. Excuse me.

24 MR. MICELI: Object to the form;  
25 foundation. I think she said site

1 HEIDI SCHWARZ, MD, FAAN by MS. HURT  
2 examiner.

3 BY MS. HURT:

4 Q. Oh, I'm sorry.

5 A. Yeah. Site examiner. Exactly.

6 Q. That was my fault. What is the site --  
7 what does that mean, site examiner?

8 A. So I am a professional certified -- I'm a  
9 professional experienced in Parkinson's disease who  
10 examines participants in the trial to gather a  
11 history and to look for motor and non-motor findings  
12 of Parkinson's disease in the participants, and then  
13 examining them, and using a standardized exam for  
14 this particular study.

15 Q. And when you say standardized exam is --  
16 what was the exam?

17 A. So the exam is a combination of looking at  
18 the features that we see in Parkinson's disease:  
19 Slowness of movement, tremor, rigidity, postural  
20 instability, timing walk, timing ability to rise  
21 from a chair, timing -- or observing the ability to  
22 turn, looking at arm swing, all of the features that  
23 go along with Parkinson's disease.

24 Q. And were these conducted virtually or in  
25 person?

1 HEIDI SCHWARZ, MD, FAAN by MS. HURT

2 A. Combination.

3 Q. And correct me if I'm wrong, you said that  
4 you were also a blinded examiner?

5 A. Correct. Which means that I didn't know  
6 whether these individuals were part of the group  
7 that we knew were exposed to TCE versus a group that  
8 was not exposed to TCE.

9 Q. And then you said you looked at the data  
10 produced, correct?

11 A. Correct.

12 Q. And what did you do with the data?

13 A. We looked at, basically, trends that we saw  
14 there with regard to incidence of cancers associated  
15 with TCE, incidence of frank Parkinson's disease and  
16 incidence of what we would call motor findings,  
17 suggestive but not diagnostic of Parkinson's  
18 disease. And then we applied statistical analysis  
19 to determine whether the differences between the two  
20 groups was significant.

21 Q. And who performed the statistical analysis?

22 A. I would have to look at the authors in the  
23 study. It was not me.

24 Q. It's not you. Okay. And how long did you  
25 work on this project?

1 HEIDI SCHWARZ, MD, FAAN by MS. HURT

2 A. I would say probably -- well, actually,  
3 with all the editing, at least a year.

4 Q. Right. And if you can estimate, how many  
5 hours do you think you worked on it?

6 A. Golly. I would say at least 20.

7 Q. Okay. Besides the Dorsey study, was there  
8 any other projects that you worked with Dr. Barbano  
9 on?

10 A. No.

11 Q. Would you consider Dr. Barbano respected in  
12 the field of neurology?

13 A. Yes.

14 Q. Do you consider him respected in the -- as  
15 a movement disorder specialist?

16 A. Yes.

17 (EXHIBIT NO. 8 WAS MARKED FOR  
18 IDENTIFICATION.)

19 Q. Okay. So Exhibit 8, what I just handed  
20 you, is an expert witness report for Mr. Peterson,  
21 and it's authored by Dr. Barbano, correct?

22 A. It appears so. Yeah.

23 MR. MICELI: What was Exhibit 7?

24 THE WITNESS: 7 was my second  
25 invoice.



1 HEIDI SCHWARZ, MD, FAAN by MS. HURT

2 MR. MICELI: Okay. I'm sorry.

3 BY MS. HURT:

4 Q. Have you seen this report before today?

5 A. I have not.

6 Q. Were you aware that Dr. Barbano prepared a  
7 report for Mr. Peterson and Mr. McElhiney in this  
8 litigation?

9 MR. MICELI: Object to the form;  
10 foundation.

11 A. I knew that he had prepared reports for two  
12 individuals. I did not know their names or any of  
13 the details regarding their cases.

14 Q. Okay. And would you consider Dr. Barbano  
15 to be qualified to opine on the etiology of PD in  
16 this case?

17 A. I do consider him qualified.

18 Q. Did you -- do you know Dr. Andruska?

19 A. No.

20 Q. Okay. So you're not aware of that name?

21 A. I am not.

22 Q. Okay.

23 MR. MICELI: Are you done with  
24 this.

25 MS. HURT: Yeah. I am for now.

1 HEIDI SCHWARZ, MD, FAAN by MS. HURT

2 Thank you.

3 BY MS. HURT:

4 Q. Okay. I don't know -- want to know the  
5 substance of any of these communications, but have  
6 you had any communications with other experts in  
7 this case?

8 A. I have not.

9 Q. Did you have discussions with Dr. Reynolds?

10 A. I did not.

11 Q. And you never met with Dr. Reynolds?

12 A. I never met with Dr. Reynolds.

13 Q. You never met virtually with Dr. Reynolds?

14 A. I did not.

15 Q. Okay. And reading your opinion for Mr.  
16 Sparks, did you rely on any data provided by another  
17 expert in this case?

18 A. As noted in my report, I've relied on a  
19 variety of articles, in addition to regulatory  
20 agency documentation, and also on the toxicology  
21 reports of doctors Cannon, Boehme, B-O-E-H-M-E,  
22 Costa, De Miranda, and Miller, as well as Dr. Kelly  
23 Runham.

24 Q. But you never communicated with any of  
25 these guys?

1 HEIDI SCHWARZ, MD, FAAN by MS. HURT

2 A. I did not.

3 Q. Okay. So we're going to go back to Exhibit  
4 3, which was your report on Mr. Sparks. At the end  
5 of your report on Page 19 -- towards the end of your  
6 report on Page 19, there is a CV, correct?

7 A. Correct.

8 Q. Is this your up to date CV?

9 A. Pretty up to date.

10 Q. Is there anything that's changed since your  
11 report?

12 A. I think there are a number of posters that  
13 I have not included in here which have to do with  
14 brain health in underserved communities. They're  
15 not relevant to this -- topics.

16 Q. Can you -- oh, I couldn't catch the word  
17 you said. Did you say posters?

18 A. Posters. Yeah.

19 Q. What's a poster?

20 A. So in the old days, poster was poster.

21 Q. Oh, okay.

22 A. And you painted and you -- and you -- and  
23 you glued things on, but now they're virtual.

24 Q. So -- oh, okay.

25 A. Basically a big PowerPoint slide that

1 HEIDI SCHWARZ, MD, FAAN by MS. HURT  
2 projects --

3 Q. So a poster's a poster?

4 A. Right.

5 Q. Okay. So you would say that this is a  
6 complete and accurate representation of your  
7 education and professional background?

8 A. Yes.

9 Q. You have a Doctorate in medicine from the  
10 University of Rochester, correct?

11 A. Correct.

12 Q. Parkinson's disease is not your primary  
13 focus of medicine, correct?

14 A. It is -- it has never been my sole focus,  
15 but it has been an area of expertise for me. I did  
16 a fellowship in movement disorders so, and was  
17 involved in several studies.

18 Q. But is it a primary focus?

19 A. No. I don't have a primary focus at this  
20 point.

21 (EXHIBIT NO. 9 WAS MARKED FOR  
22 IDENTIFICATION.)

23 Q. Okay. So Exhibit 9 is going to be a  
24 printout from the University of Rochester website.  
25 It's a biography of Dr. Schwarz. Dr. Schwarz, do

1 HEIDI SCHWARZ, MD, FAAN by MS. HURT  
2 you recognize this?

3 A. I've never seen it.

4 Q. Can you take a moment just to look at the  
5 text and let me know when you're ready?

6 A. Yeah. It seems pretty complimentary. Very  
7 interesting.

8 Q. Okay. So you hadn't seen this before  
9 today?

10 A. I've never seen this.

11 Q. Okay. So sometimes people will write the  
12 biographies on the website. You didn't write this  
13 biography?

14 A. I did not write this. No.

15 Q. So towards the bottom of the first page,  
16 the last paragraph, it says, "Each day Dr. Schwarz  
17 primarily focuses on head" -- sorry. Let me reread  
18 that. "Each day, Dr. Schwarz primarily focuses on  
19 headache medicine." Did I read that correctly?

20 MR. MICELI: Object to the form.

21 And I'll stipulate that you read it  
22 correctly. But I object to the form on  
23 basis of foundation. She's never seen  
24 this before.

25 BY MS. HURT:

1 HEIDI SCHWARZ, MD, FAAN by MS. HURT

2 Q. Okay. But you --

3 A. You read it correctly.

4 Q. Is that statement -- do you consider that  
5 statement to be accurate?

6 A. Not currently. No.

7 Q. Okay. And how is it not accurate  
8 currently?

9 A. I don't practice headache medicine anymore.

10 Q. Okay.

11 A. I stopped that in 2020. I certainly do see  
12 headache patients with the residents, but I see  
13 general neurology with the residents. So it's  
14 whatever comes in the door.

15 Q. Okay.

16 A. And then -- but, no. I was board certified  
17 in headache medicine, but I let that lapse, so.

18 Q. Okay. What does headache medicine mean?

19 A. Headache medicine is a study of people who  
20 have various etiologies of head pain.

21 Q. You hold yourself to be an expert in  
22 Parkinson's disease, correct?

23 A. Correct.

24 Q. What is the basis of your expertise in  
25 Parkinson's disease?

1 HEIDI SCHWARZ, MD, FAAN by MS. HURT

2 A. It's based on my fellowship in movement  
3 disorders combined with 35 years of experience of  
4 diagnosing and treating patients with Parkinson's  
5 disease and being involved in studies, including the  
6 seminal study of data top, but also research in the  
7 MPTP model of Parkinson's disease in primates.

8 Q. You're not an epidemiologist, correct?

9 A. I am not.

10 Q. And you don't hold yourself out to be an  
11 epidemiologist, correct?

12 A. I do not.

13 Q. Are you qualified to offer any opinions on  
14 epidemiology?

15 A. I'm -- I feel that I'm qualified to offer  
16 opinions on epidemiologic studies because of my long  
17 experience in reading studies, my experience in  
18 developing guidelines through the American Academy  
19 of Neurology, and by doing topic editorship with  
20 DynaMed.

21 Q. The last thing you just said, you said  
22 topic editor with?

23 A. DynaMed. It's a subsidiary of EBSCO,  
24 E-B-S-C-O, which is basically a competitor to  
25 UpToDate.

1 HEIDI SCHWARZ, MD, FAAN by MS. HURT

2 Q. And what does DynaMed do?

3 A. So they explore given topics, and do a very  
4 thorough review of the clinical features, the  
5 diagnosis, the etiology, the treatment, the side  
6 effects, et cetera. And support that with sources  
7 that are then graded for their reliability. And I  
8 am a topic editor for general neurology for them.

9 Q. And you said you have long experience  
10 reading epidemiological studies; is that accurate?

11 A. That is accurate.

12 Q. What do you mean by long experience?

13 A. Much of the neurologic literature is  
14 epidemiologic in nature. So I have been reading  
15 neurologic literature since 1985 when I started my  
16 residency.

17 Q. So what about reading epidemiological  
18 studies makes you qualified to opine on them?

19 MR. MICELI: Object to the form.

20 A. I not only read the articles, but I assess  
21 their -- the reliability of their study design and  
22 their discussion and conclusion in order to inform  
23 my own opinions regarding the given subject. I also  
24 have conducted multiple resident and fellow directed  
25 journal clubs dealing with a critical review of



1 HEIDI SCHWARZ, MD, FAAN by MS. HURT  
2 article reading.

3 Q. You don't have a certification in  
4 epidemiology, correct?

5 A. I do not.

6 Q. And you don't have a license in  
7 epidemiology, correct?

8 A. I do not.

9 Q. Do you have any training or experience as  
10 an epidemiologist?

11 A. I do not have experience as an  
12 epidemiologist.

13 Q. And you've never been a principal  
14 investigator for an epidemiological study, correct?

15 A. I have not.

16 Q. And you haven't taught any courses on  
17 epidemiology, correct?

18 A. I have not.

19 Q. Have you ever conducted a literature review  
20 for epidemiological studies as part of your clinical  
21 practice?

22 A. Yes.

23 Q. What did you do to conduct that?

24 A. I -- it's changed a lot over the course of  
25 my career. But currently, what I do is I put in

1 HEIDI SCHWARZ, MD, FAAN by MS. HURT  
2 search words to PubMed, NIH, or sometimes Google  
3 Scholar, and then review the posts that come up and  
4 usually click on at least the abstract to determine  
5 whether I feel that the content of the article is  
6 relevant and reliable.

7 Q. And what determines whether or not  
8 something's reliable?

9 A. I think we've sort of discussed this  
10 before, but the design of the study, whether it's a  
11 double blind controlled trial, whether it's a case  
12 controlled trial, and how well bias and compounding  
13 factors are addressed and whether it's statistically  
14 significant, whether it's a homogeneous culture or a  
15 heterogeneous culture, and a variety of factors that  
16 go into the credibility of a study.

17 Q. And would that be your exclusion criteria?

18 MR. MICELI: Object to the form.

19 A. I think there are so many inclusion and  
20 exclusion criteria that it would be hard to list  
21 them all.

22 Q. Can you give me the top five of your  
23 inclusion/exclusion criteria?

24 MR. MICELI: Same objection.

25 A. I think what I've just described, study

1 HEIDI SCHWARZ, MD, FAAN by MS. HURT  
2 design, population studied, size of the cohorts,  
3 duration of the study, who funded the study. I  
4 think that's probably at least five. And then and  
5 then it sort of gets into the weeds about, you know,  
6 dosages used or exposures measured and how they were  
7 measured, et cetera.

8 MR. MICELI: I missed something  
9 along the way. Can you read her answer  
10 back, please. I'm sorry, Cindy.

11 (Answer was read back.)

12 MR. MICELI: Got it. Thank you.

13 BY MS. HURT:

14 Q. Would you consider this a part of an  
15 independent analysis of these studies?

16 MR. MICELI: Object to the form.

17 A. Can you clarify the question.

18 Q. So when you do this process, you're  
19 independently evaluating them for their value,  
20 correct?

21 A. Correct.

22 Q. And have you performed this type of  
23 literature review for your expert work practice  
24 before?

25 A. Yes.

1 HEIDI SCHWARZ, MD, FAAN by MS. HURT

2 Q. And do you use the same process?

3 A. I do.

4 Q. You're not a toxicologist, correct?

5 A. I am not.

6 Q. Are you qualified to offer any opinions on  
7 toxicology?

8 A. I am a scientist and, you know, was trained  
9 as a chemist. So I have some background, enough to  
10 be able to read articles and understand concepts,  
11 even though I wouldn't be qualified to be a  
12 toxicologist.

13 Q. So you said you're a scientist and a  
14 trained chemist; is that correct?

15 A. My undergraduate degree was in chemistry,  
16 and I did experimental work with that.

17 Q. What type of experimental work?

18 A. I worked on carbamate toxicity, and it's a  
19 long time ago.

20 Q. Okay. And have you done any more recent  
21 type of chemical chemist work?

22 A. No. I have not.

23 Q. Do you have a certification in toxicology?

24 A. I do not.

25 Q. And you've never been a principal

1 HEIDI SCHWARZ, MD, FAAN by MS. HURT  
2 investigator for a toxicological study, correct?

3 A. I have not.

4 Q. And you've never published peer review  
5 literature on toxicology, correct?

6 A. I have not.

7 Q. Have you taught any courses on toxicology?

8 A. I have not.

9 Q. And we talked about this a little bit  
10 earlier. You're not a risk assessor, correct?

11 A. Correct.

12 Q. And are you qualified to offer any opinions  
13 on risk assessment?

14 A. I would not be qualified to review a risk  
15 assessment study. I do have enough understanding to  
16 know that risk assessment is not germane to  
17 causation.

18 Q. Why is risk assessment not germane to  
19 causation?

20 A. Because it really -- risk assessment  
21 establishes a level of a substance that has  
22 potential cumulatively to be a factor in disease.  
23 But epidemiologic studies are really the basis for  
24 looking at an association, which can then be further  
25 studied through toxicology and mechanistic studies

1 HEIDI SCHWARZ, MD, FAAN by MS. HURT  
2 to determine causation.

3 Q. If you don't understand the risk, how can  
4 you determine the cause of something?

5 MR. MICELI: Object to the form of  
6 the question.

7 A. I suppose risk is sort of the canary -- a  
8 canary in the coal mine. So it tells you that  
9 there's a potential there, but you need further  
10 studies, not just risk assessment, to determine  
11 association and then causation.

12 Q. But risk assessment is one of the building  
13 blocks, correct?

14 MR. MICELI: Object to the form.

15 A. I would say that risk assessment is what is  
16 used by governmental agencies and others to  
17 highlight a potential of risk, but it certainly in  
18 no way proves scientifically causation.

19 Q. Let's take a break.

20 MR. MICELI: Okay.

21 THE VIDEOGRAPHER: Time on the  
22 monitor is 10:42. We are off the  
23 record.

24 (Brief recess.)

25 THE VIDEOGRAPHER: Time on monitor

1 HEIDI SCHWARZ, MD, FAAN by MS. HURT  
2 is 10:54. This begins media 4. We're  
3 on record.

4 Q. Dr. Schwarz, you've been an expert in other  
5 -- expert witness in other cases, correct?

6 A. Yes.

7 Q. How many cases have you been an expert  
8 witness in?

9 A. It's a little hard to say because  
10 sometimes, as in, I was both a treating physician  
11 and the expert witness. When you live in rural  
12 areas, you sometimes wear more than one hat. I  
13 would say that I've been an expert witness in at  
14 least five cases. Not all of them have come to  
15 trial, but they have at least had an expert witness  
16 statement, if not a deposition.

17 Q. And were any of those related to toxic  
18 exposure?

19 A. No.

20 Q. When was the most recent?

21 MR. MICELI: When you say "most  
22 recent," do you mean where she's given a  
23 depo or testified or given a report?

24 MS. HURT: Uh-huh.

25 MR. MICELI: Okay. I just want to

1 HEIDI SCHWARZ, MD, FAAN by MS. HURT  
2 make sure because if there's something  
3 other than that.

4 THE WITNESS: The most recent was  
5 maybe two months ago.

6 BY MS. HURT:

7 Q. Okay. And what was that case, if you can  
8 say?

9 A. It was actually a medical malpractice case,  
10 but it involved the DOJ. And so I was asked to  
11 review some of the complications that the plaintiff  
12 had.

13 Q. And have you ever been an expert witness on  
14 a Parkinson's case?

15 A. No. I don't believe so.

16 Q. And other than this case, you've never  
17 offered an expert opinion on the ideology of  
18 Parkinson's disease, correct?

19 A. Correct.

20 Q. Have your opinions as an expert witness  
21 ever been called speculative?

22 MR. MICELI: Object to the form.

23 A. Not that I know of.

24 Q. And have your opinions ever been  
25 characterized as lacking medical certainty?



1 HEIDI SCHWARZ, MD, FAAN by MS. HURT

2 MR. MICELI: Object to the form.

3 A. Not that I know of.

4 (EXHIBIT NO. 10 WAS MARKED FOR  
5 IDENTIFICATION.)

6 Q. Exhibit 10, it's a workers' compensation  
7 board decision from 2001. Dr. Schwarz, I'd ask if  
8 you would look at this for a moment and let me know  
9 if you recognize this case?

10 A. Yes. I think I do. That was a long time  
11 ago. Maybe I don't. I guess I would say if I  
12 didn't have the name of the individual, I am not  
13 sure if the case that I'm remembering was actually  
14 -- yeah. I don't remember this case at all.

15 Q. Okay. So you're going to -- on the second  
16 page of the document, there's a star and a two. And  
17 then the paragraph under that, it says "The  
18 claimant's treating neurologist, Heidi Schwarz, MD,  
19 performed a June 1998 nerve conduction study on the  
20 claimant related to carpal tunnel syndrome. The  
21 doctor developed a history that included chronic  
22 neck pain. The history included the claimant's  
23 opinion that related to neck problems to turning the  
24 head to look at applications in order to do data  
25 entry. The doctor opined that there was

1 HEIDI SCHWARZ, MD, FAAN by MS. HURT  
2 radiculopathy" --

3 MR. MICELI: Radiculopathy.

4 Q. -- "at the levels of C-6 and C-7 and  
5 further opined, all the claimant's injuries appear  
6 to be work related." Did I read that correctly?

7 A. You did.

8 Q. Is this referring to you, Dr. Schwarz?

9 A. It would appear so. Yes.

10 Q. But you don't remember?

11 A. I don't remember this case at all. Yes. A  
12 long time ago.

13 Q. On the last page, the three lines, like,  
14 three paragraphs up.

15 MR. MICELI: When you say three,  
16 you mean on Page 2?

17 MS. HURT: We're on page star  
18 three.

19 MR. MICELI: Okay.

20 BY MS. HURT:

21 Q. And then right before the signature of the  
22 judge, there's a paragraph that says, "Schwarz  
23 likewise lacks medical certainty with regard to the  
24 cause of the next condition. Her opinion is at most  
25 speculative and that it used the word appear. Thus,

1 HEIDI SCHWARZ, MD, FAAN by MS. HURT  
2 the claim fails within -- falls within the ruling  
3 and bates supra. The board panel concludes that the  
4 claim is disallowed and the case is closed." Did I  
5 read that correctly?

6 A. Yes.

7 Q. And you don't -- you like -- I think you  
8 already said you don't remember this case?

9 A. Doesn't ring any bells now. I mean, it's  
10 close to 30 years ago.

11 Q. And this isn't a memory test. So it's fully  
12 understandable that you wouldn't remember something.  
13 Do you have any public -- besides the Dorsey article  
14 that we discussed earlier, do you have any  
15 publications on your experiments of TCE or PCE in  
16 Parkinson's disease?

17 A. I do not.

18 Q. And you've never published an opinion on  
19 PCE, correct?

20 A. I have not.

21 Q. And you've never published an opinion on  
22 vinyl chloride, correct?

23 A. I have not.

24 Q. And you've never published an opinion on  
25 benzene, correct?

1 HEIDI SCHWARZ, MD, FAAN by MS. HURT

2 A. I have not.

3 Q. And you've never published on DCE, correct?

4 A. The last DCE?

5 Q. Yeah.

6 A. I don't know what DCE is.

7 Q. We'll go with that. I can't say the --  
8 it's the Ditetrachloroethylene. One, two, trans  
9 dichlorhexylene.

10 A. Nope. I have not published on it.

11 (EXHIBIT NO. 11 WAS MARKED FOR  
12 IDENTIFICATION.)

13 Q. Okay. So Exhibit 11 is the Dorsey study.  
14 "Dry Cleaning Chemicals and a Cluster of Parkinson's  
15 Disease and Cancer: A Retrospective Investigation."  
16 It's dated 2024. Dr. Schwarz, do you recognize  
17 this?

18 A. I do.

19 Q. And this is the Dorsey article that we were  
20 talking about previously, correct?

21 A. Correct.

22 Q. And did you begin work on this before you  
23 were retained in this litigation?

24 A. Long before. And I will tell you that  
25 Peggy Allinger was the statistical --

1 HEIDI SCHWARZ, MD, FAAN by MS. HURT

2 Q. Okay.

3 A. -- analysis.

4 Q. Is this your only publication on the  
5 chemical at issue in this litigation?

6 A. That is correct.

7 Q. Did you write any of the sections of this  
8 report?

9 A. I did not write them. I helped edit.

10 Q. Okay. Did you help edit the entirety or  
11 was there specific sections?

12 A. I reviewed methods, study design, and study  
13 group assessments, but probably, I didn't review  
14 analysis, or I didn't comment on analysis. And  
15 then, basically, most of my attention was on  
16 discussion and conclusion. Or I guess we don't have  
17 a conclusion. We just have a discussion. And this  
18 article was edited multiple times before it was  
19 accepted for publication.

20 Q. Was this article peer reviewed?

21 A. Yes.

22 Q. Do you agree with the methods in this  
23 publication?

24 A. Yes.

25 Q. And do you agree with the findings?

1 HEIDI SCHWARZ, MD, FAAN by MS. HURT

2 A. Yes.

3 Q. What prompted the study of these attorneys?

4 A. I don't know if I would be violating  
5 confidentiality issues.

6 Q. Okay.

7 A. I guess I could -- I think it's probably  
8 okay. Right? So Dr. Dorsey met a young -- well,  
9 everybody's young compared to me. A lawyer who had  
10 early onset Parkinson's disease in a social setting  
11 and asked him why he had Parkinson's disease. And  
12 he said, "I don't know, but a bunch of other people  
13 in my firm also have it." And that's what triggered  
14 the, you know, the concept of the study.

15 Q. And do you know when that happened?

16 A. I do not.

17 Q. Returning to page 607, which is the next  
18 page over from the cover sheet. At the top in the  
19 abstract box, it says "45.1 percent of them who  
20 worked near the polluted sites reported Parkinson's  
21 disease, more than expected based on age and sex,  
22 1.7 percent, P equals 0.01, but not significantly  
23 higher than the comparison group of N equals 1, 1.3  
24 percent, P equals 0.37." Did I read that correctly?

25 A. You did.

1 HEIDI SCHWARZ, MD, FAAN by MS. HURT

2 Q. Was the Parkinson's disease designation  
3 based on self-reporting?

4 A. No.

5 Q. What would -- because you conducted  
6 evaluations of these individuals, correct?

7 MR. MICELI: Object to the form.  
8 She and others.

9 Q. Okay. How many other people conducted  
10 evaluations, in addition to yourself?

11 A. Myself, Dr. Barbano, and Dr. Braun,  
12 B-R-A-U-N.

13 Q. And if you were to estimate, how many  
14 people do you think you evaluated?

15 A. I would say that I evaluated probably 20 to  
16 25 of these attorneys.

17 Q. And as discussed earlier, you didn't know  
18 whether or not they were part of the control group,  
19 correct?

20 A. Correct.

21 Q. Do you know what recall bias is?

22 A. Yes.

23 Q. What -- how do you define recall bias?

24 A. Basically, having -- looking for something  
25 in order to justify the theory that is -- that, say

1 HEIDI SCHWARZ, MD, FAAN by MS. HURT  
2 a study is based on.

3 Q. And recall bias would be a limitation in  
4 the study, correct?

5 MR. MICELI: Object to the form.

6 A. If it's not controlled for, yeah.

7 Q. And the recall bias can occur in  
8 retrospective cohorts, correct?

9 MR. MICELI: Object to the form.

10 A. It can if the assumption is not documented  
11 by clinical exam or history.

12 Q. And this study is based on a retrospective  
13 cohort, correct?

14 MR. MICELI: Object to the form.

15 A. Correct.

16 Q. Could people in the tower group have  
17 anything to gain by reporting having Parkinson's  
18 disease?

19 MR. MICELI: Object to the form.

20 A. No.

21 Q. Okay. So we're going to turn to table one.  
22 This is on Page 610. And the title of the table is  
23 "Characteristics."

24 MR. MICELI: You just want the  
25 table? Okay. The continuation of table



1 HEIDI SCHWARZ, MD, FAAN by MS. HURT

2 one on Page 610. Thank you.

3 Q. It says smoked 100 or more cigarettes, five  
4 packs in a lifetime, N percent, tower cohort equals  
5 48. Did I read that correctly?

6 MR. MICELI: That's table two.

7 MS. HURT: Right here. So under  
8 risk factor.

9 MR. MICELI: Oh, 46. Oh, yeah.  
10 No. I'm sorry. Go ahead.

11 THE WITNESS: Wait a minute. I'm  
12 not seeing it.

13 MS. HURT: Okay. So it's right  
14 here. It's under risk factors.

15 THE WITNESS: Oh, okay. On the  
16 second page. Okay. Sorry.

17 BY MS. HURT:

18 Q. So it says "Risk factor questionnaire of  
19 tower cohort equals 46." And then under that, it  
20 says, "Smoked 100 or more cigarettes, five packs in  
21 a lifetime, N percent." Did I read that correctly?

22 A. Yes.

23 Q. Under the tower cohort column, it has 17  
24 out of 79, correct?

25 A. Correct.

1 HEIDI SCHWARZ, MD, FAAN by MS. HURT

2 Q. And can you tell me how that amounts to 37  
3 percent? Because based on my calculations, that  
4 should be 21.5.

5 MR. MICELI: Object to the form;  
6 foundation.

7 A. I would have to do the math. But that's a  
8 good question.

9 Q. Okay. And there's a greater percentage of  
10 cigarette smokers in the comparison group, correct?

11 A. It'd be 28 out of 75, so that would appear,  
12 correct.

13 Q. And cigarette smoking is considered to be a  
14 protective factor in Parkinson's disease, correct?

15 A. That is correct.

16 Q. In table two, I got to turn the page over  
17 here to 611. So it's under table two continued,  
18 phase two assessments, and then right before we get  
19 to aggregate diagnosis of Parkinson's disease, right  
20 before that heading. So right here.

21 A. Okay. Bariatric scale.

22 Q. Scale for outcomes. You see that?

23 A. Yes.

24 Q. Scale for outcomes in Parkinson's disease  
25 for auto pneumonic symptoms mean standard deviation,

1 HEIDI SCHWARZ, MD, FAAN by MS. HURT  
2 8.5, 5.3 is in the parentheses for standard  
3 deviation. And then it has 10 with 6.2 for the  
4 comparison group is the standard deviation, and P  
5 equals the P value is 0.06, correct?

6 A. Correct.

7 Q. Does it seem reasonable to you that means  
8 that the -- sorry. Let me start over. Does that  
9 seem reasonable to you that there are 1.5 difference  
10 with standard deviations of 5.3 and 6.2?

11 MR. MICELI: Object to the form.

12 A. I'm not a statistician.

13 Q. Okay. Does it seem reasonable to you that  
14 there could be a P value of 0.06 if their standard  
15 deviations are that high?

16 MR. MICELI: Object to the form of  
17 the question.

18 A. Yes. I would have to rely on the  
19 statistician.

20 (EXHIBIT NO. 12 WAS MARKED FOR  
21 IDENTIFICATION.)

22 Q. Okay. So I'm going to hand you what's  
23 going to be Exhibit 12. The article editorial,  
24 "Could Exercise Be the Answer?" is the title. The  
25 authors are listed as Margaret Mak and Heidi

1 HEIDI SCHWARZ, MD, FAAN by MS. HURT  
2 Schwarz, and it's dated 2022. Do you recognize  
3 this, Dr. Schwarz?

4 A. I do.

5 Q. And you are one of the authors of this  
6 editorial, correct?

7 A. That is correct.

8 Q. And what was your role in writing this  
9 article?

10 A. I, had -- Dr. Mak did the first draft and  
11 then we worked together to refine it to the final  
12 form that it was in. Excuse me.

13 Q. So what section did you write?

14 A. I frankly don't remember which paragraph I  
15 wrote and which paragraph I edited, so I could be  
16 disingenuous to --

17 Q. Okay. Do you agree with the conclusions in  
18 this article?

19 A. Yes, I do.

20 Q. So I'm going to read from the first  
21 paragraph starting at the second sentence. It says,  
22 "Findings from high quality clinical trials and  
23 reviews show that exercise training is promising --  
24 is a promising therapeutic intervention for delaying  
25 motor disability. Regular physical activity has

1 HEIDI SCHWARZ, MD, FAAN by MS. HURT  
2 been reported to be associated with slower disease  
3 progression." Did I read that correctly?

4 A. You did.

5 Q. And do you agree with the statement?

6 A. I do.

7 Q. Okay. So at the bottom of the last  
8 paragraph of the first page, halfway through, it  
9 says "Exercise training enhanced aerobic  
10 capacity" --

11 A. Dopaminergic.

12 Q. "Dopaminergic function and striatal  
13 reactivity, sustained physical and exercise training  
14 could have promoted quarter Cortical stroke" --

15 A. Striatal.

16 Q. "Striatal plasticity and contribute to the  
17 improvements in symptoms of PD." Did I read that  
18 correctly, even if I didn't say it very well?

19 A. Yes, you did.

20 Q. Do you agree with that statement?

21 A. I agree that, that is a -- yes, that it  
22 could. There may be a mechanistic basis for why  
23 exercise -- this may be the mechanistic basis for  
24 why exercise improves or slows progression of  
25 Parkinson's disease.

1 HEIDI SCHWARZ, MD, FAAN by MS. HURT

2 Q. And then turning over to the next page, it  
3 says "Regular physical activity including household  
4 tasks and moderate exercise, clearly changed the  
5 long term disease trajectory for further support  
6 supporting the American Academy of Neurologist --  
7 Neurology quality metric for exercise and PD." Did I  
8 read that correctly?

9 A. You did.

10 Q. And do you agree with this statement?

11 A. I do.

12 Q. And then the very end, it says, "With the  
13 evidence of improved physical and cognitive  
14 functions and its potential effect on modifying  
15 disease progression, regular exercise can be  
16 considered as an adjunct therapy for Parkinson's  
17 disease." Did I read that correctly?

18 A. You did.

19 Q. And do you agree with that statement?

20 A. I do.

21 Q. Do you recommend to your Parkinson's  
22 disease patients that you treat that they exercise?

23 A. Absolutely.

24 Q. And how often do you make that  
25 recommendation?

1 HEIDI SCHWARZ, MD, FAAN by MS. HURT

2 A. Every time.

3 Q. And in your experience, how has exercise  
4 helped your Parkinson's patients?

5 MR. MICELI: Object to the form.

6 A. So I don't conduct studies on each of my  
7 patients, but I would say that my impression is that  
8 exercise delays the need for onset of symptomatic  
9 treatment in some patients, and in other patients  
10 allows their disease to stabilize so I don't have to  
11 increase medications to treat their symptoms as  
12 frequently.

13 Q. And do all of your patients follow your  
14 advice?

15 A. How I wish. Yeah. No. But many do. Many  
16 do. The personality type of Parkinson's disease is  
17 a bit obsessive compulsive, so many of them take  
18 this to heart.

19 Q. And have you noticed any trends where the  
20 people who follow your advice do better than those  
21 who don't?

22 MR. MICELI: Object to the form.

23 A. I do find that people who are physically  
24 inactive progress more quickly. Yes. There may be  
25 many factors associated, not just exercise, though.

1 HEIDI SCHWARZ, MD, FAAN by MS. HURT

2 Q. Would you agree that every patient is  
3 different with individual risk factors?

4 A. Yes.

5 Q. So I think we might have -- I might have  
6 already asked this question, but I don't know if I  
7 asked it specifically. How many patients with  
8 Parkinson's disease have you clinically treated in  
9 your career?

10 A. Probably at least 500.

11 Q. And how many have you clinically diagnosed  
12 with Parkinson's disease?

13 A. I would say probably at least 300 of those  
14 were diagnoses I made and maybe the other 200 came  
15 to me with a diagnosis, and I managed them.

16 Q. And when you say "manage," what do you mean  
17 there?

18 A. My style of management is first education  
19 about the disease and the potential complications.  
20 Two, is discussing what they can do to improve their  
21 course, and exercise is always a big part of that  
22 discussion. And then three, is medications and that  
23 recommendation is based on the most bothersome  
24 symptoms and the potential side effects and the  
25 other medical conditions that the individual may



1 HEIDI SCHWARZ, MD, FAAN by MS. HURT  
2 have. And then lastly, is when medications fail to  
3 be -- to adequately control symptoms, referral to  
4 someone who could consider either deep brain  
5 stimulation or continuous infusion of levodopa.

6 Q. What is continuous infusion of levodopa?

7 A. So that is actually putting in a tube, in  
8 the GI tract and having, basically, an infusion  
9 device that continuously provides steady levels of  
10 levodopa, D-U-O-P-A.

11 Q. What have you done to diagnose these  
12 patients? How did you diagnose them?

13 MR. MICELI: Object to the form.

14 A. The first thing I do is I take a history,  
15 and learn about the symptoms that they've had, and  
16 the duration of the symptoms, and the severity of  
17 the symptoms, and the impact of the symptoms on  
18 their daily life. Then I check on a family history.

19 I inquire about occupation and exposures,  
20 and then I perform a thorough general neurology  
21 exam, but with attention to issues of Parkinson's  
22 disease as outlined in PDRS. So and I also asked  
23 them about prodromal symptoms or premotor symptoms.  
24 During the course of my career, that has evolved.  
25 That was not something that was recognized years

1 HEIDI SCHWARZ, MD, FAAN by MS. HURT  
2 ago.

3 Q. And when did that evolution occur?

4 A. I would say that it really started to  
5 happen between 2000, 2010, that area.

6 Q. Do you provide your patients with the MOCA  
7 exam?

8 A. It depends on their symptoms, and their  
9 complaints, and the complaints of those around them.  
10 Often in obtaining a history, it's fairly easy to  
11 sense whether there may be some cognitive  
12 difficulties. And if I do sense that, I will  
13 usually perform a MOCA exam. If not on the first  
14 visit, the second visit.

15 Q. And you performed a MOCA exam of Mr.  
16 Sparks, correct?

17 A. Correct.

18 Q. And why did you do that in this case?

19 A. Because Mr. Sparks had in his medical  
20 record, some suggestion that he was struggling with  
21 some cognitive deficits. And then when I questioned  
22 him, he acknowledged that he was having difficulty  
23 with reading and retaining information and finding  
24 words.

25 Q. And did you perform a MOCA exam with Mr.

1 HEIDI SCHWARZ, MD, FAAN by MS. HURT

2 Welch?

3 A. I did.

4 Q. And why did you perform that with Mr.  
5 Welch?

6 A. With Mr. Welch, he'd had a prior MOCA exam  
7 by a treating physician, and that put him in the  
8 category of mild cognitive impairment or what we  
9 call MCI.

10 And I wanted to assess whether -- and I was  
11 fortunate enough to have not only the score of the  
12 MOCA, but also the specific results where he  
13 struggled. And I wanted to perform a subsequent  
14 one. It had been at least two or three years since  
15 the last one to see if that had changed.

16 Q. And had it?

17 A. Yes.

18 Q. Had it -- and how did it change?

19 A. It had worsened slightly. One could argue  
20 whether that number was statistically significant as  
21 compared with the prior number, but I noticed that  
22 he was now experiencing difficulties in visual  
23 spatial tasks, which had not been present before.

24 Q. And Mr. Sparks had a MOCA exam before too,  
25 correct?

1 HEIDI SCHWARZ, MD, FAAN by MS. HURT

2 A. No. I'd have to look back. Well, you know,  
3 he may have. It was frustrating to me because I was  
4 unable to obtain some of the VA records. I may be  
5 confusing him with Mr. Welch. I don't have any  
6 record of a prior MOCA exam on hand.

7 Q. Is it standard practice to perform MOCA  
8 virtually?

9 MR. MICELI: Object to the form.

10 A. MOCA has traditionally been performed in  
11 person, but it can be performed virtually with few  
12 exceptions depending on the capability of the  
13 examiner and the capability of the individual being  
14 tested.

15 Q. And when you say "capability of the  
16 examiner," what do you mean?

17 A. If someone isn't familiar in how to do a  
18 virtual MOCA exam, they may not realize that there  
19 are ways in which you can project the images that  
20 the patient needs to respond to, like a trail making  
21 test or, you know, to show them what you're looking  
22 for. If they don't use those techniques, you can't  
23 do visual spatial.

24 Q. And when you say "capability of the, I  
25 guess, the examinee," what do you mean by that?

1 HEIDI SCHWARZ, MD, FAAN by MS. HURT

2 A. So the examinee needs to be able to see and  
3 interpret the screen that you're showing them, and  
4 understand the concept of what you're asking them to  
5 do. So, but in some ways, that is a limitation both  
6 in-person and virtually if they can't understand.

7 Q. Is it typical in your clinical practice of  
8 your patients to diagnose Parkinson's disease after  
9 one interaction?

10 A. In my -- for my practice, unless I have  
11 documentation of prior exams so I know, sort of a  
12 timeline and a history, I will usually tell the  
13 patient that it looks like they likely have  
14 Parkinson's disease but depending on how they  
15 progress over the next three to four months when I  
16 next see them, and particularly if I initiate a  
17 medication like Sinemet or levodopa, carbidopa, that  
18 my diagnostic certainty is likely to improve with  
19 the second time I see them.

20 Many people who come in have some atypical  
21 features. And at that point, I often, say that it  
22 looks like it could be, but we have to follow this  
23 along, and usually over a period of six to nine  
24 months if there's -- it's an atypical Parkinson's,  
25 it will declare itself.

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2 Q. And cognitive decline is evaluated through  
3 the MOCA exam, correct?

4 A. That's one way to evaluate cognitive  
5 decline.

6 Q. And do you typically diagnose your patients  
7 with cognitive decline after a singular MOCA exam?

8 A. I can diagnose them with a cognitive  
9 deficit. But whether this is a progressive  
10 phenomenon or it is a static phenomenon really  
11 requires two tests separated, I would say, by at  
12 least six months. To show that there's progression.

13 Q. Have you ever seen it where someone's score  
14 improved from one test to the next?

15 A. I have.

16 Q. What do you think is the cause of that?

17 MR. MICELI: Object to the form.

18 A. I would have to speculate.

19 Q. Okay. Do you think the MOCA exam can be  
20 manipulated by the person taking it?

21 MR. MICELI: Object to the form.

22 A. So if you were to perform the exact same  
23 MOCA exam -- so for instance, in the MOCA exam, you  
24 ask them to name all the words they can think of  
25 that start with "F." Or you ask them to remember the

1 HEIDI SCHWARZ, MD, FAAN by MS. HURT  
2 same words.

3 There's a learning that can happen if you  
4 do that repetitively in a short sequence of time.  
5 But again, the MOCA has sort of evolved over time.  
6 So the words have changed, the letters have changed,  
7 and so the learning input of that is usually  
8 minimal, particularly if there's a memory deficit.

9 Q. Do you always know the cause of a patient's  
10 Parkinson's disease?

11 A. No.

12 Q. Have you ever referred to any of your  
13 patients as having idiopathic Parkinson's disease?

14 A. That term was very standard when I trained,  
15 and we still use it as a way to distinguish between  
16 Parkinson's disease and atypical Parkinson's  
17 disease.

18 Q. How does it distinguish between the two?

19 A. I think it's easier to describe that people  
20 who have atypical features are believed to have a  
21 different mechanism of their Parkinson's disease  
22 whether it's a tauopathy or -- so there's  
23 multisystem atrophy, progressive supranuclear palsy,  
24 corticobasal ganglia degeneration. And within those  
25 subs there are subsets.

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2 So when people have, for instance -- or  
3 diffuse Lewy body disease. So if people have, for  
4 instance, early onset dementia, that is sort of a  
5 red flag that this may not be idiopathic Parkinson's  
6 disease, usual Parkinson's disease.

7 Q. And is there scientific literature that  
8 supports this?

9 A. There's scientific literature that shows  
10 mechanisms in each of these atypical Parkinson's  
11 disease entities. And then there are clinical  
12 features that are associated with each of these  
13 atypicals that are unique.

14 Q. But is there literature that supports using  
15 idiopathy as a way to describe atypical Parkinson's?

16 A. The term idiopathy in Parkinson's disease  
17 was coined in the '60s, '70s, '80s when we actually  
18 didn't have any idea what caused Parkinson's  
19 disease.

20 So when I was trained, we really had no  
21 idea what caused Parkinson's disease, and we were  
22 taught that there was no genetic impact with  
23 Parkinson's disease. Obviously, both of those have  
24 evolved significantly since that time. And I would  
25 say that our first clue that idiopathic was not an



1 HEIDI SCHWARZ, MD, FAAN by MS. HURT  
2 accurate description of Parkinson's disease, was the  
3 MPTP experience.

4 Q. And when you said "MPTP experience," are  
5 you referring to the drug MPTP?

6 A. I am.

7 Q. Have you ever concluded in your clinical  
8 practice that a patient's Parkinson's disease was  
9 caused by TCE?

10 A. I have not.

11 Q. What about PCE?

12 A. I have not.

13 Q. Do you typically, in your clinical  
14 practice, determine the cause of someone's  
15 Parkinson's disease?

16 MR. MICELI: Object to the form.

17 A. I explore exposures, and I explore  
18 genetics. And if the individual asks for genetic  
19 testing, I will accommodate that. I do always try  
20 and understand why a person develops Parkinson's  
21 disease because I no longer believe that it is just  
22 a stroke of luck or lack of luck.

23 Q. Do you consider other risk factors besides  
24 exposure and genetics?

25 A. Yes. There's what we call microvascular

1 HEIDI SCHWARZ, MD, FAAN by MS. HURT  
2 Parkinson's disease, can be due to small vessel  
3 infarcts. So if somebody has risk factors for that,  
4 I will explore that option. I also explore  
5 potential risk factors. So issues such as head  
6 trauma, heavy metal exposure, you know, somebody is  
7 a welder. So those are the ones that I look for.

8 I know there are other things that are  
9 associated with Parkinson's disease, but the data is  
10 not there yet to really substantiate that they are  
11 true risk factors or causative.

12 Q. And why do you look into the cause of  
13 someone's Parkinson's disease?

14 A. I think it's intellectual curiosity. It  
15 doesn't change how I manage the patient unless,  
16 potentially, they're still being exposed to  
17 something that increases their risk of Parkinson's  
18 disease. But I think it's more for me to try and  
19 understand this disease process so that I can be  
20 better informed in the future.

21 Q. Do you do it to be a comfort to the  
22 patient?

23 MR. MICELI: Object to the form.

24 A. I don't think so. But they often are  
25 curious.

1 HEIDI SCHWARZ, MD, FAAN by MS. HURT

2 Q. Has the risk factors that you've used to  
3 evaluate the potential cause of someone's  
4 Parkinson's disease evolved over time?

5 A. Yes.

6 Q. How so?

7 A. Well, as I mentioned to you when I was  
8 first trained, we didn't identify really any risk  
9 factors, not even family history. So as work has  
10 been done on genetic studies -- genetic studies  
11 weren't even available when I was trained.

12 So as we've done that and found certain  
13 genes, LRRK2 being the most common, that are  
14 associated with Parkinson's disease, that has  
15 prompted me to inquire more about that.

16 I practiced in a rural area where there was  
17 a lot of agriculture. So I often -- as literature  
18 came out from Dr. Langston and Dr. Tanner and  
19 others, started inquiring about use of pesticides,  
20 et cetera with farmers and their families and  
21 anybody who had well water that lived near a farm.  
22 So all of those things evolved.

23 TCE, I think really became an established  
24 risk factor for Parkinson's disease much more  
25 recently, and I think it's often very difficult for

1 HEIDI SCHWARZ, MD, FAAN by MS. HURT  
2 people to know if they've been exposed.

3 Q. When you're looking for these specific  
4 factors, do you still consider that it could still  
5 be unknown even though they have a potential risk  
6 factor?

7 MR. MICELI: Object to the form.

8 A. I truly believe that everybody has a cause.  
9 We may not know the cause, but I believe everybody  
10 has a cause.

11 Q. Is it possible that you look for these  
12 certain exposures and then that's what you're  
13 looking for and you come to that conclusion?

14 MR. MICELI: Object to the form.

15 A. When I find something that I think may be a  
16 factor in causation, I describe it just as that.  
17 It's a factor in causation.

18 Q. But in this case, you didn't just call it a  
19 factor. You determined that Mr. Sparks and Mr.  
20 Welch's Parkinson's disease was as likely as not  
21 caused by the water at Camp Lejeune, correct?

22 A. That is correct. And so when I say it's a  
23 factor, it's also as likely as not.

24 Q. So any factor could be as likely as not?

25 A. Well, any factor with scientific data

1 HEIDI SCHWARZ, MD, FAAN by MS. HURT  
2 behind it.

3 Q. Right. But could a head injury be as  
4 likely as not as the contaminated water at Camp  
5 Lejeune?

6 MR. MICELI: Object to the form;  
7 foundation.

8 A. So I think it's important to distinguish  
9 between head injury or head trauma and traumatic  
10 brain injury. So head injury in and of itself I  
11 don't think has ever been reliably shown to be a  
12 risk factor for Parkinson's disease.

13 The studies that I have reviewed suggest  
14 that there has to be evidence of traumatic brain  
15 injury, maybe mild, but basically, traumatic brain  
16 injury with some degree of post-concussive symptoms.  
17 And those are -- that's where the data is suggestive  
18 epidemiologically.

19 Q. Is there a certain dose at which someone  
20 can be -- have a cause of Parkinson's disease versus  
21 -- like, is there a minimum dose that somebody would  
22 have to be exposed to TCE to develop Parkinson's  
23 disease?

24 MR. MICELI: Object to the form;  
25 foundation.

1 HEIDI SCHWARZ, MD, FAAN by MS. HURT

2 A. That has not been established, to the best  
3 of my knowledge, and it probably varies from person  
4 to person.

5 Q. Have you ever told your patients that it's  
6 impossible to know with certainty the cause of  
7 someone's Parkinson's disease?

8 A. Yes.

9 Q. And how often have you told your patients  
10 that?

11 A. I think certainty is a very strong word.  
12 And so to say that it's an absolute definite cause,  
13 unless they are the 2 to 5 percent of individuals  
14 with purely genetic Parkinson's disease, I think you  
15 can't say with certainty that that is 100 percent  
16 the cause of their disease.

17 Q. How do you determine in someone more likely  
18 or not that a risk factor is the cause?

19 MR. MICELI: Object to the form;  
20 foundation. Misstates the burden of  
21 proof.

22 A. Can you rephrase.

23 Q. Sure. So regardless of the standard in  
24 Camp Lejeune Justice Act, how do you determine  
25 whether or not a patient's cause is more likely --

1 HEIDI SCHWARZ, MD, FAAN by MS. HURT  
2 how do you determine if risk factor is more likely  
3 than not the cause of someone's Parkinson's disease?

4 MR. MICELI: Object to the form;  
5 foundation.

6 A. I look at the identified and validated risk  
7 factors for Parkinson's disease. I figure out  
8 whether any of those are relevant to the individual.  
9 And if there are relevant risk factors, then, I  
10 believe it's more likely than not. Or at least as  
11 likely as not.

12 Q. Okay. How do you define at least as likely  
13 as not?

14 A. I think we've said --

15 MR. MICELI: Object to the form;  
16 foundation. I'm uncomfortable with you  
17 asking her questions that she has not  
18 been asked to evaluate for this  
19 litigation. There's --

20 MS. HURT: Under the deposition  
21 profile, you're not allowed to give  
22 speaking objections. You're only  
23 allowed to give objections of form and  
24 foundation.

25 MR. MICELI: I understand. We'll

1 HEIDI SCHWARZ, MD, FAAN by MS. HURT  
2 go off the record. She can leave the  
3 room, and we can have a discussion then  
4 off the record. I'm not going to let  
5 her -- you -- excuse me. Can you please  
6 leave the room?

7 THE WITNESS: Yes, I will.

8 THE VIDEOGRAPHER: Sorry, Counsel.  
9 We're staying on the record?

10 MS. HURT: We're going off the  
11 record.

12 THE VIDEOGRAPHER: Time on the  
13 monitor is 11:46. We're off the record.  
14 (Brief recess.)

15 THE VIDEOGRAPHER: Time on the  
16 monitor is 12:02. This begins media 5.  
17 We are on the record.

18 MR. MICELI: You'll probably hear  
19 objections, but I'm not going to  
20 instruct her not to answer.

21 MS. HURT: Okay. Thank you.

22 BY MS. HURT:

23 Q. Okay. So Dr. Schwarz, we're going to go to  
24 your Exhibit 3, which is the report on Mr. Sparks.  
25 So on Page 2 -- on Page 2, it says -- I'm about



1 HEIDI SCHWARZ, MD, FAAN by MS. HURT  
2 halfway down the page. It says, "From my review of  
3 materials, I understand that the plaintiff in this  
4 case must prove causation under the Camp Lejeune  
5 Justice Act to a level of at least as likely as not,  
6 which is a lower burden and more likely as not  
7 causation standard." Did I read that, correctly?

8 A. Correct.

9 Q. How do you define more likely as not here?

10 MR. MICELI: Objection; form.

11 A. More likely is greater than 50 percent  
12 chance.

13 Q. And what is as likely as not?

14 A. 50 percent.

15 Q. What -- so you are -- you refer -- you're  
16 referring to the Camp Lejeune Justice Act in the  
17 state -- in this sentence, correct?

18 A. Yep. Yes.

19 Q. And what is your basis for understanding  
20 the Camp Lejeune Justice Act legal standard?

21 A. It's basically the law that has been  
22 established regarding exposure to toxins at Camp  
23 Lejeune. The burden of proof is that it is as  
24 likely as not, that a given toxin has been  
25 responsible, at least in part, for the development

1 HEIDI SCHWARZ, MD, FAAN by MS. HURT  
2 of the disease.

3 Q. Okay. So continuing on that same  
4 paragraph, it says, "It is my professional opinion  
5 based on my education, training, and expertise of  
6 neurologist and movement disorders specialist into a  
7 reasonable degree of medical certainty, I conclude  
8 that Mr. Sparks' Parkinson's disease is more likely  
9 than not due to his exposure to TCE at Camp Lejeune  
10 for approximately 15 months from March 25, 1974, to  
11 May 30, 1975." Did I read that correctly?

12 A. You did.

13 Q. You used the standard more likely than not  
14 in this sentence, correct?

15 A. I did.

16 Q. So your -- in your opinion, doctors -- I  
17 mean, Mr. Sparks' Parkinson's disease is more likely  
18 than not caused by the contamination at Camp  
19 Lejeune, correct?

20 A. Greater than 50 percent chance. Yes.

21 Q. Why did you use that standard here?

22 A. Because I based it on my clinical judgment,  
23 and looking at his exposure and potential other risk  
24 factors and the most -- the exposure to TCE was  
25 really the only significant risk factor that I found

1 HEIDI SCHWARZ, MD, FAAN by MS. HURT  
2 in his history.

3 Q. And if there had been other risk factors,  
4 would that have decreased his likelihood of it being  
5 caused by the water at Camp Lejeune?

6 MR. MICELI: Object to the form.

7 A. It depends on what other factors they were.

8 Q. For instance, head injury, would that have  
9 decreased the more likely as not?

10 MR. MICELI: Object to the form.

11 A. As I've mentioned before, head injury is a  
12 very broad term. If he'd had significant head trauma  
13 with traumatic brain injury and post-concussive  
14 syndrome, it would have been an additional factor  
15 that may have contributed to his Parkinson's  
16 disease, but it wouldn't have reduced the likelihood  
17 that TCE exposure was also a causative factor. So  
18 it would be multifactorial.

19 Q. What about other incidences of exposure to,  
20 for instance, diesel fumes?

21 A. Again, that is based on the amount of  
22 exposure, and I don't find that Mr. Sparks had a  
23 significant exposure to diesel fuel.

24 Q. And what would constitute significant?

25 A. Well, again, because diesel fuel does not

1 HEIDI SCHWARZ, MD, FAAN by MS. HURT  
2 have enough research to clearly establish a  
3 mechanism, I'm not able to give you an exact number,  
4 but his exposure was probably no more than yours or  
5 mine.

6 Q. Have you worked at a gas station?

7 A. I pumped a lot of gas. I haven't worked  
8 there, but I pumped a lot of gas. And I have farm  
9 equipment that I, you know, fuel, et cetera.

10 Q. And because Mr. Sparks worked at a gas  
11 station, correct?

12 A. For a short period of time. Yes.

13 Q. And he also worked at the border of Laredo,  
14 Texas, correct?

15 A. Correct. But that was not really an  
16 exposure to diesel fumes.

17 Q. The cars were running, and it's one of --  
18 he described it as one of the most -- busiest border  
19 stations?

20 MR. MICELI: Is that a question?

21 MS. HURT: Uh-huh.

22 MR. MICELI: Object to the form.

23 THE WITNESS: True. But I don't --  
24 we'd have no data to suggest that his  
25 diesel fume exposure there was

1 HEIDI SCHWARZ, MD, FAAN by MS. HURT  
2 significant.

3 BY MS. HURT:

4 Q. So I just want to go back to what you --  
5 what we were just talking about. You say, "I  
6 conclude that Mr. Sparks' Parkinson's disease is  
7 more likely than not due to his exposure to PCE at  
8 Camp Lejeune," correct?

9 A. Correct.

10 Q. All right. I'm going to turn to your Welch  
11 report. So at the bottom of Page 2, it says, "It is  
12 my professional opinion based on education,  
13 training, and experience as a neurologist and a  
14 movement disorder specialist into a reasonable  
15 degree of medical certainty. I conclude that Mr.  
16 Welch's Parkinson's disease is at least as likely as  
17 not due to his exposure to TCE at Camp Lejeune for  
18 approximately 11 month period from November 18,  
19 1970, to December 15, 1971." Did I read that  
20 correctly?

21 A. You did.

22 Q. For Mr. Welch, you used the as likely, at  
23 least as likely as not standard, correct?

24 A. I did.

25 Q. And how do you define that standard?

1 HEIDI SCHWARZ, MD, FAAN by MS. HURT

2 MR. MICELI: Object to the form.

3 A. You asked me that before.

4 Q. And can you repeat how you define it?

5 MR. MICELI: Object to the form.

6 THE WITNESS: Can you read it back  
7 to me.

8 BY MS. HURT:

9 Q. How would you define the at least as likely  
10 as not standard?

11 A. And I was asking the stenographer to read  
12 back what I had said before.

13 (Answer was read back.)

14 Q. What is the at least is likely as not  
15 standard in your opinion?

16 MR. MICELI: Object to the form;  
17 asked and answered.

18 A. At least -- it is 50 percent likely that it  
19 is causative.

20 Q. And then on the Sparks report on Page 2,  
21 same paragraph, it says, "As a result, my causation  
22 opinion in Sparks' matters meets and exceeds the  
23 Camp Lejeune causation standard of it least as  
24 likely as not." Did I read that correctly?

25 A. Yes.

1 HEIDI SCHWARZ, MD, FAAN by MS. HURT

2 Q. And the Camp Lejeune Justice Act factored  
3 into your opinion, correct?

4 A. Correct.

5 Q. And isn't it true that Mr. Welch does not  
6 meet the more likely than not standard?

7 MR. MICELI: Object to the form.

8 A. I felt comfortable saying that he was more  
9 likely than not. I only had to come up with as  
10 likely as not, so that's where I settled.

11 Q. But did you not feel comfortable saying  
12 that he was more likely than not?

13 MR. MICELI: Object to the form.

14 A. I felt comfortable saying as likely as not.

15 Q. But you did not feel comfortable saying  
16 more likely than not, correct?

17 MR. MICELI: Same objection.

18 A. I reserved judgment on that. I needed to  
19 be completely honest with how I felt and as likely  
20 as not was how I felt in my clinical judgment.

21 Q. And what made you decide that it was at  
22 least as likely as not in Mr. Welch's case?

23 A. The overwhelming evidence of his exposure  
24 to TCE, his relative lack of any other risk factors,  
25 and the fact that he had a longer duration of time

1 HEIDI SCHWARZ, MD, FAAN by MS. HURT  
2 with toxin exposure to actually develop disease.

3 Q. And so if you were to compare Mr. Sparks to  
4 Mr. Welch, in Mr. Sparks, you use the more likely  
5 than not. Mr. Welch, you use the as likely as not.  
6 What was the distinction between the two? Why did  
7 you use one for Mr. Sparks and another standard for  
8 Mr. Welch?

9 A. Based on my clinical judgment.

10 Q. And by -- what went into your clinical  
11 judgment to reach that conclusion?

12 A. That Mr. Sparks had earlier onset of  
13 Parkinson's disease, and no other confounding  
14 variables. And potentially the fact that his  
15 disease has progressed a bit more quickly.

16 Q. And Mr. Welch didn't have these things,  
17 correct?

18 A. He didn't. He had average age of onset,  
19 and he had a few things in his history that might be  
20 factors, but his disease progression seems to be --  
21 there is a normal in Parkinson's disease, his  
22 disease progression appears to be fairly normal.

23 Q. What does fairly mean?

24 A. Means that his need for increased  
25 medication and increased -- and his development of



1 HEIDI SCHWARZ, MD, FAAN by MS. HURT  
2 increased disability follows a trajectory that is  
3 fairly typical of Parkinson's disease.

4 Q. What's your hesitation there?

5 MR. MICELI: Object to the form.

6 Well, object to the form.

7 A. My hesitation about what?

8 Q. Your hesitation in not using the more  
9 likely is not standard for Mr. Welch?

10 MR. MICELI: Object to the form;  
11 foundation.

12 A. My clinical judgment.

13 Q. Can you isolate what about your clinical  
14 judgment led you to that conclusion?

15 A. I think I just discussed that.

16 Q. So was it just that he didn't have an early  
17 onset and that he had a normal progression?

18 MR. MICELI: Object to the form.

19 A. Those were factors. Yes.

20 Q. What other factors?

21 A. I think those were the major ones.

22 Q. Was there any other factors?

23 A. Not that I can come up with at the moment.

24 Q. Okay. Are you confident that had Mr.  
25 Sparks not been stationed at Camp Lejeune, he would

1 HEIDI SCHWARZ, MD, FAAN by MS. HURT  
2 never have developed Parkinson's disease?

3 MR. MICELI: Object to the form;  
4 foundation.

5 A. Never is a strong word. What if he, you  
6 know, gotten some other job where he had TCE  
7 exposure or he'd gone out and worked on a farm with  
8 pesticides. I mean, there are many variables that  
9 could have eventually resulted in him getting  
10 Parkinson's disease.

11 Q. But the facts as they are, are you  
12 confident that Mr. Sparks, if he had not been  
13 stationed at Camp Lejeune, he wouldn't have  
14 developed Parkinson's disease?

15 MR. MICELI: Object to the form;  
16 foundation, asked and answered.

17 A. Yeah. I don't think anybody can predict  
18 the future.

19 Q. Okay. Are you confident that had Mr. Welch  
20 had not been stationed at Camp Lejeune, he would  
21 have never developed Parkinson's disease?

22 MR. MICELI: Object to the form;  
23 foundation.

24 A. I don't think anybody can predict the  
25 future, so I cannot pass judgment on that.

1 HEIDI SCHWARZ, MD, FAAN by MS. HURT

2 MS. HURT: We can go off the  
3 record. I think maybe we could take  
4 lunch.

5 THE VIDEOGRAPHER: Time on the  
6 monitor is 12:19. We are off the  
7 record.

8 (Brief recess.)

9 THE VIDEOGRAPHER: Time on the  
10 monitor is 1:22. This begins media 6.  
11 We're on the record.

12 BY MS. HURT:

13 Q. Dr. Schwarz, would you agree that the cause  
14 of Parkinson's disease is multifactorial?

15 A. Yes. Except for the rare cases of purely  
16 genetic Parkinson's disease.

17 Q. So in other words, multifactors lead to the  
18 development of Parkinson's disease, correct?

19 MR. MICELI: Object to the form.

20 A. That there are factors. How many depends  
21 on the individual.

22 Q. Right. And does no one factor exclusively  
23 cause Parkinson's disease?

24 A. Again, aside from the 2 to 5 percent that  
25 have purely genetic, no one factor causes the

1 HEIDI SCHWARZ, MD, FAAN by MS. HURT  
2 disease.

3 Q. Would you agree that the precise cause of  
4 Parkinson's disease is generally unknown?

5 MR. MICELI: Object to the form.

6 A. No. I don't agree with that. I would say  
7 that there are some factors that are known, and  
8 there are probably many factors that are unknown.

9 Q. And is that because the science hasn't  
10 advanced enough?

11 A. In a broad sense, yes. I think we've just  
12 not looked at all the potential causes.

13 Q. In both of your reports, you conducted a  
14 scientific literature review, correct?

15 A. Correct.

16 Q. Okay. Going to just turn back to your  
17 reports. Go look at Sparks under methodology.

18 A. Page 9.

19 Q. Actually, I think it's on Page 2.

20 A. Okay.

21 Q. Summary of the opinions and the  
22 methodology.

23 A. Oh, okay.

24 Q. Oh, here. Yes. There you go. It says --

25 MR. MICELI: On Page 2?

1 HEIDI SCHWARZ, MD, FAAN by MS. HURT

2 MS. HURT: On Page 2.

3 MR. MICELI: Okay. Starts off "In  
4 addition"?

5 MS. HURT: Yes.

6 MR. MICELI: Okay. Thank you.

7 BY MS. HURT:

8 Q. It says, "I relied upon peer reviewed  
9 scientific literature relevant to etiology of  
10 Parkinson's disease, specifically as it pertains to  
11 TCE and PCE exposure, including my own research  
12 linking dry cleaning chemicals to Parkinson's  
13 disease." Did I read that correctly?

14 A. Yes.

15 Q. What do you mean by scientific literature?

16 A. There -- in general articles in scientific  
17 journals, there isn't much in the textbook range at  
18 this point because this is such an evolving field of  
19 -- with TCE and PCE, so.

20 Q. And would medical literature be considered?  
21 Is that encompassed in your definition of scientific  
22 literature?

23 A. Yes.

24 Q. Can you describe how you conduct your  
25 scientific literature review for Sparks?

1 HEIDI SCHWARZ, MD, FAAN by MS. HURT

2 A. I probably can't do it in an exact way, but  
3 I put in key terms, you know, such as, obviously,  
4 Parkinson's disease, TCE, PCE, but also, risk  
5 factors, causation, epidemiology, you know,  
6 toxicology mechanism, scientific mechanism of  
7 disease.

8 Q. And did you obtain the scientific  
9 literature that you reviewed on your own?

10 A. Some of it I obtained on my own, and some  
11 of it I obtained from the toxicology reports where I  
12 reviewed referenced articles.

13 Q. And you were just talking about how you  
14 conduct searches to locate the literature, correct?

15 A. Correct.

16 Q. Did you -- what databases did you use to  
17 search?

18 A. PubMed, NIH, Google Scholar. And then  
19 depending on the articles that I found, I would then  
20 go to our medical library called Minor Library  
21 online and review those articles. And then those  
22 articles might have references that I went --  
23 explored further.

24 Q. And do you have a list of the search terms  
25 you used?

1 HEIDI SCHWARZ, MD, FAAN by MS. HURT

2 A. I do not.

3 Q. And how did you come up with the search  
4 terms that you used?

5 A. I mean, it varied from time to time that I  
6 was researching these cases. So something would  
7 come up in an article and, for instance, let's say,  
8 traumatic brain injury and Parkinson's disease.

9 So then I would put those two things in,  
10 see what came out, and then reviewing those  
11 articles, I might go to other articles looking at  
12 mechanism or epidemiology, et cetera.

13 Q. So did your search list evolve over time?

14 A. Yes.

15 Q. And did -- you didn't keep a, like, a note  
16 of what those terms were?

17 A. I did not.

18 Q. Okay. Could you regenerate your searches  
19 as you conducted them?

20 A. Not likely. Only because there were many  
21 searches that I did, but even as I've done searches  
22 on the same issues, but say four months apart, I get  
23 different search results as new literature becomes  
24 available.

25 Q. So with the exception of new literature

1 HEIDI SCHWARZ, MD, FAAN by MS. HURT  
2 coming out over time, would somebody else be able to  
3 reproduce the search that you did without having  
4 those search terms?

5 A. No. I'm not a computer expert and so I  
6 just know that online searches, I can search the  
7 same two words and it can be two weeks apart and I  
8 get different references.

9 Q. Do you know if you -- I'm going to call  
10 them limiters. And what I mean by that is, like,  
11 when you run a Boolean search, like, you use and/or.  
12 Did you use any Boolean terms in your searches?

13 A. I probably used and/or, associated with, or  
14 things along that line. Definition of.

15 Q. We talked earlier about your parameters for  
16 inclusion/exclusion. Those parameters you discussed  
17 earlier is those -- those are the same ones you used  
18 for Sparks and Welch, correct?

19 A. Correct.

20 Q. Did you deem any studies of higher quality  
21 than others?

22 A. Absolutely.

23 Q. And which ones are those?

24 A. Well, it depends on whether you're talking  
25 about epidemiology, or toxicology, or mechanism.



1 HEIDI SCHWARZ, MD, FAAN by MS. HURT  
2 But I would say from the epidemiology, I think my  
3 starting point was clearly the articles by both DOVE  
4 and Sam Goldman because they dealt specifically with  
5 the population that includes Mr. Sparks and Mr.  
6 Welch.

7 Q. And when you say "they dealt specifically  
8 with the population that includes Mr. Sparks and Mr.  
9 Welch," what do you mean?

10 A. They dealt with people who were -- who's  
11 lived and worked on -- at Camp Lejeune during the  
12 timeframe that both of these gentlemen were there.

13 Q. Was there any others that you found  
14 influential to your opinions?

15 MR. MICELI: Object to the form.

16 A. Yes. No. There was early research that was  
17 -- earlier research that was done that led us in  
18 this direction. So Sam Goldman did a twin study.  
19 Don Gash identified a cluster of patients with  
20 Parkinson's disease who had TCE exposure and then  
21 did some mechanistic work and I worked with Dr. Gash  
22 when I was doing my research on NPTP.

23 So and I can look back here and see if  
24 there's some case reports. Dr. Dorsey's done some  
25 of those, looking at people who spent time at Camp

1 HEIDI SCHWARZ, MD, FAAN by MS. HURT  
2 Lejeune and developed Parkinson's disease, including  
3 a professional basketball player who's only 32 but  
4 was a child on the base.

5 Q. And how did you determine those particular  
6 articles are of a higher quality?

7 MR. MICELI: Object to the form;  
8 foundation.

9 A. I wouldn't say that all of those were  
10 higher quality. I would say that I think the  
11 articles by both, and the articles by Sam Goldman  
12 specifically dealing with the Camp Lejeune  
13 individuals and the twin study that Sam Goldman did,  
14 I think were really well designed studies that  
15 strongly supported the association between TCE and  
16 Parkinson's disease, and then opened the door for  
17 more research on if there is an association, what is  
18 the mechanism and what is the toxicology.

19 Q. So your determination -- so do you have  
20 specific criteria that you use to determine high  
21 quality?

22 MR. MICELI: Object to the form.

23 A. I think that has been discussed before, but  
24 either randomized controlled trials or case  
25 controlled trials where potentials for bias are

1 HEIDI SCHWARZ, MD, FAAN by MS. HURT  
 2 identified and in some way adjusted or rectified are  
 3 certainly the gold standard. I also think that  
 4 smaller studies can be helpful because they can  
 5 identify a signal.

6 It seems likely there's an association  
 7 there and, for instance, in Dr. Gash's studies they  
 8 took that further by actually looking at the  
 9 neurotoxicity of trichloroethylene.

10 Q. Are all the materials you considered in  
 11 your materials considered list on the supplemental  
 12 materials considered list? Is that --

13 A. Oh, are they all the articles?

14 Q. Yeah.

15 A. Yes. They are the ones that I considered.

16 Q. So earlier, I think this probably is just a  
 17 confusion of terms. Earlier, you testified that you  
 18 reviewed but did not include certain articles. Were  
 19 those included on your materials considered list?

20 MR. MICELI: Object to the form.

21 A. No. If I did not find them relevant, or  
 22 well done, I didn't include them.

23 Q. And they're not on your materials  
 24 considered list, right?

25 A. Not just on my materials --

1 HEIDI SCHWARZ, MD, FAAN by MS. HURT

2 MR. MICELI: You got to let her  
3 finish so that I can make an objection.  
4 And then you're not talking over each  
5 other for Renaye's benefit as much as  
6 anybody's. Object to form.

7 BY MS. HURT:

8 Q. Okay. So my question is, I'm trying to  
9 ascertain whether or not those articles that you  
10 deemed to be not of sufficient quality would be  
11 included on your materials considered list?

12 MR. MICELI: Object to the form;  
13 foundation.

14 A. They are not on my list.

15 Q. Okay. You've reviewed the Plaintiff's  
16 general causation expert reports, correct?

17 A. Correct.

18 Q. Which ones did you review?

19 A. As stated in my expert witness statement, I  
20 reviewed Dr. Jason Cannon, Dr. Amelia Boehme,  
21 B-O-E-H-M-E, Dr. Lucio Costa, C-O-S-T-A, Dr. Briana  
22 De Miranda, Dr. Gary Miller, and Dr. Kelly Reynolds.  
23 Kelly Reynolds was probably not so much causation,  
24 but quantification of exposure.

25 Q. And did you disagree with anything you read

1 HEIDI SCHWARZ, MD, FAAN by MS. HURT  
2 in those reports?

3 MR. MICELI: Object to the form.

4 A. No. I didn't find anything that I disagree  
5 with.

6 Q. Did you perform an independent analysis of  
7 the findings in these reports?

8 MR. MICELI: Same objection;  
9 foundation.

10 A. I am not a toxicologist, so I could not  
11 comment on that aspect of their technique.

12 Q. Did you review the studies or publications  
13 cited in these reports?

14 A. Some of them, but not all of them.

15 Q. And how do you determine which ones to  
16 review?

17 A. If it presented data that I hadn't heard  
18 before, I wanted to go back and find out how they  
19 based their information. If it was information that  
20 I already knew, I tended not to review the  
21 reference.

22 Q. Can you give me an example of information  
23 you haven't heard before?

24 A. Yes. So I hadn't heard, for instance,  
25 didn't -- I hadn't heard that there was a

1 HEIDI SCHWARZ, MD, FAAN by MS. HURT  
2 relationship between MPP plus, which is the  
3 metabolite of MPPP and some of the mechanisms that  
4 were found to be in play with PCE toxicity.

5 I had not heard about the fact that some of  
6 the effects of TCE mimic the effect of the LRRK2  
7 gene mutation, which is associated with Parkinson's  
8 disease.

9 And then the last thing I would say is that  
10 there's a metabolite of TCE called TACLO that has  
11 characteristics very similar to MPPP, and produces  
12 mitochondrial toxicity and oxidative stress. So  
13 those were things that I explored further.

14 Q. And did you perform outside research on  
15 those? By that, I mean, did you look, like, on  
16 PubMed or Google Scholar, run searches on some of  
17 these topics?

18 A. So I looked at the reference that was in  
19 their material, the toxicology material, and  
20 reviewed that. If there was something in there that  
21 caught my eye as far as a reference in that article,  
22 then I would follow that through.

23 Q. Okay. For the exposure report, did you  
24 evaluate the methodology Dr. Reynolds undertook in  
25 creating his report?

1 HEIDI SCHWARZ, MD, FAAN by MS. HURT

2 MR. MICELI: Object to the form.

3 A. Her report. No. I did not.

4 Q. Can you explain the methodology that Dr.  
5 Reynolds understood?

6 MR. MICELI: Object to the form.

7 A. I am not an expert in what Dr. Reynolds  
8 does. So, no, I cannot explain it. I can  
9 understand most of her graphs, but I can't explain  
10 her methodology. That's her area of expertise.

11 Q. Did you review the records Dr. Reynolds  
12 stated she relied on in creating the report?

13 MR. MICELI: Object to the form.

14 A. I don't recall what she stated as where she  
15 got that information. So I can't comment on that.

16 Q. Okay. Do you disagree with any of Dr.  
17 Reynolds's assumptions?

18 MR. MICELI: Object to the form.

19 A. I do not. I have no basis to disagree.

20 Q. And do you disagree with any of Dr.  
21 Reynolds' conclusions?

22 MR. MICELI: Same objection.

23 A. I relied on Dr. Reynolds as an expert, so I  
24 agree with her findings.

25 Q. Okay. So we're going to go -- you

1           HEIDI SCHWARZ, MD, FAAN by MS. HURT  
2       conducted an independent medical examination in this  
3       case, correct?

4           MR. MICELI: Object to the form.

5           A. I don't do independent medical  
6       examinations. I did a virtual visit.

7           Q. What do you mean "don't do"?

8           A. IMEs are something that are a part of the  
9       workers' compensation system. I don't do IMEs.

10          Q. And you said you did a virtual visit?

11          A. Correct.

12          Q. What's included in the virtual visit?

13          A. So, first of all, agreeing to a time and a  
14       place and making sure that the both of us have the  
15       computer capabilities to interface with each other.  
16       And then, once we've connected, I introduce myself  
17       and I regather history from the patient. Basically,  
18       I have medical records from which I've gleaned  
19       history, but I then asked the patient specifically  
20       about that history to make sure that it's correct.

21                 And that includes occupational history, and  
22       past medical history, and family history. And then  
23       from there, I completed an examination, which  
24       included both a Montreal cognitive assessment and a  
25       focused neurologic exam on the features of



1 HEIDI SCHWARZ, MD, FAAN by MS. HURT  
2 Parkinson's disease that can be assessed remotely.

3 And I also documented medications taken and  
4 specifically when his last dose of medications were  
5 taken because that informs how I interpret his  
6 examination.

7 Q. And did the methodology you employ in  
8 taking Mr. Sparks' virtual visit differ from how you  
9 took Mr. Welch's virtual visit?

10 A. No. They were the same.

11 Q. And in your opinion, what's the difference  
12 between an IME and a virtual visit?

13 MR. MICELI: Object to the form.

14 A. So an independent medical exam, in my mind,  
15 is an exam that is required by a workers'  
16 compensation insurance company and paid for by them.  
17 So quite frankly, I don't view them as independent.

18 And then the report goes to the workers'  
19 compensation carrier. In my situation with a  
20 virtual exam, it is purely to assess in this  
21 situation was to assess the nature of the symptoms  
22 and confirm the history and confirm the diagnosis.  
23 But it had no bearing on their ability to work or  
24 workers' compensation.

25 Q. You mentioned you took a neurologic exam.

1 HEIDI SCHWARZ, MD, FAAN by MS. HURT  
2 Can you tell me what you meant by that statement?

3 A. So I looked at eye movements. I looked for  
4 any evidence of weakness, particularly asymmetric  
5 weakness. These are sort of parts of the general  
6 neurologic exam that you can do remotely. And I  
7 looked at speech and language. So how articulate  
8 someone is and how they do with word finding, et  
9 cetera. And looked at their ability to walk and to  
10 walk in challenged situations such as heels and toes  
11 and what we call tandem gait.

12 So those are all sort of part and parcel of  
13 that general neurologic exam. And then more  
14 specifically, in both situations, I looked for what  
15 we call movements, dyskinesias dystonia. I looked  
16 for tremor. I looked for masked facial expression.  
17 I looked for voice volume. I looked for speed of  
18 movement.

19 And I looked at their ability to get up out  
20 of a seated position, at their ability to walk, and  
21 how their arm swing goes, and what the stance of  
22 their gait is, how many steps it takes to corner,  
23 and then stress gait, such as tandem gait.

24 I can't check rigidity, and I can't check  
25 postural instability unless they actually happen to

1 HEIDI SCHWARZ, MD, FAAN by MS. HURT  
2 falter during the exam. Those are the two things  
3 that I would add if I saw the patient in person.

4 Q. How long did you have a virtual visit with  
5 Mr. Welch?

6 A. I believe I -- oh, Mr. Welch. Okay. Hold  
7 on. I'm on Sparks right now. Sorry. 70 minutes.

8 Q. And how long did you have a virtual visit  
9 with Mr. Sparks?

10 A. Mr. Sparks was, I want to say, 50 minutes.  
11 I just recently pulled it up. Oh, here we are. I'm  
12 pretty sure it was 50 minutes, and it's -- I'm sure  
13 it's in the notes that I -- handwritten notes that I  
14 sent over, but I do not believe I've documented it  
15 in my statement.

16 Q. And is there a reason why Mr. Welch's exam  
17 was longer than Mr. Sparks?

18 A. Not any specific reason that I recall. I  
19 will say that Mr. Welch was not at home. When I did  
20 it, he was visiting his daughter over the Christmas  
21 holiday. So I think there was -- he wasn't using  
22 his usual computer. And so I think there was just a  
23 little bit more technical difficulty.

24 Q. Did anyone attend your virtual visit with  
25 Mr. Welch?

1 HEIDI SCHWARZ, MD, FAAN by MS. HURT

2 A. His wife was there at the beginning because  
3 I think she wanted to help him connect because he  
4 wasn't used to the computer that they were on. But  
5 after that, she left.

6 Q. And was there anyone else?

7 A. No.

8 Q. No? Was counsel there?

9 A. No.

10 Q. And at Mr. Sparks' virtual visit was anyone  
11 else present?

12 A. No. He was on his own.

13 Q. And counsel wasn't at that one?

14 A. And counsel was not present.

15 Q. Typically, how long does your virtual  
16 visits like this last?

17 A. So a virtual visit to assess a patient  
18 probably lasts somewhere between 45 minutes and an  
19 hour and 15 minutes. A virtual visit where I  
20 examine a patient, take a history, and then educate  
21 them and suggest treatment usually takes at least an  
22 hour-and-a-half for a first patient -- first time  
23 visit. But I was not giving any advice on  
24 management or education.

25 Q. Did you talk to the treating physicians for

1 HEIDI SCHWARZ, MD, FAAN by MS. HURT

2 Mr. Sparks?

3 A. No. I did not.

4 Q. And did you talk to the treating physicians  
5 for Mr. Welch?

6 A. No. I did not.

7 Q. Or did you communicate that --

8 A. And I did not communicate with them in any  
9 way.

10 Q. Do you have a standard set of questions you  
11 ask during a virtual visit?

12 A. I have some standard things that I ask  
13 about when symptoms started, et cetera. But from  
14 there the questions are tailored depending on the  
15 patient's response.

16 Q. What are the standard questions you ask?

17 A. What brought you in today? What's your  
18 most bothersome symptom? How long have you had it?  
19 Where do you notice it? Anything that makes it  
20 better or worse?

21 So, you know, basically, those are sort of  
22 the starting point for my history of present  
23 illness. And then from there, depending on the  
24 answers, they may generate more questions.

25 After I go through the history of present

1 HEIDI SCHWARZ, MD, FAAN by MS. HURT  
2 illness, then I will go to past medical history, and  
3 then I will go to medications. And from there I  
4 will go to social history, which will include, you  
5 know, what their support system is. Are they  
6 married? Are they working? Do they smoke? Do they  
7 drink alcohol? Is there illicit drug use?

8 Social determinants of health, are they  
9 able to afford their medications? Et cetera, and  
10 then family history. So that would be the questions  
11 I would be asking.

12 Q. Do you typically perform a differential  
13 diagnosis when conducting a virtual visit?

14 A. If I am asked if I'm seeing a patient to  
15 determine a diagnosis, I consider a differential  
16 diagnosis. Yes.

17 Q. Have you ever examined any other plaintiffs  
18 in this litigation besides Mr. Sparks and Mr. Welch?

19 MR. MICELI: Object to the form.

20 To the extent she's done that, she would  
21 have been a consultant I don't think  
22 that's allowable. But I think I know  
23 the answer, so you can go ahead and  
24 answer the question.

25 THE WITNESS: No. I have not.

1 HEIDI SCHWARZ, MD, FAAN by MS. HURT

2 BY MS. HURT:

3 Q. Okay. In your report you state that Mr.  
4 Sparks had substantial exposure to this contaminated  
5 water at Camp Lejeune, correct?

6 A. Correct.

7 Q. And you don't define substantial exposure  
8 in your report, correct?

9 A. Correct.

10 Q. And you don't quantify as a substantial  
11 exposure in your report, correct?

12 A. Correct.

13 Q. And you do not identify a threshold amount  
14 of exposure to TCE whereby an individual is  
15 guaranteed to develop Parkinson's disease, correct?

16 A. Correct.

17 MR. MICELI: Object to the form.

18 A. I don't think that that will ever be  
19 determined because each individual is different.

20 Q. Is any dose of TCE harmful?

21 MR. MICELI: Object to the form.

22 A. I don't think we have the answer to that  
23 question yet.

24 Q. You base your opinions in part on Dr.  
25 Reynolds' report of February 6, 2025, correct?

1 HEIDI SCHWARZ, MD, FAAN by MS. HURT

2 A. Correct.

3 Q. And to the extent that you assert that  
4 exposure to contaminated water at Camp Lejeune  
5 caused Mr. Sparks and Mr. Welch's Parkinson's  
6 disease, is that opinion based on Dr. Reynolds'  
7 exposure calculation?

8 MR. MICELI: Object to the form.

9 A. In part based on that, also in part based  
10 on statistics from both articles as far as  
11 concentration of TCE and the water supplies that  
12 both gentlemen were exposed.

13 Q. And Dr. Reynolds dates for calculations of  
14 Mr. Sparks and Mr. Welch's cumulative exposures and  
15 contaminants consent data from Mr. Maslow's report,  
16 correct?

17 A. I don't have Dr. Reynolds' report in front  
18 of me right now, so I can't comment on that.

19 Q. Hypothetically, if Mr. Welch's data was  
20 incorrect, would Dr. Reynolds' calculations be  
21 impacted?

22 MR. MICELI: Object to the form.

23 A. I cannot comment on that. It's a very  
24 vague question. What's incorrect? I mean, it could  
25 be off by a fraction or --



1 HEIDI SCHWARZ, MD, FAAN by MS. HURT

2 Q. That's fair. If Mr. Maslow's data was --  
3 what would be enough for you to be -- scratch  
4 that -- come back to that. For example, if you  
5 could show actual concentrations were 15 percent  
6 lower than the values Mr. Maslow calculated, Dr.  
7 Reynolds' exposure calculations would be too high,  
8 correct?

9 MR. MICELI: Object to the form.

10 A. That would be up to Dr. Reynolds to answer.

11 Q. So you wouldn't be able to testify to that?

12 A. Correct. I relied on her data.

13 Q. If Dr. Reynolds' cumulative exposure  
14 numbers decrease, would that impact your opinions on  
15 causation, Mr. Sparks?

16 MR. MICELI: Object to the form;  
17 foundation.

18 A. It really depends on the magnitude. If she  
19 found if there was no exposure, that would change my  
20 opinion. Other than that, I don't think I can  
21 comment.

22 Q. So if there was any exposure above zero, it  
23 wouldn't change your opinion?

24 MR. MICELI: Object to the form.

25 A. I would have to review the data. I can't

1 HEIDI SCHWARZ, MD, FAAN by MS. HURT

2 -- that would be speculative on my part.

3 Q. What threshold is enough for there to be  
4 causation?

5 MR. MICELI: Object to the form;  
6 foundation, asked and answered.

7 A. I think that we don't know what is enough.  
8 In my view, 70 times the EPA standard is certainly  
9 enough.

10 Q. Are you aware of whether the total mass  
11 ingested is generally accepted in the field of  
12 toxicology?

13 MR. MICELI: Object to the form;  
14 foundation.

15 A. I'm not a toxicologist.

16 Q. So you couldn't speak to that?

17 A. So I could not speak to that.

18 Q. Are you aware of whether epidemiological  
19 studies apply the same exposure metrics that Dr.  
20 Reynolds did in her report for this case?

21 MR. MICELI: Object to the form;  
22 foundation.

23 A. I am not aware.

24 Q. And is that because you're not an  
25 epidemiologist?

1 HEIDI SCHWARZ, MD, FAAN by MS. HURT

2 A. Or a toxicologist.

3 Q. Let's take a break.

4 THE VIDEOGRAPHER: Time on the  
5 monitor is 2:00. We're off the record.

6 (Brief recess.)

7 THE VIDEOGRAPHER: Time on the  
8 monitor is 2:16. Starting media 7.

9 We're on the record.

10 BY MS. HURT:

11 Q. Okay. Dr. Schwarz, did you independently  
12 calculate the amount of TCE to which Mr. Sparks was  
13 exposed during his time at Camp Lejeune?

14 A. No. Those calculations were done by Dr.  
15 Reynolds.

16 Q. Okay. And the same is true for Mr. Welch?

17 A. Correct.

18 Q. Are you aware of whether the EPA uses  
19 maximum contaminant levels to evaluate potential  
20 risk to human health?

21 A. My understanding is that maximum MCLs are  
22 not used as causative. As I said before, they're  
23 like the canary in the coal mine. Anything above  
24 that has potential risk, and that's where  
25 toxicologists come in to determine toxic levels.

1 HEIDI SCHWARZ, MD, FAAN by MS. HURT

2 Q. And are you aware of how the EPA  
3 establishes MCLs?

4 MR. MICELI: Object to the form;  
5 foundation.

6 A. No. I am not.

7 Q. Were you aware that MCLs are designed to be  
8 acceptable daily drinking water concentrations over  
9 a lifetime of exposure?

10 MR. MICELI: Object to the form;  
11 foundation.

12 A. I knew that MCL is related to prolonged  
13 exposure, but I can't say that I know the specifics.  
14 No.

15 Q. Are you aware of the health protective  
16 assumptions that go into determining an MCL?

17 MR. MICELI: Same objection;  
18 foundation.

19 A. I'm not an EPA.

20 Q. Were you aware that the EPA uses cumulative  
21 dose averaged over a lifetime?

22 MR. MICELI: Object to the form;  
23 foundation.

24 A. I've heard that, but I wouldn't know how to  
25 apply that in these cases. That's why I have

1 HEIDI SCHWARZ, MD, FAAN by MS. HURT  
2 toxicologists and Dr. Reynolds that I rely on.

3 Q. And exposure to drinking water --  
4 contaminated drinking water and excess of an MCL  
5 does not necessarily constitute a health risk,  
6 right?

7 MR. MICELI: Object to the form;  
8 foundation.

9 A. I cannot answer that question.

10 Q. Are you aware of what a systematic review  
11 of epidemiological literature is?

12 A. I'm aware of what a systematic review is.  
13 Yes.

14 Q. How do you define systematic review?

15 A. So a systematic review does a literature  
16 search of pertinent articles that have been  
17 published and then collates that data as much as it  
18 can because oftentimes studies vary in how they're  
19 conducted.

20 So the data isn't necessarily equatable.  
21 And based on the quality of the studies that have  
22 been done, they then often draw a conclusion about  
23 the given subject that they're studying.

24 Q. And have you conducted any systematic  
25 reviews?

1 HEIDI SCHWARZ, MD, FAAN by MS. HURT

2 A. I have not done any systematic reviews. I  
3 have reviewed systematic reviews in my role as a  
4 guideline developer at the American Academy of  
5 Neurology, so.

6 Q. And what do you look for when you review a  
7 systematic review?

8 A. A lot of what I just mentioned.

9 Q. Okay. And how would you distinguish a  
10 systematic review from other types of reviews?

11 A. Well, a systematic review basically  
12 collates the data. So a clinical review is often  
13 just a synopsis of what's known based on the authors  
14 of the study.

15 A systematic review actually takes all the  
16 data that's available, tries to collate it or  
17 compare it with each other, and then using  
18 statistical methods, determines whether there are  
19 conclusions that can be reached that are  
20 statistically significant.

21 Q. Are you familiar with the Bradford Hill  
22 criteria?

23 A. I know of the Bradford Hill. I don't think  
24 it's criteria, though. It's another C-word. Let me  
25 see what have I got here. So it isn't that, and I

1 HEIDI SCHWARZ, MD, FAAN by MS. HURT  
2 -- the reason I raised that point is that the  
3 Bradford Hill factors, you don't need all of them in  
4 order to reach a conclusion. So you don't have to  
5 check every box in order to have it meet the  
6 Bradford Hill. And I don't know if I've got it  
7 here.

8 Q. I think in your report, you say using the  
9 Bradford Hill framework?

10 A. Framework. Okay. Right.

11 Q. Did you apply the Bradford Hill framework  
12 to your report in this case?

13 A. I did not. I deferred to those who did.

14 Q. So you didn't perform any Bradford Hill  
15 analysis?

16 A. I did not.

17 Q. I'm trying to figure out where it was at on  
18 this page. Oh, I think I'm looking at the wrong --

19 MR. MICELI: 14 would be the  
20 references.

21 Q. So it's turning to Mr. Welch's report,  
22 Exhibit 4.

23 A. Okay.

24 Q. It says using the Bradford Hill framework.

25 MR. MICELI: So we're clear -- I

1 HEIDI SCHWARZ, MD, FAAN by MS. HURT  
2 want to make sure you're clear for the  
3 record on the Welch report page 14?

4 MS. HURT: Yeah.

5 MR. MICELI: Okay.

6 BY MS. HURT:

7 Q. At the bottom, it says "Using the Bradford  
8 Hill framework applied to the general causation  
9 experts like Dr. Cannon, Dr. De Miranda, Dr. Miller,  
10 Dr. Costa, and Dr. Blum." And then you put in  
11 parentheses, strength of association, consistency,  
12 temporality, biological gradient, plausibility,  
13 coherence, experimental evidence, and analogies; is  
14 that correct?

15 A. Correct.

16 Q. What are the items in the parentheses?

17 A. Those are aspects of the Bradford Hill  
18 framework or consensus.

19 Q. And sufficiency is one of those aspects,  
20 correct?

21 MR. MICELI: Object to the form.

22 A. I don't see specific --

23 Q. Yes. It's not listed. Specificity, I'm  
24 sorry.

25 A. I don't see that listed either.



1 HEIDI SCHWARZ, MD, FAAN by MS. HURT  
2 (EXHIBIT NO. 13 WAS MARKED FOR  
3 IDENTIFICATION.)

4 Q. Exhibit 13 is -- yes. "Environment and  
5 Disease: Association Or Causation," is the title by  
6 Sir Austin Bradford Hill. Have you seen this  
7 document before, Dr. Schwarz?

8 A. I have not.

9 Q. And then on page 297, at the top, it says  
10 "Specificity: One reason, needless to say, is the  
11 specificity of association, the third  
12 characteristic, which invariably we must consider.  
13 If as here, the association is limited to specific  
14 workers in particular sites and types of diseases  
15 and there is no association between the work and  
16 other modes of dying, then clearly there is a strong  
17 argument in favor of causation."

18 Is there a reason that you didn't put  
19 proficiency in your -- is there a reason you didn't  
20 put specificity in your report?

21 A. No. I think when I explored the aspects of  
22 the Bradford Hill framework or consensus, that  
23 didn't come up on the resource that I looked at.

24 Q. And what resource did you look at?

25 A. I actually suspect, but cannot tell you for

1 HEIDI SCHWARZ, MD, FAAN by MS. HURT  
2 sure, that it probably came from one of these  
3 causation experts.

4 Q. Okay. So had you heard of the Bradford  
5 Hill framework before this litigation?

6 A. No. I had not.

7 Q. I'm looking at Welch.

8 MR. MICELI: Are we done with the  
9 Hill article?

10 MS. HURT: Yeah.

11 BY MS. HURT:

12 Q. In Welch's report, you state that the  
13 evidence strongly supports a casual relationship --  
14 causal relationship between TCE exposure and  
15 development of PD, correct?

16 A. I think so. Can you tell me where you're  
17 reading from.

18 A. I think it's on Page 14 to 15.

19 Q. Yeah. It's --

20 A. Okay. Yeah. The last sentence?

21 Q. Yeah.

22 A. Correct.

23 Q. You did not find that evidence strongly  
24 supports the causal relationship between PCE  
25 exposure and the development of PD, correct?

1 HEIDI SCHWARZ, MD, FAAN by MS. HURT

2 A. I did not. I did not choose to comment on  
3 that. Correct.

4 Q. Why did you choose not to comment on that?

5 A. Because this case involves TCE exposure.

6 Q. Is PCE -- TCE is also another contaminant  
7 of concern in this litigation?

8 MR. MICELI: Object to the form;  
9 foundation.

10 A. There's also less scientific evidence  
11 regarding PCE. I think it's entirely likely that  
12 PCE will prove to be equally toxic, but my charge  
13 was to look at the data with regard to TCE.

14 Q. The Bradford Hill analysis that we just  
15 talked about, that's not used to determine the cause  
16 of someone's Parkinson's disease, correct?

17 A. It's used to prove not for a specific  
18 person, but it is used to support the argument of a  
19 toxin being related to the development of a disease.

20 Q. And then you've seen association found  
21 before Bradford Hill analysis is used, correct?

22 MR. MICELI: Object to the form;  
23 foundation. She said she hadn't heard  
24 of it before this.

25 A. So I -- yeah. I mean, I think that

1 HEIDI SCHWARZ, MD, FAAN by MS. HURT  
2 association is usually what drives the next steps.  
3 And if there was no evidence of association and had  
4 been looked for, we wouldn't be going through the  
5 Bradford Hill framework.

6 Q. Go ahead and look at Sparks on Page 3.  
7 Okay. So you referred to Parkinson's disease, and  
8 it says one understand -- "our understanding of  
9 Parkinson's disease has evolved significantly." Do  
10 you see where I'm at?

11 MR. MICELI: I don't --

12 THE WITNESS: Third paragraph.

13 MR. MICELI: Thank you.

14 BY MS. HURT:

15 Q. "Our understanding of the cause of  
16 Parkinson's disease has evolved significantly over  
17 the last 30 years. In the late 1990s, clusters of  
18 families with PD were identified resulting in  
19 identification of the first gene mutation associated  
20 with PD." Then you'd go on to talk about MPTP. And  
21 then -- here you go. This is where I'm at.

22 "Parkinson's disease was once called an  
23 idiopathic disease, one without a clear cause. But  
24 current research is now providing evidence through  
25 mechanistic and animal studies for the scientific

1 HEIDI SCHWARZ, MD, FAAN by MS. HURT  
2 conclusion that environmental factors can be  
3 causative in the development of Parkinson's  
4 disease."

5 When you say "once was referred to as  
6 idiopathic," what do you mean there?

7 A. So I mean that, when in the 1980s when I  
8 was trained, idiopathic meant we have no idea what  
9 caused it. So cause was unknown. And currently,  
10 there are a number of things that we know are  
11 causative or significant risk factors for  
12 Parkinson's disease. So to say that the disease is  
13 idiopathic and we have no idea what causes it is no  
14 longer accurate.

15 Q. Do you define idiopathic as a disease  
16 without a clear cause?

17 A. I just define idiopathic as a disease  
18 without any known cause.

19 Q. So you wouldn't use idiopathic to say for  
20 if you didn't know a particular individual's cause  
21 of Parkinson's disease?

22 MR. MICELI: Object to the form.

23 A. I think it's a matter of semantics.  
24 Personally, I think a more accurate term is typical  
25 versus atypical Parkinson's disease.

1 HEIDI SCHWARZ, MD, FAAN by MS. HURT

2 But idiopathic, I think, implies that we  
3 are clueless as to what causes Parkinson's disease,  
4 and we are no longer clueless. But we may not know  
5 what an individual whose individual's cause for  
6 Parkinson's disease is. We may not know in an  
7 individual the cause or causes of Parkinson's  
8 disease.

9 Q. But you wouldn't refer to that as  
10 idiopathic?

11 A. You can, but it gets misinterpreted a lot.  
12 And so that's why I just call it typical or of, you  
13 know, of uncertain cause.

14 Q. So can someone have atypical part -- I'm  
15 sorry. Let me rephrase that. Can someone have  
16 typical symptoms of Parkinson's disease and still  
17 not know the cause of their disease?

18 A. Yes.

19 Q. But you wouldn't refer to that as  
20 idiopathic or --

21 A. I think that the term can be confused, so I  
22 would -- I would just call it typical Parkinson's  
23 disease cause unidentified at this point.

24 Q. And do you use that in your practice? Do  
25 you use that phrase?

1 HEIDI SCHWARZ, MD, FAAN by MS. HURT

2 A. I use typical Parkinson's disease, yeah,  
3 versus atypical.

4 Q. Okay. And typical and atypical I've  
5 normally heard that referred to as, like, typical  
6 symptoms versus atypical symptoms. But you're -- is  
7 that how you're using it here?

8 Typical, in a way, refers to a typical  
9 clinical presentation versus an atypical clinical  
10 presentation, correct?

11 A. Well, in a sense, it has to do with cause  
12 too because atypical Parkinson's disease often has  
13 different causes than typical.

14 Q. Can you give me an example?

15 A. So PSP is a tauopathy, T-A-U-O-P-A-T-H-Y.  
16 So it's mediated through tau protein, whereas  
17 typical Parkinson's disease is not a tauopathy.

18 Q. And would you say that Mr. Sparks' symptoms  
19 are typical for Parkinson's disease?

20 A. They are typical.

21 Q. And you would say that Mr. Welch's symptoms  
22 are typical for Parkinson's disease?

23 A. Yes. I believe they are both typical for  
24 Parkinson's disease. There will be others who would  
25 still use the term idiopathic. I just find it not

1 HEIDI SCHWARZ, MD, FAAN by MS. HURT  
2 particularly accurate in this day and age.

3 Q. I'm going to take another break.

4 A. Okay.

5 THE VIDEOGRAPHER: Off the record.

6 Time on the monitor is 2:37.

7 (Brief recess.)

8 THE VIDEOGRAPHER: Time on the  
9 monitor is 2:47. This begins media 8.  
10 We're on the record.

11 BY MS. HURT:

12 Q. There's not a test to know any one cause of  
13 Parkinson's disease, correct?

14 A. Correct.

15 Q. Okay. And given the scientific literature,  
16 do we know all the causes of Parkinson's disease?

17 A. No.

18 Q. And if we -- given that, how can you  
19 conclude that TCE was the specific cause of Mr.  
20 Sparks' Parkinson's disease?

21 MR. MICELI: Object to the form;  
22 foundation.

23 A. I am not saying that TCE is the only cause  
24 of Mr. Sparks' Parkinson's disease, but I feel that  
25 it is as more likely than not with Mr. Sparks that



1 HEIDI SCHWARZ, MD, FAAN by MS. HURT  
2 it is a significant factor in causing his  
3 Parkinson's disease. There may be others.

4 Q. And for Mr. Welch, how can you conclude  
5 that TCE was the specific cause of his Parkinson's  
6 disease?

7 MR. MICELI: Objection; foundation.

8 A. So, again, I feel that TCE is one thing  
9 that clearly increased his risk of Parkinson's  
10 disease by a factor, 50 percent likelihood. And  
11 that's based on my research and the toxicology  
12 studies, the epidemiology studies, and his exposure.

13 Q. You said 50 percent there. What did you  
14 mean?

15 A. As likely as not.

16 Q. Okay. Looking at the report for Mr.  
17 Sparks, your report distinguishes between potential  
18 causes of Parkinson's disease and causes of  
19 Parkinson's disease, correct?

20 A. Correct.

21 Q. What is the difference -- what is the  
22 potential cause of Parkinson's disease? What is the  
23 difference?

24 A. So the potential causes of Parkinson's  
25 disease, as the footnote indicates, is that these

1 HEIDI SCHWARZ, MD, FAAN by MS. HURT  
2 are associations that have been found with  
3 Parkinson's disease, but the actual mechanism and  
4 the toxicology has not been worked out. That's only  
5 one of the three branches we're looking for  
6 causation.

7 Q. And the -- what are the three branches?

8 A. So epidemiology, which these potential  
9 causes have. Toxicology, looking at the toxic  
10 impact of these factors and mechanism.

11 Q. What does mechanism mean?

12 A. Mechanism means how can you, for instance,  
13 with traumatic brain injury, how can you show that  
14 that mechanism of TBI produces the changes that you  
15 see in the brain of people with Parkinson's disease.

16 Q. And so for TBI, which elements are missing?

17 A. We don't have a mechanism. And we don't  
18 have, in essence, a toxicology. Like, how much is  
19 enough to create an increased risk of Parkinson's  
20 disease. Plus, I will add that with TBI, even the  
21 epidemiologic data doesn't always agree. Some  
22 studies find there's association, and some studies  
23 find there is not.

24 Q. What's the difference between a risk factor  
25 and a cause of Parkinson's disease?

1 HEIDI SCHWARZ, MD, FAAN by MS. HURT

2 A. So I liken it to, if someone tells you, you  
3 have Strep throat, you know the cause of that is  
4 Streptococcus bacteria. A risk factor is, for  
5 instance, smoking and lung cancer. So not everyone  
6 that smokes gets lung cancer, and not everyone with  
7 lung -- not everyone who has lung cancer has smoked.

8 So it increases your risk, but it doesn't  
9 mean that it definitely is going to cause that  
10 disease in every person. Whereas a Streptococcus  
11 infection in your throat will cause Strep throat in  
12 everybody.

13 Q. So how do you go from a risk factor to  
14 cause with Mr. Sparks?

15 MR. MICELI: Object --

16 A. So --

17 MR. MICELI: Excuse me. Object to  
18 the form.

19 A. So I equate the risk factor is as likely as  
20 not to cause this. Just like I would say if you  
21 were a smoker and you got lung cancer, it's as  
22 likely as not, or maybe more likely than not that  
23 the smoking was the cause of your lung cancer.

24 Q. Are the ones -- under potential causes of  
25 Parkinson's disease, you have traumatic brain

1 HEIDI SCHWARZ, MD, FAAN by MS. HURT  
2 injury, particulate matter and melanoma listed. Are  
3 there other potential causes of Parkinson's disease  
4 that are not listed here?

5 A. Yes, although the other ones, I think, have  
6 less evidence. And it's purely epidemiologic. So,  
7 for instance, male sex. So we know that Parkinson's  
8 disease is more common in men than in women, but  
9 that's an association.

10 But there are so many factors that may  
11 influence that, so that the XY chromosome may have  
12 absolutely nothing to do, and that's what defines  
13 male sex. With the development of Parkinson's, it  
14 may have to do that men are more exposed to toxins.  
15 So that I feel doesn't have -- there's so many other  
16 confounding variables that may account for that  
17 association.

18 There's an association with, for instance,  
19 diabetes and pre-diabetes, but there's no mechanism  
20 by which diabetes or pre-diabetes causes the  
21 pathology that you see in Parkinson's disease.

22 Q. Does the -- I don't know how to say this  
23 correctly. Does the -- is it neurological field?  
24 That's not right. Like the field of study that  
25 you're in, how would you say? The neurology, I

1 HEIDI SCHWARZ, MD, FAAN by MS. HURT

2 guess.

3 A. Yeah.

4 Q. In the field of neurology, is there an  
5 agreed upon set of risk factors for Parkinson's  
6 disease?

7 A. It's ever evolving. I mean, if you had  
8 asked me how many genes caused Parkinson's disease  
9 20 years ago, I would have said five, six. Now  
10 there's over a 100.

11 Q. And so for causes of Parkinson's disease,  
12 you have genetics, drug exposure, environmental  
13 exposures, correct?

14 A. Correct.

15 Q. And are there any other known causes, I  
16 guess, of Parkinson's disease?

17 A. There probably are, we just don't know them  
18 yet.

19 Q. And what makes TCE exposure a known cause  
20 versus a potential cause?

21 A. Because it has strong epidemiologic data,  
22 it has strong toxicology data, and mechanistically,  
23 it produces the changes that we see in Parkinson's  
24 disease. So it has all three.

25 Q. And how do you define strong?

1 HEIDI SCHWARZ, MD, FAAN by MS. HURT

2 A. Meaning that the epidemiologic data,  
3 largely, with very few exceptions, shows an  
4 association between TCE and Parkinson's disease.  
5 The toxicology data in various animal models shows  
6 that the changes that occur in animal models in the  
7 brain are the same as what happens in Parkinson's.

8 And then looking at the mechanism of action  
9 of TCE, it is very similar to a number of known  
10 factors that cause Parkinson's disease. It's  
11 similar to MPP+, it's similar to LRRK2 gene  
12 mutation, and it causes the same microbiome changes  
13 and gut changes that we see in patients with  
14 Parkinson's disease. So everything points in one  
15 direction.

16 Q. So we were just talking about age -- so we  
17 were just talking about male sex. So you -- do you  
18 consider that to be a risk? You don't consider that  
19 to be a risk factor?

20 A. No, I consider that to be an association.

21 Q. Okay. And what's the difference between  
22 association and risk?

23 A. So an association means if you study a  
24 population and you find people with, say,  
25 Parkinson's disease and you find that there are more

1 HEIDI SCHWARZ, MD, FAAN by MS. HURT  
2 men than women, then you can say Parkinson's disease  
3 is associated with men more than it is with women.

4 Q. What studies show that the TCE mechanism is  
5 similar?

6 A. That, I'm going to refer you back to the  
7 toxicologists, I think, who have already been  
8 deposited. There are a number of studies in there.

9 Q. Is there any -- that's what you rely upon  
10 in that statement?

11 A. Yes. I don't examine brains.

12 Q. And then age. Do you consider that a risk  
13 factor?

14 A. I do not. It's a little like male sex. If  
15 you look at any given age, the older someone is, the  
16 higher the likelihood that they will develop  
17 Parkinson's disease. But for instance, you take the  
18 age of 75. So 2 to 5 percent of people who are 75  
19 have Parkinson's disease. Why don't the other 95  
20 percent? Age can't be the determining factor.

21 The other thing that I think is important  
22 about age is, you know, people have said, well,  
23 Parkinson's is, we know, is the fastest growing  
24 neurodegenerative disease in the world. There are  
25 more patients with Alzheimer's but the rate of

1 HEIDI SCHWARZ, MD, FAAN by MS. HURT  
2 increase is highest in Parkinson's disease. And  
3 people say, well, that's because the population is  
4 aging. But if you look at the rate of Alzheimer's  
5 disease corrected for age, it has been stable.

6 If you look at the rate of Parkinson's  
7 disease corrected for age, it has grown 22 percent.  
8 So something other than age is the factor here.

9 Q. So I guess earlier we talked about how  
10 Parkinson's disease -- you called it multifactorial,  
11 correct?

12 A. Correct.

13 Q. But right -- like I'm trying to understand  
14 this. So when you were talking about this just now,  
15 you were saying there's this dissociation, which  
16 kind of, to me sounded like a known cause, right?

17 MR. MICELI: Object to the form;  
18 foundation.

19 A. No. Association does not prove known cause.  
20 It would be like saying, because you're male, that  
21 means that you're -- because of the male chromosome,  
22 you're going to get Parkinson's disease. That's not  
23 true.

24 Q. But with a multifactorial disease, multiple  
25 things could contribute to someone developing



1 HEIDI SCHWARZ, MD, FAAN by MS. HURT  
2 Parkinson's disease, correct?

3 A. Correct.

4 Q. 14?

5 MR. MICELI: 14.

6 (EXHIBIT NO. 14 WAS MARKED FOR  
7 IDENTIFICATION.)

8 BY MS. HURT:

9 Q. Okay. Thank you. So Exhibit 14 is an  
10 article titled "Traumatic Brain Injury and the  
11 Development of Parkinsonism. Understanding  
12 Pathophysiology, Animal Models and Therapeutic  
13 Targets." The lead author on it, or the first one  
14 listed, is Padmakumar, and it's dated 2022. Dr.  
15 Schwarz, are you familiar with this article?

16 A. Yes, I am. I will have to review it  
17 because I haven't looked at it recently. But I did  
18 cite it in my --

19 Q. Okay. And then in the abstract, it says  
20 "There's a strong molecular association between the  
21 pathogenesis of traumatic brain injury and  
22 development of Parkinsonism in humans, has been well  
23 established." Do you agree with that statement?

24 A. I would say -- I would quibble with the  
25 fact, a strong molecular association. There is a

1 HEIDI SCHWARZ, MD, FAAN by MS. HURT  
2 molecular association. And I think the other thing  
3 to point out here is with traumatic brain injury.  
4 So traumatic brain injury runs a large spectrum.

5 And so are they talking about -- and in an  
6 abstract, you know, you synthesize things, but are  
7 they talking about severe TBI? Are they talking  
8 about mild TBI? I mean, it's a very broad, sweeping  
9 statement that I think probably requires more  
10 specifics and qualifications.

11 Q. So on to page 2, middle of the page, it  
12 says the strongest evidences for TBI cases. Do you  
13 see that? Lateral sclerosis is the beginning of the  
14 word in the line.

15 MR. MICELI: Okay.

16 BY MS. HURT:

17 Q. "The strongest evidence for TBI cases has  
18 been linked to the development of PD. A seminal  
19 study conducted by Gardner et al, in the year 2018  
20 in military veterans reported a 56 percent increase  
21 in risk of developing PD for mild TBI and moderate  
22 to severe TBI, accounting for 83 percent. A recent  
23 study by Morissette reported that a single  
24 concussion escalates the risk of developing  
25 Parkinson's disease by 57 percent." Do you disagree

1 HEIDI SCHWARZ, MD, FAAN by MS. HURT  
2 with this statement?

3 MR. MICELI: Object to the form;  
4 foundation.

5 A. I don't object to what's quoted there, but  
6 it also fails to acknowledge other articles that I  
7 have in my discussion with Mr. Welch. So reference  
8 51 for me showed no association between PD -- that's  
9 the Kenborg article, the Danish case control study.

10 Q. And so you --

11 A. So I'm saying that they quoted articles  
12 that support their theory, and that's sort of the  
13 nature of what we do when we write articles. But  
14 they fail to acknowledge that there are articles  
15 that show the opposite, that there's no association  
16 between traumatic brain injury and Parkinson's  
17 disease.

18 Q. Do you disagree with the study cited by  
19 this article when it says, Gardner, do you disagree  
20 with that study?

21 MR. MICELI: Object to the form.

22 A. I don't necessarily disagree with the fact  
23 that they quoted what was in that article, but what  
24 I would say is, unless I looked at that particular  
25 study to see how many people were included, what the

1 HEIDI SCHWARZ, MD, FAAN by MS. HURT  
2 statistical significance was, and the latency  
3 between TBI and the onset of PD.

4 I mean, I can't -- there's so many  
5 variables that can't -- that are not included in  
6 this statement. So I know that's what the study  
7 said, but -- and I actually quoted that study in  
8 my --

9 Q. In your report?

10 A. In my report. Actually, I probably quoted  
11 this study, let me just see if I quoted it.

12 Q. I think you -- I think it's one of the  
13 ones.

14 A. Yeah, no, I did quote.

15 Q. Yeah, you quote Gardner.

16 A. Gardner. Okay. Oh, yeah. 50 -- okay.

17 Q. After you quote those 56 percent, you --  
18 let me read the whole sentence. You say some  
19 studies estimate that TBI increases the risk of  
20 Parkinson's disease by 56 percent. However, other  
21 epidemiological studies have shown no association  
22 between TBI and PD. And is that --

23 A. So we have a disagreement in study results.  
24 So it leaves one wondering whether there is an  
25 association or not. I do think that some of the

1 HEIDI SCHWARZ, MD, FAAN by MS. HURT  
2 data on potential mechanism is compelling, and we  
3 may well reach a point where we feel that it is  
4 definitely a potential cause, that it is actually a  
5 cause or a risk factor for Parkinson's disease. But  
6 I don't think it's there yet.

7 Q. And what is, like, the dividing line that  
8 would make you feel -- like what pushes it over the  
9 threshold that is now a risk factor? How do you  
10 know that that's the case?

11 MR. MICELI: Object to the form.

12 A. I would like to see more epidemiologic  
13 studies with closer evaluation of the severity of  
14 the TBI, the age of the TBI, and the latency between  
15 TBI and the onset of symptoms, as well as more  
16 pathologic or toxicology kind of data that would  
17 prove that actually what you create is the pathology  
18 that you see in Parkinson's disease.

19 So synuclein, alpha-synuclein deposition,  
20 neuroinflammation. You do see that in TBI, but I  
21 don't know that we've documented that there's  
22 alpha-synuclein deposition, I mean, the hallmarks  
23 pathologically of Parkinson's disease. And I'm not  
24 saying that we won't get there, but I don't think  
25 we're there yet.

1 HEIDI SCHWARZ, MD, FAAN by MS. HURT

2 Q. Okay. So you list the potential causes of  
3 Parkinson's and the causes of Parkinson's disease.  
4 Do you have like -- do you weigh some of these more  
5 than others? Some of these risk factors?

6 A. And what do you mean, weigh them?

7 Q. Are some more likely to be the cause than  
8 others?

9 A. I think it depends on the individual. So I  
10 think that TBI is probably closer to being  
11 recognized as a true risk factor than particulate  
12 matter or melanoma.

13 Although, it depends on how research goes.  
14 I will say that I have a few people with repeated  
15 TBI that were boxers and their Parkinson's disease  
16 was not typical in any way. So I don't know that  
17 the pathology is actually going to be the same.

18 Q. When you say not typical there, what do you  
19 mean?

20 A. Not responsive to the usual medications,  
21 not associated with motor fluctuations as time  
22 progresses, early onset dementia, which is usually  
23 later onset in Parkinson's disease, typical  
24 Parkinson's disease.

25 Q. I'm going to turn to -- this is Exhibit 8.

1 HEIDI SCHWARZ, MD, FAAN by MS. HURT

2 A. Exhibit 8.

3 MR. MICELI: Barbano report?

4 Q. Yeah. So on page 18 of the Barbano report  
5 for Mr. Peterson under head trauma, it says, "While  
6 there is an association between head trauma and  
7 Parkinson's disease, the risk increases with more  
8 severe head trauma and with multiple episodes of  
9 trauma." Did I read that correctly?

10 A. Yes.

11 Q. And Dr. Barbano stated that there was an  
12 association between head trauma and Parkinson's  
13 disease, correct?

14 A. I don't know. I wasn't there during his  
15 deposition.

16 Q. Well, the sentence says, "While there is an  
17 association between head trauma and Parkinson's  
18 disease."

19 A. Okay, yes.

20 Q. Do you disagree with Dr. Barbano?

21 A. I do. I think that the association is not  
22 with head trauma. It's with traumatic brain injury.  
23 Head trauma, it can run the spectrum. So it could  
24 be me bumping my head going out the door here. So I  
25 don't think that there is data to show that all head

1 HEIDI SCHWARZ, MD, FAAN by MS. HURT  
2 trauma is associated with Parkinson's disease.

3 Q. Going back to the Sparks' report.

4 MR. MICELI: We're done with  
5 Barbano for now?

6 MS. HURT: For now.

7 MR. MICELI: Okay.

8 BY MS. HURT:

9 Q. On page 10 in Sparks'. So on page 10 of  
10 Mr. Sparks under head trauma, you say, "Mr. Sparks  
11 has no history of head trauma and denies head  
12 injury." Did I read that correctly?

13 A. You did.

14 Q. In addition, the MRI of his brain showed no  
15 evidence of prior brain trauma, allowing me to rule  
16 out those risk factors of potential etiology. Did I  
17 read that correctly?

18 A. Correct.

19 (EXHIBIT NO. 15 WAS MARKED FOR  
20 IDENTIFICATION.)

21 Q. So Exhibit 15 is the National Archives and  
22 Record Administration file for Mr. Richard Sparks.  
23 The beginning bates number of the document is  
24 00682\_SPARKS\_NARA\_ with the bates number ending in  
25 1. Have you seen this document before, Dr. Schwarz?



1 HEIDI SCHWARZ, MD, FAAN by MS. HURT

2 A. No. I asked for these records, but I never  
3 received them.

4 Q. You never received Mr. Sparks' military  
5 records?

6 A. Well, I -- for instance, I'm looking at  
7 this one from the Naval Medical Center in Bethesda,  
8 and I asked for that and I never got it. So I saw  
9 summaries of it in other people's reports, but I  
10 never actually saw it.

11 Q. And when you said you asked for it, who did  
12 you ask for it from?

13 A. I asked counsel about it.

14 Q. Okay.

15 A. And they said that --

16 MR. MICELI: Do not discuss what  
17 you discussed with counsel.

18 A. Okay.

19 Q. Are there other records you asked about  
20 that you did not receive --

21 MR. MICELI: Object to the form.  
22 Do not answer the question.

23 MS. HURT: Can you -- are you going  
24 to instruct the witness not to answer.

25 MR. MICELI: I'm going to instruct

1 HEIDI SCHWARZ, MD, FAAN by MS. HURT  
2 her not to answer. If you're asking did  
3 you ask for and did they say something,  
4 yes.

5 BY MS. HURT:

6 Q. No, that's not my question. My question  
7 is, are there other records you asked for that you  
8 did not receive?

9 A. Not that I know of.

10 Q. Okay.

11 MR. MICELI: This is 15.

12 Q. So I'm looking at the Bates number, end is  
13 4. This is --

14 MR. MICELI: The one with the  
15 circle on it.

16 MS. HURT: Yeah. The one with the  
17 coffee stain.

18 BY MS. HURT:

19 Q. Do you see the page here?

20 A. Oh, yeah, there. Okay.

21 Q. And then about halfway down the page, it  
22 says "Two weeks prior to admission." Do you see  
23 that?

24 A. Yes.

25 Q. "Two weeks prior to the admission, the

1 HEIDI SCHWARZ, MD, FAAN by MS. HURT  
2 patient was riding with his girlfriend and another  
3 marine in a government vehicle. The patient claimed  
4 he became unaware of his surroundings and in that  
5 state was involved in a multi car accident, hitting  
6 two cars and a tree. After each of these episodes,  
7 the patient related that he had gone blank and had  
8 no conscious reason for his behavior at those  
9 times." Did I read that correctly?

10 A. Yes.

11 Q. And this is from November 16, 1973, is the  
12 clinical record I just read from, correct?

13 A. Correct.

14 Q. Would you consider this to be a head  
15 trauma?

16 MR. MICELI: Object to the form.

17 A. Without being there, it's hard for me to  
18 say. I mean, I don't know whether he hit his head  
19 from this description, I would have to rely on what  
20 -- if he sought medical care at that time, what that  
21 description was. I mean, this could be anything  
22 from drinking too much to having a small seizure or  
23 something like that. I mean, I just don't know  
24 what's written there.

25 Q. Did you -- have you seen Dr. Young's report

1 HEIDI SCHWARZ, MD, FAAN by MS. HURT  
2 for Mr. Sparks?

3 A. Yes, I have.

4 Q. And in his report, he talks about the IME  
5 he conducted, correct?

6 A. Correct.

7 Q. And he talks about how Mr. Sparks relayed  
8 to him that he hit his head and had stitches during  
9 the car accident, correct?

10 A. I believe so. I don't have that report in  
11 front of me right now, but that was the first I had  
12 heard about it.

13 Q. Okay. And is that why it's not mentioned  
14 in your report?

15 A. Correct.

16 MR. MICELI: Object to the form.

17 Q. A head injury that caused someone to go  
18 blank, would that be considered serious?

19 MR. MICELI: Object to the form of  
20 the question.

21 A. The question is, what's the chicken and  
22 what's the egg? Did he go blank and then have the  
23 accident or -- so I can't answer that.

24 Q. The more the severe the head trauma is, the  
25 greater the risk for Parkinson's disease?

1 HEIDI SCHWARZ, MD, FAAN by MS. HURT

2 MR. MICELI: Object to the form.

3 A. There is some data that supports that.

4 Q. What is your opinion?

5 A. I think it is probably true.

6 Q. We can put this aside for right now. We're  
7 going to come back to it. See, I've already lost  
8 the page. Going back to the Sparks report on Page  
9 4, talking about particulate matter. You say  
10 research suggests an association between air  
11 pollution, PM2.5, and Parkinson's disease, correct?

12 A. Correct.

13 Q. And you also state in your report on page  
14 10, under environmental exposure. You also state  
15 that pollution, and specifically particulate matter,  
16 PM2.5, may increase the risk of Parkinson's disease,  
17 correct?

18 A. Correct.

19 (EXHIBIT NO. 16 WAS MARKED FOR  
20 IDENTIFICATION.)

21 Q. So what I just introduced as Exhibit 16,  
22 this is the deposition transcript of Mr. Richard  
23 Sparks. And this litigation is dated January 26,  
24 2024. Dr. Schwarz, have you seen this deposition  
25 transcript before?

1 HEIDI SCHWARZ, MD, FAAN by MS. HURT

2 A. Yes, I have.

3 Q. So I'm going to go to Page 75 line --

4 We'll start at line 20. Do you see where that's at?

5 A. Uh-huh.

6 Q. Question: And were you around any  
7 chemicals or solvents?

8 Answer: We also work the cargo facilities.  
9 It's one of the largest land border cargo facilities  
10 in the United States. So we had a lot of trucks and  
11 a lot of rail traffic.

12 Did I read that correctly?

13 A. Correct.

14 Q. Would you expect there to be car exhaust  
15 fumes in an area that had a lot of vehicle traffic?

16 MR. MICELI: Object to the form.

17 A. I mean, it depends. My understanding was  
18 that he worked in a cargo facility, which means that  
19 these trucks, et cetera, are stopped and trains are  
20 stopped so that they can go in and check it. So if  
21 they're stopped, then there wouldn't probably be  
22 much diesel exposure.

23 Q. And did you account for this in your  
24 report?

25 A. I didn't feel it was significant.

1 HEIDI SCHWARZ, MD, FAAN by MS. HURT

2 Q. And you don't feel it's significant  
3 because?

4 A. Because I didn't -- when I asked him about  
5 exposure to diesel fumes, he said, I never had any  
6 significant exposure, so, and he was the one that  
7 was doing the job.

8 Q. And did you define significant exposure for  
9 Mr. Sparks?

10 A. Were you around a lot of diesel fumes.

11 Q. And he said no?

12 A. Yeah.

13 Q. Did you ask during the IME for Mr. Sparks  
14 if trucks were stopped? Or I guess, let me rephrase  
15 that question. Did you ask during your virtual  
16 visit with Mr. Sparks if the trucks were stopped?

17 A. I think he described it to me. Let's see.  
18 Okay. I don't have it documented here, so I can't  
19 say.

20 Q. Can you completely rule out environmental  
21 exposures such as air pollution as a potential risk  
22 factor for Mr. Sparks' Parkinson's disease?

23 MR. MICELI: Object to the form.

24 A. As I put in my report, air pollution at  
25 this point is an association, but not a clear cause.

1 HEIDI SCHWARZ, MD, FAAN by MS. HURT  
2 And because 92 percent of the world lives in areas  
3 where PM2.5 is above WHO recommendations, trying to  
4 make that association is going to be quite  
5 difficult.

6 Q. And can you explain to me what you mean by  
7 above, like, how that -- how the WHO standards  
8 relate to what you just -- like, why that makes a  
9 difference?

10 A. Well, I can't explain to you how the WHO  
11 came up with a standard for 2.5, what is high. But  
12 basically what I'm saying is that most of us live in  
13 areas where the PM2.5 level is higher than what's  
14 recommended by the WHO.

15 So trying to determine why only a small  
16 percentage of us get Parkinson's disease if we're  
17 all exposed to the same risk is going to be  
18 challenging. And it doesn't mean that it can't be  
19 done. But it hasn't been done.

20 Q. Mr. Sparks has been diagnosed with  
21 obstructive sleep apnea, correct?

22 A. Correct.

23 Q. And Mr. Sparks was prescribed a CPAP  
24 machine, correct?

25 A. Correct.



1 HEIDI SCHWARZ, MD, FAAN by MS. HURT

2 Q. But Mr. Sparks doesn't use the CPAP  
3 machine, correct?

4 A. Let me go back and read. I think that you  
5 are right on that, but --

6 Q. We can also look at the deposition  
7 transcript if that would be helpful.

8 A. Do you know what page that's on?

9 Q. Yes. On Page 129.

10 A. Okay.

11 Q. At line 14.

12 MR. MICELI: 129. 14?

13 Q. Yeah.

14 Question: When did you stop using the  
15 CPAP?

16 Answer: After the first night.

17 Question: So you only used it once?

18 Answer: Yeah.

19 A. Yes. So it does appear that he is not  
20 using it.

21 Q. And obstructive sleep apnea can lead to  
22 dopaminergic neuron cell degeneration, correct?

23 MR. MICELI: Object to the form;  
24 foundation.

25 A. I have -- I know that there's an

1 HEIDI SCHWARZ, MD, FAAN by MS. HURT  
2 association. I've not heard about there's a change  
3 in dopaminergic levels.

4 Q. Do you consider obstructive sleep apnea to  
5 be a risk factor for Parkinson's disease?

6 A. I think it's bidirectional. So in the  
7 sense that some people develop obstructive sleep  
8 apnea before they develop Parkinson's disease, but  
9 40 percent of people develop OSA after they are  
10 diagnosed with obstructive sleep apnea.

11 And if I'm not mistaken. Let's see. I  
12 don't know when he was diagnosed, so. But I know  
13 that he was diagnosed, yeah 2014, 2015. Which was  
14 after he was diagnosed with Parkinson's disease.

15 Q. So you -- I can't remember what you said.  
16 You said you didn't know whether or not sleep apnea  
17 can lead to dopaminergic neuron cell degeneration,  
18 correct?

19 A. Correct.

20 Q. If it did lead to dopaminergic neuron cell  
21 degeneration, would not using a CPAP machine make  
22 your Parkinson's worse?

23 MR. MICELI: Object to the form;  
24 foundation.

25 A. I would have to look at the data.

1 HEIDI SCHWARZ, MD, FAAN by MS. HURT

2 Q. Okay. Does dopaminergic neuron cell  
3 degeneration, how does that relate to Parkinson's  
4 disease?

5 A. So dopamine neurons die and drop out in  
6 Parkinson's disease. So that's one of the changes  
7 that occur in the brain. Not the only one.

8 Q. Did you consider this when reaching your  
9 opinion on Mr. Sparks?

10 A. I considered that his sleep apnea was  
11 probably a result of his Parkinson's disease and  
12 loss of muscle tone at night when he sleeps, so his  
13 airway collapses. So I didn't consider it  
14 causative.

15 Could it have made it worse? Possibly. I  
16 don't know. There are no studies that I know of  
17 that have shown a different rate of progression in  
18 Parkinson's disease in people who have obstructive  
19 sleep apnea who use CPAP versus those who don't use  
20 CPAP.

21 Q. I'm going to the Welch Report Exhibit 4.

22 A. Page 4?

23 Q. No, it's Exhibit 4.

24 A. Oh, okay. Okay.

25 Q. It is also on page 4. You state

1 HEIDI SCHWARZ, MD, FAAN by MS. HURT  
2 environmental factors play a substantial role in the  
3 development of Parkinson's disease, correct?

4 A. Can you show me where that is? Yeah, I  
5 think I probably do, but I'm not readily seeing it.

6 MR. MICELI: It's the end of the  
7 second sentence.

8 THE WITNESS: Oh, the top of the  
9 page?

10 MR. MICELI: Yeah, it starts --  
11 Sentence starts. Parkinson's disease  
12 was once called --

13 THE WITNESS: Okay, thank you.

14 MR. MICELI: You can read down to  
15 about the fifth line.

16 BY MS. HURT:

17 Q. Yeah, so yeah.

18 A. Correct.

19 Q. How do you define substantial here?

20 A. Meaning that it's more than 50 percent  
21 likely to be a causative factor. So more likely  
22 than not.

23 Q. And environmental factors is that -- that's  
24 not exclusive to TCE, correct?

25 A. Correct. So the environmental factors that

1 HEIDI SCHWARZ, MD, FAAN by MS. HURT

2 I list here were exposure to pesticides, heavy  
3 metals, cleaning chemicals and solvents.

4 Q. Okay. I'm going to compare this to Mr.  
5 Sparks' report.

6 MR. MICELI: It's on Page 3, middle  
7 of the second, first -- second full  
8 paragraph, I think, is what you're  
9 looking for.

10 THE WITNESS: Okay.

11 BY MS. HURT:

12 Q. Thank you. So here you write, "Parkinson's  
13 disease was once called an idiopathic disease. But  
14 current research is now providing evidence through  
15 mechanistic and animal studies for the scientific  
16 conclusion that environmental factors can be  
17 causative in the development of PD." So in the Welch  
18 report, you use the word substantial. There we go.  
19 And in Sparks you just say causative. Is there a  
20 reason why you use different terms of art here?

21 A. Not that I can think of.

22 Q. So to you, the two sentences mean the same  
23 thing?

24 A. Yes.

25 Q. Do you know why you would have used one

1           HEIDI SCHWARZ, MD, FAAN by MS. HURT  
2 word choice and not the other?

3           A. I don't.

4           Q. Okay. Let's take a break.

5           THE VIDEOGRAPHER: Time on the  
6 monitor is 3:36. We're off the record.  
7 (Brief recess.)

8           THE VIDEOGRAPHER: Time on the  
9 monitor is 3:49. This begins media 9.  
10 We're on the record.

11          Q. Do you have an opinion on Mr. Welch's life  
12 expectancy?

13          A. I can quote you data on average life  
14 expectancy for people with his age and Parkinson's  
15 disease. So the data would suggest that -- so at  
16 age 75, the average life expectancy is five more  
17 years with people with Parkinson's disease.

18                So he's already at 80. So he also has some  
19 other comorbidities. So I would expect it's likely  
20 that he will pass within the next five years. But  
21 I'm not clairvoyant.

22          Q. And what data are you relying on for the  
23 five years after 75?

24          A. Is it reference 91?

25                MR. MICELI: This is Sparks or

1 HEIDI SCHWARZ, MD, FAAN by MS. HURT

2 Welch?

3 THE WITNESS: This is --

4 MS. HURT: Welch.

5 MR. MICELI: Welch, okay.

6 THE WITNESS: Let me make sure I do  
7 have -- because I used the same  
8 reference for both of them.

9 MR. MICELI: But is it the same  
10 number?

11 THE WITNESS: Yeah, that's right.  
12 That's why I'm looking. So I was in  
13 Welch. So 91.

14 BY MS. HURT:

15 Q. The elephant in the room?

16 A. Yeah.

17 Q. The elephant in the room, critical  
18 reflections on mortality rates among individuals  
19 with Parkinson's. And is that the only thing that  
20 you're relying on for that statement?

21 A. That's the most up to date one I could  
22 find, yeah.

23 Q. You conducted an interview with Mr. Welch  
24 in December of 2024, correct?

25 A. Correct.

1 HEIDI SCHWARZ, MD, FAAN by MS. HURT

2 Q. And during the interview you questioned Mr.  
3 Welch on his activities of daily living, correct?

4 A. Correct.

5 Q. Did Mr. Welch report any difficulties with  
6 activities of daily living not listed in your  
7 report?

8 A. I think that I listed everything that he  
9 told me.

10 Q. Are there any difficulties with Mr. Welch's  
11 daily living that you do not attribute to  
12 Parkinson's disease?

13 A. Now, all of his symptoms, I think are  
14 attributable to either motor or non-motor symptoms  
15 of Parkinson's disease.

16 Q. Are there any of Mr. Welch's difficulties  
17 with daily living attributable to his injury  
18 sustained while serving in the Marine Corps?

19 MR. MICELI: Object to the form.

20 A. I asked him specifically about daily,  
21 activities of daily living that I know are impacted  
22 by Parkinson's disease.

23 Q. Okay.

24 A. So I think it was a targeted questioning.  
25 I, for instance, didn't ask him if he plays golf or



1 HEIDI SCHWARZ, MD, FAAN by MS. HURT  
2 if he -- you know, things like that. So those  
3 things may be impacted because he does have  
4 orthopedic issues related to his VA or to his  
5 service in the armed forces.

6 Q. Okay. So I don't know if this is in both  
7 reports or if it's only in Sparks.

8 MR. MICELI: Oh, it's not a new  
9 exhibit?

10 MS. HURT: No, I'm trying to find  
11 it in my stack of papers. Page 11.

12 THE WITNESS: In Sparks?

13 BY MS. HURT:

14 Q. Yeah. The second paragraph. Okay. It  
15 says "This constitutes a substantial exposure. This  
16 opinion is based on: One, the amount of exposure,  
17 the levels of chemicals in the water and how often  
18 Mr. Sparks was consuming the water. Two, the  
19 duration of the exposure. Three, the intensity of  
20 the exposure as shown by ATSDR water modeling data  
21 and other data is the levels of chemicals in the  
22 water and the frequency, before the frequency Mr.  
23 Sparks was exposed and his day-to-day life at Camp  
24 Lejeune." Did I read that correctly?

25 A. That's correct.

1 HEIDI SCHWARZ, MD, FAAN by MS. HURT

2 Q. You say as shown by ATSDR's water modeling  
3 data and other data. What do you mean by other data  
4 here?

5 A. Other data is the exposure data that Dr.  
6 Reynolds did. So if you look at, I think the next  
7 chart, I think that that data has different ATSDR  
8 and models that Dr. Reynolds used. But you would  
9 have to ask her about that specifically.

10 Q. Okay. And the same thing applies to Mr.  
11 Welch's report, correct?

12 A. Correct.

13 Q. On Page 11 you also state, "I was able to  
14 determine that Mr. Sparks had substantial exposure  
15 just to, based upon the records at issue, Mr. Sparks  
16 deposition and the ATSDR water modeling report."  
17 Did I read that correctly?

18 A. That's correct.

19 Q. What do you mean the records at issue?

20 A. So the records at issue have to do with  
21 when I questioned him about his water consumption  
22 and exposure and then of the amount of water  
23 exposure and ingestion that he testified to in his  
24 deposition.

25 Q. But you earlier testified that you're not a

1 HEIDI SCHWARZ, MD, FAAN by MS. HURT  
2 toxicologist, correct?

3 A. Correct. But I think he consistently  
4 shared the volume of water that he consumed.

5 Q. And do you -- with Mr. Sparks, he testified  
6 that he drank about one liter of water a day. How  
7 is knowing that, affect enough for you to determine  
8 that there is substantial exposure?

9 A. Well, he --

10 MR. MICELI: Excuse me. Object to  
11 the form and foundation.

12 A. And also, he may have drunk one liter of  
13 water a day, but he drank a lot of coffee, too,  
14 which was made with water. And warmer -- TCE in  
15 warmer liquids actually has -- it seems to have a  
16 greater impact, so. But I'm trying to find here when  
17 he --

18 Q. Are you looking for the one liter or?

19 A. Yeah, I --

20 Q. That's in the transcript.

21 A. Yes. And I think if you look at the  
22 handwritten notes that I have from that visit, it  
23 will have more specifics in it than what I wrote in  
24 this report.

25 Q. Okay. But you didn't do any independent --

1 HEIDI SCHWARZ, MD, FAAN by MS. HURT

2 I just, I guess -- let me start over. So did you do  
3 an independent assessment? Because you're saying  
4 here that you relied upon the general causation  
5 experts and Dr. Reynolds, but that you were also  
6 able to determine independently that Mr. Sparks had  
7 substantial exposure. Am I correct in understanding  
8 that's what you're saying there?

9 A. What I'm saying is that he told me the same  
10 amount of water consumption and bathing that is in  
11 his deposition.

12 Q. Okay. So you just verify that the numbers  
13 that they used matched his deposition testimony?

14 A. Absolutely.

15 Q. You didn't calculate?

16 A. I did not calculate concentration or total  
17 consumption.

18 Q. And the same thing would apply for Mr.  
19 Welch?

20 A. Correct.

21 Q. Okay. The big document, the military  
22 records, so we're on, it's going to be page 17.  
23 What that looks like is the record of service.

24 MR. MICELI: 0017?

25 MS. HURT: Yes.

1 HEIDI SCHWARZ, MD, FAAN by MS. HURT

2 THE WITNESS: Okay. Yeah, got it.

3 BY MS. HURT:

4 Q. And have you seen the record of service?

5 A. I think I have seen this.

6 Q. Okay. And you would agree that Mr. Sparks  
7 was at Camp Lejeune from March 25, 1974 to May 30,  
8 1975, correct?

9 A. Let me -- Yeah. Yep, yep. March 25, '74  
10 to May 30, '75. Correct.

11 Q. And Mr. Sparks didn't live on the base the  
12 entire time he was stationed at Camp Lejeune,  
13 correct?

14 A. Correct.

15 Q. In fact, he only lived on base for a couple  
16 of weeks before he moved into off base apartments,  
17 correct?

18 A. Correct.

19 (EXHIBIT NO. 17 WAS MARKED FOR  
20 IDENTIFICATION.)

21 Q. I'm going to -- I didn't put that up. So,  
22 Exhibit 17 is Plaintiff, Richard Sparks' response to  
23 defendant's second set of requests for admission.  
24 And it's dated July 31, 2024. Have you seen this  
25 document before today, Dr. Schwarz?

1 HEIDI SCHWARZ, MD, FAAN by MS. HURT

2 A. No.

3 Q. Okay. I'm going to represent to you that  
4 these are statements the United States sent in  
5 written form to Mr. Sparks and which we ask Mr.  
6 Sparks to admit or deny. And Mr. Sparks written  
7 responses are included under the question.

8 A. Okay.

9 Q. Can you turn to question 26. It says,  
10 "Admit that you did not reside at the United States  
11 Marine Corps Base Camp Lejeune after April 1974?  
12 Response: Admit." Did I read that correctly?

13 A. Yes.

14 Q. Wouldn't you agree that someone who lived  
15 on base for less than 30 days would have less  
16 exposure than someone who lived on base for 12  
17 months?

18 MR. MICELI: Object to the form.

19 A. I defer to the exposure experts on that,  
20 including Dr. Reynolds. But I think it depends on  
21 what water supply they're using, et cetera.

22 MR. MICELI: This was Exhibit 17?

23 THE WITNESS: Yes. That's what I  
24 got here.

25 (EXHIBIT NO. 18 WAS MARKED FOR

1 HEIDI SCHWARZ, MD, FAAN by MS. HURT  
2 IDENTIFICATION.)

3 BY MS. HURT:

4 Q. Exhibit 18. It starts with the Bates  
5 number PLG-EXPERT\_REYNOLDS\_ ending in 22. These are  
6 Dr. Reynolds Parkinson's exposure timeline. Dr.  
7 Schwarz, have you seen this document before today?

8 A. Well, I'm pretty sure I haven't seen  
9 McElhiney or Peterson.

10 Q. Have you seen --

11 A. Or Rothschild.

12 Q. The one ending in 26 for Sparks?

13 A. I am not sure if I have seen this or not.  
14 I suspect I have because I have Dr. Brown's report.

15 Q. Looking under on Page 26 for Sparks.  
16 Looking under housing location. The housing  
17 location listed for Mr. Sparks is Engineering  
18 Support Command, 2nd Engineering Battalion and 2nd  
19 Marine Division. And it has the start date as  
20 3/25/1974. And has the end -- the period end, the  
21 very period end is May 30, 1975. Dr. Reynolds  
22 doesn't show here that Mr. Sparks lived off base,  
23 correct?

24 A. Correct.

25 Q. Were you aware that Dr. Reynolds' exposure

1 HEIDI SCHWARZ, MD, FAAN by MS. HURT  
2 calculations were based upon Mr. Sparks living on  
3 base?

4 MR. MICELI: Object to the form of  
5 question.

6 A. You would have to ask Dr. Reynolds that.

7 Q. But you weren't aware of it?

8 MR. MICELI: Object to the form.

9 A. I was not aware of that, no.

10 MR. MICELI: Under the day late  
11 dollar short objection, I'll object  
12 foundationally as well.

13 Q. Given this, isn't it accurate to say that  
14 Dr. Reynolds' exposure calculations are inflated?

15 MR. MICELI: Object to the form of  
16 the question; foundation.

17 A. You need to ask Dr. Reynolds that.

18 Q. And then would you agree that Mr. Sparks is  
19 not an attorney?

20 MR. MICELI: Object to the form of  
21 the question; foundation.

22 A. Mr. Sparks is not an attorney.

23 Q. Okay. So on under unit for Mr. Sparks, it  
24 was Naval Justice School in line two down. Do you  
25 see that?



1 HEIDI SCHWARZ, MD, FAAN by MS. HURT

2 A. Uh-huh.

3 Q. I'll represent to you that Mr. Sparks was  
4 never at the Naval Justice School. Were you aware  
5 that Dr. Reynolds made this mistake?

6 MR. MICELI: Object to the form of  
7 the question.

8 A. I'm not sure. I mean, it also says on  
9 leave. So whether he was on leave, I don't know.

10 Q. And do you think it's possible if there are  
11 these errors, there could be other errors in Dr.  
12 Reynolds' assessment?

13 MR. MICELI: Object to the form;  
14 foundation.

15 A. I'm not convinced there are errors, so.

16 Q. I'm going to take one more break.

17 MR. MICELI: Okay.

18 Q. And then depending on if I have, I might  
19 have a couple of more questions, but then --

20 MR. MICELI: Okay.

21 THE VIDEOGRAPHER: Time on the  
22 monitor is 4:07. We're off the record.

23 (Brief recess.)

24 THE VIDEOGRAPHER: Time on the  
25 monitor is 4:17. This begins media 10.

1 HEIDI SCHWARZ, MD, FAAN by MS. HURT

2 We're on the record.

3 Q. So we're going to go back to Exhibit 2.  
4 This was in your notice of deposition.

5 So I'm going to looking at Attachment A,  
6 would be Page 2, let's get to attachment A. Question  
7 number two. It says "All emails, letters,  
8 correspondence, text messages, conversations, chats,  
9 voicemails, data, technical files or other  
10 communication and notes taken in relation to such  
11 communications pertaining to:"

12 "One, Camp Lejeune. Two, plaintiff Richard  
13 Sparks. Three, plaintiff Richard -- Robert Welch.  
14 Four, Trichloroethylene. Five, Perchloroethylene.  
15 Six, Benzene. Seven, Vinyl Chloride. Eight,  
16 Trans-1,2-Dichloroethylene. Nine, Parkinson's  
17 disease and/or risk factors for Parkinson's disease.  
18 10, idiopathy of Parkinson's disease. "

19 "11, potential causes of Parkinson's  
20 disease. 12, any other topics covered in your  
21 expert report and 13, any other topics covered in  
22 your expert report, including but not limiting to  
23 those with, to or from any of the following:"

24 "A, Robert Fay. B, Jason Sautner. C, Rene  
25 Suarez-Soto. D, Susan Martel. E, Scott Williams.

1 HEIDI SCHWARZ, MD, FAAN by MS. HURT  
2 F, Frank Bove. G, Mike Partain. H, Jerry  
3 Ensminger. I, Lori Freshwater. J, Paul Rosenfeld.  
4 K, Samuel Goldman. L, Ray Dorsey. M, Maureen  
5 Welch. N, Edward Markus. O, Carolyn Neff. P, Jeff  
6 David Tracy. Q, Amir Besharat. R, Maria Sparks.  
7 S, Christopher Lewis. T, Barrie Schmitt. U,  
8 Maureen Leehey. V, Christen Epstein. W, Sabina  
9 Schickli. X, Trevor Hawkins. Y, Edgar Peterson.  
10 Z, Gary McElhiney. AA, Diana Rothschild. BB,  
11 Richard Sparks. CC, Robert Welch. DD, any family  
12 member, employer or medical provider for Richard  
13 Sparks or EE, any family member, employer or medical  
14 provider for Robert Welch."

15 Did I read that correctly?

16 A. Yes.

17 Q. Do you have any communications with Dr.  
18 Dorsey on these topics?

19 MR. MICELI: Object to the form.

20 A. I --

21 MR. MICELI: Excuse me. The form  
22 objection is as to, you're referring to  
23 only these means of communications. As  
24 it's stated in number two.

25 Q. As it's stated in number two, those means

1 HEIDI SCHWARZ, MD, FAAN by MS. HURT  
2 of communication and those topics.

3 A. I don't.

4 Q. You don't have any, even before your  
5 retainment?

6 A. Not that I maintained.

7 Q. And when you say not maintained, what do  
8 you mean?

9 A. There -- when we were doing editing on the  
10 article, it went out to a LISTSERV and if we had  
11 comments, we could put that in. And then it got sent  
12 back to Megan who was doing most of the sort of  
13 editing of the article. So I don't have anything  
14 that I maintained from that.

15 Q. And do you have any communications with Dr.  
16 Goodman on these topics?

17 A. No. I mean, Oh, Goldman you mean?

18 Q. Goldman. Sorry.

19 A. Yeah. I was going to say --

20 MR. MICELI: If we don't ever talk  
21 to Dr. Goodman.

22 A. Well, if it's a Dr. Goodman it's strong.  
23 But that --

24 Q. No.

25 A. He doesn't have anything to do with this.

1 HEIDI SCHWARZ, MD, FAAN by MR. MICELI  
2 No, I've never actually communicated with Dr.  
3 Goldman.

4 Q. Okay. I don't have any other questions.

5 EXAMINATION

6 BY MR. MICELI:

7 Q. Okay. I'm going to have a few and because  
8 you gave me the heads up, I'm going to go ahead and  
9 just do them straight from here. I'm going to go  
10 sort of in the order that I have my notes, but I'm  
11 going to ask a few sort of preparatory items first.  
12 Let me get my exhibits.

13 First of all, Dr. Schwarz, thank you for  
14 your time today. For the purposes of whoever may  
15 see, read or see excerpts of this deposition in  
16 video form or written form, could you please  
17 describe for us your educational background starting  
18 with college and bringing us through your formal  
19 training as a neurologist and a movement specialist,  
20 a movement disorder specialist?

21 A. I attended college at Mount Holyoke College  
22 in South Hadley, Massachusetts starting in 1975,  
23 graduating in '79. I did a year, my junior year at  
24 Cornell in engineering, chemical engineering. I  
25 graduated magna cum laude in chemistry after

1 HEIDI SCHWARZ, MD, FAAN by MR. MICELI  
2 performing research in chemistry and from there I  
3 entered University of Rochester Medical School in  
4 the fall of 1979.

5 I graduated from medical school in 1983  
6 from University of Rochester where I was AOA and had  
7 the American Medical Women's Association award. And  
8 then from there I started an internal medicine  
9 residency program at the University of Rochester. I  
10 did that for two years and then decided to become a  
11 neurologist.

12 So I switched to the neurology residency  
13 program at the University of Rochester and served as  
14 chief resident there. Subsequently I did a  
15 fellowship in movement disorders under the tutelage  
16 of Ira Shoulson who was a recognized expert in the  
17 field of both Huntington's disease and Parkinson's  
18 disease and lead author in what we call the, DATATOP  
19 Study, which was the first study to look at  
20 potential disease modifying therapies in Parkinson's  
21 disease.

22 So I helped with that study, but on my own  
23 I did research along with Dr. Don Gasch in MPTP  
24 induced Parkinsonism in primates as well as doing  
25 some rodent research.

1 HEIDI SCHWARZ, MD, FAAN by MR. MICELI

2 And after that I went out into private  
3 practice for 13 years in the Finger Lakes region  
4 where I continued to see most of the movement  
5 disorder patients in our collective practice of four  
6 people. And I continued to teach at the university  
7 staffing the VA clinic in Canandaigua, New York.

8 And then after 13 years I went back to the  
9 University of Rochester and started the division of  
10 Highland Neurology at Highland Hospital. And I set  
11 up a stroke center there. And from there I became  
12 involved with the American Academy of Neurology and  
13 the Practice Committee and eventually ended up chair  
14 of the Practice Committee supervising guideline  
15 development and quality measure development.

16 And I sat on the board of the American  
17 Academy of neurology, which represents 15,000  
18 neurologists in the United States. I also served as  
19 co-chair of the Burnout Workgroup which remains a  
20 big topic in medicine for the American Academy of  
21 Neurology.

22 And I continued my involvement with them.  
23 I still am a member and I'm a fellow of the American  
24 Academy of Neurology. Subsequently, I left  
25 University of Rochester in 2010 related to

1 HEIDI SCHWARZ, MD, FAAN by MR. MICELI  
2 leadership change. And I went to the Unity Health  
3 Service which is now part of Rochester Regional.

4 And it was there that I got my  
5 certification in headache medicine based on my  
6 extensive experience in headache medicine and  
7 recommendations of other headache medicine certified  
8 doctors. And then I ended up, after about a four or  
9 five month hiatus due to my dad's health, I came  
10 back to the University of Rochester and helped  
11 develop their first headache center.

12 And I have been there since then.  
13 Throughout all of this time I've served as the AOA  
14 counselor for the medical school. I have taught  
15 medical students since 1999 or 2000 when I went back  
16 to the University of Rochester.

17 I've subsequently taught neurology  
18 residents, neurology fellows and have mentored a  
19 number of junior faculty members. In addition to  
20 that -- I'm trying to think of all of the things  
21 I've done. I've done a number of community events.

22 I have become involved with editing for  
23 DynaMed, which is an organization that produces  
24 educational material for any healthcare provider  
25 that pays for the subscription and it covers a



1 HEIDI SCHWARZ, MD, FAAN by MR. MICELI  
2 multitude of medical subjects. I am focused as a  
3 topic editor for General Neurology and so I usually  
4 work with the staff there on four or five topics a  
5 year, whether they're new topics or revision of  
6 topics, which includes reviewing data literature,  
7 verifying the quality of the studies that are being  
8 used and the conclusions that are being made.

9 Then I do a number of volunteer things  
10 right now for the medical school, including  
11 teaching, interviewing for the first year medical  
12 students, reviewing their ability to perform a  
13 physical exam and a neurologic exam. And I help to  
14 lead brain health workshops in underprivileged  
15 communities in Rochester where access to healthcare  
16 is very limited.

17 Q. I want to ask what you do in your spare  
18 time, but I'm afraid there isn't any.

19 A. No, I actually manage an 80-acre hardwood  
20 forest in the southern tier.

21 Q. Yeah. After my own heart. When you say  
22 AOA, do you mean the American Academy of Neurology?

23 A. I mean Alpha Omega Alpha.

24 Q. Okay. What is that?

25 A. So Alpha Omega Alpha is sort of like the

1 HEIDI SCHWARZ, MD, FAAN by MR. MICELI  
2 Phi Beta Kappa of undergraduate. It's an honor  
3 society.

4 Q. Okay. Phi Beta or AOA is to medical  
5 school. What Phi Beta Kappa is to --

6 A. Is to undergraduate.

7 Q. Okay. I want to follow up on just a few  
8 things. Just because the people who read this or  
9 watch this won't know what, like, the Finger Lakes  
10 District is. What does that mean?

11 A. So the Finger Lakes are, I think, nine  
12 small lakes between, say, Buffalo or Batavia, west  
13 to about Rome, New York, but south of there.

14 Q. Okay. Is this in the greater Rochester  
15 Buffalo area?

16 A. No, because it really goes further west  
17 than that.

18 Q. Okay. But it's -- how many hospitals or  
19 how many clinics are in that area?

20 A. So in my Finger Lakes practice, we covered  
21 four hospitals.

22 Q. Okay. And then there's something else I  
23 needed to follow up with you on. And you said  
24 during your years of private practice in the Finger  
25 Lakes District, you also remained active in teaching

1 HEIDI SCHWARZ, MD, FAAN by MR. MICELI  
2 at the University of Rochester Medical School?

3 A. I did. I did. There was a -- there is a  
4 VA in Canandaigua, New York, which is where one of  
5 the hospitals that we service and actually where I  
6 live. And so I would staff the outpatient neurology  
7 clinic with neurology residents. And I did that for  
8 about five years.

9 Q. Okay.

10 A. Until the VA stopped paying.

11 Q. Well, that's what I wanted. Canandaigua VA  
12 is a VA hospital in that area?

13 A. Correct.

14 Q. Okay. And then you said you sat on the  
15 board for the American Academy of Neurology. What  
16 is the American Academy of Neurology?

17 A. The American Academy of neurology  
18 represents about 13,000 -- 13, to 15,000 it's  
19 growing, neurologists mainly in the United States  
20 and Canada, but there are members that are from  
21 other foreign countries, South America, Europe.

22 And under my tutelage, we have also added  
23 advanced practice providers. So that was an  
24 initiative that I initiated, that I started at the  
25 American Academy of Neurology.

1 HEIDI SCHWARZ, MD, FAAN by MR. MICELI

2 Q. Okay. And your other involvement in the  
3 American Academy of Neurology, you said included --  
4 I tried to write this. Can't read my own  
5 handwriting from five minutes ago. Was it treatment  
6 guidelines?

7 A. Yes. So I was on the Practice Committee,  
8 and the Practice Committee was responsible for  
9 developing and revising practice parameters,  
10 practice guidelines, and then also for developing  
11 quality measures.

12 And currently, reimbursement through  
13 Medicare is linked to fulfilling quality measures.  
14 So our academy felt it was essential that they  
15 determine what the quality measures were for various  
16 neurologic diseases rather than letting somebody  
17 else dictate to us. So that's --

18 Q. Okay. So the guidelines and the practice  
19 guidelines you were helping develop --

20 A. Correct.

21 Q. Those were for neurologists in this 13,000  
22 to 15,000 member organization?

23 A. Correct.

24 Q. Okay. And are those the same types of  
25 guidelines that when you were talking about your

1 HEIDI SCHWARZ, MD, FAAN by MR. MICELI  
2 volunteering at the medical school and teaching  
3 interview techniques, is that what you were doing  
4 with the residents?

5 A. Well, the residents -- in fact, the general  
6 public has access to our guidelines, and there's  
7 always a patient page, so anybody can refer those.

8 What I do with the residents, of course,  
9 involves applying some of that, but also my clinical  
10 experience. I mean, just two days ago, I was on our  
11 e-record system, counseling residents about patients  
12 we've seen together and their diagnosis, including  
13 one with an atypical Parkinson's disease, so.

14 Q. Okay. And you said you were doing that  
15 just the other day?

16 A. Yeah, just on Sunday.

17 Q. That gives us a good segue into something  
18 you did speak with Ms. Hurt about. You had said  
19 that your work is an expert witness. Now, first of  
20 all, you were shown two invoices today, correct?

21 A. Correct.

22 Q. And one of them was close to \$40,000?

23 A. Actually 50 if you add the two together. I  
24 was wrong. Off by about 10,000.

25 Q. I was getting there. The second one hasn't

1 HEIDI SCHWARZ, MD, FAAN by MR. MICELI  
2 been paid yet, right?

3 A. The second one has not been paid.

4 Q. Okay. And you have time since your  
5 submission in June of that second one, correct?

6 A. More hours. Correct. So that's why when I  
7 said in the deposition that -- and I totaled it up  
8 last night, shy of today's activities, close to 100  
9 hours.

10 Q. Okay. So and your rate is?

11 A. \$650.

12 Q. Okay. So somewhere around \$65,000?

13 A. Yeah, yep.

14 Q. All right. And so when you spoke earlier  
15 with Ms. Hurt about how much money you earn through  
16 consulting as an expert, like you are in this case,  
17 you said it was somewhere in the 40 to 50 percent  
18 range of your income?

19 A. Correct.

20 Q. What is your earned income -- how is your  
21 earned income generated from the University of  
22 Rochester currently?

23 A. So my earned income from the University of  
24 Rochester is based solely on staffing the resident  
25 clinic, which is \$600 for a half day. So when I

1 HEIDI SCHWARZ, MD, FAAN by MR. MICELI  
2 look at last year, before I was involved in this  
3 litigation, I earned maybe 15,000.

4 Q. From Rochester?

5 A. From Rochester.

6 Q. And so about 15,000 from doing expert  
7 consulting work?

8 A. Exactly, exactly. And from doing my  
9 editing work for DynaMed.

10 Q. Okay. And so when you say you make 50  
11 percent of your income doing expert work, you're no  
12 longer a full time practicing neurologist making  
13 whatever that profession makes?

14 A. Right. Correct.

15 Q. Okay. I just wanted to make sure we  
16 weren't putting out a false --

17 A. Over inflating.

18 Q. Over inflating what you earn from this type  
19 of work. Now, I want to talk to you a little bit  
20 about something. The rest of what I'm going to talk  
21 to you about is going to be things or topics that  
22 you discussed with Ms. Hurt.

23 One of the things she spoke with you about  
24 a few times throughout this deposition is how you  
25 conduct a literature search. And you explained

1           HEIDI SCHWARZ, MD, FAAN by MR. MICELI  
2       search terms earlier. Do you remember that?

3           A. Correct.

4           Q. Okay. And then could you explain to us how  
5       you go from your initial search to the information  
6       that you find on a materials considered list?

7           A. I put in the search words, which generates  
8       a list of references. Some of these references are  
9       immediately discounted by me because they're from  
10      Medline or they're from WebMD or things like that,  
11      that I just -- unless they have a reference within  
12      them to an actual article, I don't feel that they  
13      are the quality that is needed for an expert witness  
14      report.

15                 And then others actually seem pertinent.  
16      So then I will click on the link and I will start by  
17      reading the abstract. And if the abstract has a  
18      small sample size or isn't a blinded study or really  
19      has issues with study design, I usually discount it.  
20      Like if it has -- it studies only Koreans between  
21      the age of 20 and 30 or something like that, that's  
22      not applicable to what I'm doing here.

23                 So I basically funnel down until I find  
24      articles that are representative of the population  
25      that I feel I'm interested in and have well designed



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2 studies and are not subject to commercial bias,  
3 which I'm very sensitive to because of my time at  
4 the academy.

5 Q. When you say commercial bias, do you refer  
6 to funding?

7 A. Funding, yes.

8 Q. Okay.

9 A. As well, and funding isn't necessarily from  
10 a pharmaceutical company, is not necessarily bad as  
11 long as they have absolutely no control over the way  
12 the study is run and the way the data is processed.  
13 But as soon as they step into that arena, for me,  
14 that discounts the study.

15 Q. Okay. You use the term funneling. And so  
16 is your search like a funnel where you look at broad  
17 first and you get more narrow as you come to your  
18 topic?

19 A. Right. I mean, I have a plethora of  
20 different references. And then I funnel down to  
21 those that I think are legitimate and helpful in  
22 looking at the question that I have.

23 Q. Okay. Now, you mentioned earlier that you  
24 reviewed Dr. Lipscomb, one of the defendants DOJ's  
25 expert's deposition.

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2 A. Correct.

3 Q. But you didn't look at his report, right?

4 A. I did not.

5 Q. Did you see in his deposition that in fact  
6 I discussed his report with him?

7 A. Yes.

8 Q. Okay. And I'll leave that where it is. I  
9 do want to look at one, but I think -- I don't think  
10 I pulled this one out. But it was your web page  
11 that you're --

12 A. Yeah.

13 Q. That you were shown. I hope it's in here.  
14 I may have to --

15 A. I'm sure I have it here somewhere.

16 Q. You have it?

17 A. It was just humorous.

18 Q. I can find it. I believe it's -- it would  
19 be --

20 A. Maybe that's why people look for me on  
21 LinkedIn.

22 Q. It would be Exhibit No. 9. Here we are.  
23 Did you find it?

24 A. I will. Can't be too much left.

25 Q. Right there. It's on -- I see it.

1 HEIDI SCHWARZ, MD, FAAN by MR. MICELI

2 A. Oh, yeah, yeah, yeah. I see it too. Thank  
3 you.

4 Q. I just want to clear some things up because  
5 you were shown this in question about some of the  
6 summarized areas of expertise or areas of interest  
7 for you. Did you have anything to do with writing  
8 this?

9 A. No.

10 Q. Okay. You do have some expertise in  
11 headache medicine?

12 A. Oh, I do, yes.

13 Q. And would it be a fair statement to say  
14 that you have expertise in Parkinson's disease?

15 A. Yes.

16 Q. And that you have sub-particularized  
17 expertise in telemedicine and Parkinson's disease?

18 A. Correct.

19 Q. So was the conversation you had or  
20 conversations or virtual visits that you had with  
21 Mr. Sparks or Mr. Welch the first time that you have  
22 ever performed a virtual visit with a patient or  
23 somebody whose case you were reviewing?

24 A. No.

25 MS. HURT: Objection to form.

1 HEIDI SCHWARZ, MD, FAAN by MR. MICELI

2 Q. Okay. You've done that in the past?

3 A. I have done that multiple times in the  
4 past.

5 Q. Okay. When you say "multiple times," can  
6 you give the court some understanding?

7 A. Well, are we talking about just Parkinson's  
8 disease?

9 Q. Well, let's start with just any  
10 telemedicine visit.

11 A. Well, you know, you ask that question now  
12 after the pandemic. Although I was doing it before  
13 the pandemic, but I think between my work with the  
14 residents and my work in the office during the  
15 pandemic, and there was a period of time after May  
16 2020 where I couldn't come into the office because  
17 of immune issues. So I probably have done 300.

18 Q. Okay. I just want to make sure these  
19 weren't your first ones?

20 A. No, this was not my first rodeo.

21 Q. Okay. All right. And you talked briefly  
22 just a moment ago about your DynaMed experience.  
23 DynaMed -- can you explain the service that DynaMed  
24 provides to practitioners?

25 A. So DynaMed is a competitor to UpToDate,

1 HEIDI SCHWARZ, MD, FAAN by MR. MICELI  
2 which is a little bit better known, at least in the  
3 medical community. Although DynaMed, I think, is  
4 actually used more in Europe.

5 But basically, if anyone, whether it's a  
6 physician or a nurse or an advanced practice  
7 provider, has a question about a drug or a  
8 diagnosis, they go to the website, they click on --  
9 they put in whatever they're interested in, and then  
10 the topic comes up first with an overall review and  
11 then with very specific information regarding  
12 diagnosis, etiology, treatment, imaging, including  
13 videos and diagrams.

14 Actually, I think we do a better job than  
15 UpToDate does on all of those things. And so it's a  
16 resource that people use in the office, in the  
17 emergency room, in an inpatient unit, particularly  
18 if it's a subject they're not as familiar with.

19 Q. And you say people there, but would it be  
20 healthcare professionals that go there to get  
21 educated?

22 A. Yes. Yes. We don't have much of a patient  
23 facing resource, but certainly for healthcare  
24 providers.

25 Q. And your services there are providing

1 HEIDI SCHWARZ, MD, FAAN by MR. MICELI  
2 content and editing?

3 A. Correct.

4 Q. Okay. And so you're educating doctors  
5 potentially worldwide on topics of general  
6 neurology?

7 A. Correct.

8 Q. Now I want to get some of these other  
9 items, I want to if you can. It's right there.  
10 Exhibit No. 10. You can put number 9 aside. And  
11 this is the workers' comp decision that Ms. Hurt  
12 reviewed with you. Do you recall this?

13 A. I recall her reviewing it with me. I do  
14 not recall this case.

15 Q. And if you look on the second page of this  
16 document and the second paragraph, under number two,  
17 it says "The claimant's treating neurologist Heidi  
18 Schwarz" and it explains what you did in June of  
19 1998, correct?

20 A. Correct.

21 Q. Okay. It doesn't say that you were deposed  
22 or called as an expert, does it?

23 A. No. Which might be why I don't remember it.

24 Q. Right. And so do you recall -- I don't  
25 know if it has -- do you recall what patient this is

1 HEIDI SCHWARZ, MD, FAAN by MR. MICELI  
2 referring to?

3 A. I do not.

4 Q. And so as we sit here today and looking at  
5 this, you can't say whether you were even deposed as  
6 a treating physician?

7 A. Correct.

8 Q. Okay. And so when whoever this person was,  
9 that administrative law judge or judge, I don't know  
10 how it works here in New York City or New York  
11 State.

12 A. Administrative law judge. Yeah.

13 Q. When it says the opinion of doctor --  
14 Excuse me. When it says "The opinion of Dr. Schwarz  
15 likewise lacks medical certainty with regard to the  
16 cause of the neck condition, her opinion is at most  
17 speculative." And it says, "in that it uses the  
18 word appear in quotes". Do you see that?

19 A. Yes.

20 Q. Okay. And so do you know whether you  
21 actually offered an opinion here?

22 A. I may have offered an opinion in my office  
23 note, because if it was billed under workers'  
24 compensation, I have to make a link there. But that  
25 is speculative. I don't have the notes. So I

1 HEIDI SCHWARZ, MD, FAAN by MR. MICELI  
2 really don't know.

3 Q. Okay. Thank you. Have you, without  
4 looking at that, have you had to provide treatment  
5 to people with workers' comp injuries?

6 A. Yes.

7 Q. Okay. For every person that you treat with  
8 a workers' comp injury, do you have to go appear  
9 before an administrative law judge to offer  
10 testimony?

11 A. No.

12 Q. Okay. Let's see here. Let's look at  
13 Exhibit Number 10. Or excuse me. Number 11. I  
14 think it may be under 10 over there. It's a Dorsey  
15 opinion. Maybe I'm wrong --

16 A. I have 15.

17 Q. Here, I think it's -- pardon my reach, but  
18 I believe -- here it is.

19 A. Okay. Yep.

20 Q. Okay. Now I want you to flip with me. Do  
21 you recall that you were asked some questions about  
22 Exhibit No. 11?

23 A. Uh-huh.

24 Q. I want you to flip over with me to Page  
25 610. And Ms. Hurt went over with you the top part



1 HEIDI SCHWARZ, MD, FAAN by MR. MICELI  
2 of the chart -- or, excuse me, the top of the page,  
3 which is the continuation of table number one. Do  
4 you recall that?

5 A. Yes.

6 Q. And she directed your attention down four  
7 lines in this chart where it says, "Risk factors  
8 questionnaire, tower cohort equals 46." Do you see  
9 that?

10 A. Yeah.

11 Q. And then she went to the next line, which  
12 smoked 100 or more cigarettes. And then in  
13 parentheses, five packs, close paren, in lifetime, N  
14 percentage. Do you see that?

15 A. Yes.

16 Q. And then you come across. And it says 17.  
17 And then in parentheses it says 37?

18 A. Correct.

19 Q. Okay. Do you recall where she had some  
20 problem with understanding how it gets to 37 percent  
21 when you divide 17 by 79?

22 A. Yes.

23 Q. Okay. If I divide 17 by 79 or excuse me,  
24 17 by 46, which is the N under risk factor  
25 questionnaire cohort, 17 divided by 46 is 0.369565.

1 HEIDI SCHWARZ, MD, FAAN by MR. MICELI

2 Would that be rounded to 37?

3 A. Yes.

4 Q. Okay. That's all I wanted to do on that  
5 one. So I just wanted to try to help out where we  
6 got that 37 from.

7 A. Thank you. I appreciate that. In fact, we  
8 discussed this recently about the fact that fewer  
9 people filled out the questionnaire in the tower.

10 Q. Okay. You were asked some questions about  
11 Exhibit No. 12. Do you have that in front of you?

12 A. I do.

13 Q. Okay. And this is your article with --

14 A. It's an editorial, actually.

15 Q. Editorial. Okay. Editorial with Margaret  
16 Mak, Ph.D. titled, "Could Exercise be the Answer?"  
17 Do you see that?

18 A. Yeah.

19 Q. Okay. Will exercise cure Parkinson's  
20 disease?

21 A. Don't I wish. No.

22 Q. Okay. People who have Parkinson's disease  
23 that progress, will they be increasingly -- or is it  
24 predictable that they will be increasingly unable to  
25 participate in meaningful aerobic exercise?

1 HEIDI SCHWARZ, MD, FAAN by MR. MICELI

2 A. Yes.

3 Q. Okay. People that have advanced  
4 Parkinson's disease, often -- well, let me strike  
5 that. Do people with advancing Parkinson's disease  
6 often end up in a wheelchair?

7 A. If they live long enough, yes. And  
8 something else doesn't intervene.

9 Q. Okay. So if a person is fortunate enough  
10 to have a longer life but still have Parkinson's  
11 disease, their progression could get to a point  
12 where they need a wheelchair?

13 A. At least a walker. Yeah.

14 Q. Okay. Do Parkinson's patients often need  
15 help being fed?

16 A. In the later stages of disease.

17 Q. Being dressed?

18 A. In the later stages of disease.

19 Q. Being washed?

20 A. In the later stages of disease.

21 Q. And being cleaned after using the restroom?

22 A. Yes.

23 Q. Okay. And you've said in the later stages  
24 of the disease. Again, if a person doesn't fall to  
25 some other comorbidity and has the benefit of living

1           HEIDI SCHWARZ, MD, FAAN by MR. MICELI  
2     a long life, but with Parkinson's disease, will they  
3     end up having to need assistance with all these  
4     daily activities of living?

5           A.   Yes.

6           Q.   Okay.  You had a rather lengthy discussion  
7     with Ms. Hurt during the course of this deposition,  
8     or maybe even a couple of times during it,  
9     concerning idiopathic Parkinson's disease, or what  
10    you were referring to as atypical versus typical  
11    Parkinson's.  Do you recall that?

12          A.   Yes, I do.

13          Q.   Okay.  Through the course of your career,  
14    have you seen science develop to the point where  
15    there have been recognized causes of Parkinson's  
16    disease discovered and accepted as actual causes?

17          A.   Absolutely.

18          Q.   Okay.  And are environmental factors one of  
19    those?

20          A.   Absolutely.

21          Q.   And have you seen that happen with regard  
22    to -- or do you hold an opinion as to whether or not  
23    that is true for chemicals TCE and PCE?

24                MS. HURT:  Objection to form.

25          A.   TCE, I think, is unquestionably associated

1 HEIDI SCHWARZ, MD, FAAN by MR. MICELI  
2 with the development of Parkinson's disease. I  
3 think PCE most likely is, but further data and study  
4 would be helpful.

5 Q. Okay. You said unquestionably associated  
6 with. Can you, to a reasonable degree of scientific  
7 certainty with regard to P -- or TCE, say that it is  
8 unequivocally or unquestionably causally associated  
9 with Parkinson's disease?

10 A. It is unquestionably associated causatively  
11 with Parkinson's disease.

12 Q. And can you say that to a reasonable degree  
13 of scientific and medical certainty?

14 A. I can.

15 Q. Okay. You also had some discussions with  
16 Ms. Hurt about head injury versus traumatic brain  
17 injury. Do you recall those?

18 A. I do.

19 Q. First thing I want to ask is, have you seen  
20 any information with regard to either -- well, I'm  
21 going to ask it separately because it may be looked  
22 at separately by the judges. Have you seen anything  
23 that demonstrates objective evidence of a traumatic  
24 brain injury for Mr. Sparks?

25 A. I have not.

1 HEIDI SCHWARZ, MD, FAAN by MR. MICELI

2 Q. Have you seen any objective evidence of a  
3 traumatic brain injury suffered by Mr. Welch?

4 A. I have not.

5 Q. Okay. You were shown -- I'm trying to find  
6 the thick one. I know you -- I know you had it.

7 A. I have it.

8 Q. Here we go.

9 A. Here it is.

10 Q. Exhibit 15. If you could flip to the page  
11 ending in 004 for me. Are you there with me?

12 A. I am there.

13 Q. At the top of the page, it says date of  
14 admission, 10 October, '73. Date of discharge, 16  
15 November, 1973. Do you see that?

16 A. I do.

17 Q. Okay. What is the final diagnosis?

18 A. Passive aggressive personality.

19 Q. Okay. This record that you were shown and  
20 asked to read a few lines of was for passive  
21 aggressive personality?

22 A. That would be their final diagnosis. Yes.

23 Q. Okay. And if you go down about four, five  
24 lines from the bottom, there's a sentence that  
25 begins right in the middle of that coffee stain

1 HEIDI SCHWARZ, MD, FAAN by MR. MICELI

2 circle. He was first seen --

3 A. Yes.

4 Q. Okay. Tell me if I read this correctly.

5 "He was first seen by a Brazilian general  
6 practitioner, but because of security reasons, he  
7 was transferred to Panama to see a military  
8 psychiatrist." Did I read that correctly?

9 A. Yes.

10 Q. He was not sent to Panama for a closed head  
11 injury or traumatic brain injury, correct?

12 A. Correct.

13 Q. Okay. And then it -- continuing on, it  
14 says, "After a brief evaluation, the patient was  
15 tentatively diagnosed as having chronic anxiety  
16 syndrome and acute dissociative reaction." Did I  
17 read that correctly?

18 A. Yes.

19 Q. Are you familiar with chronic anxiety  
20 syndrome and acute dissociative reactions?

21 A. I am familiar with them. I don't treat  
22 them, but I am familiar with them.

23 Q. Is your familiarity sufficient to  
24 understand whether or not they can cause you to have  
25 lack of memory?

1 HEIDI SCHWARZ, MD, FAAN by MR. MICELI

2 A. Yes. And it can cause you to have lack of  
3 memory.

4 Q. Okay. You were asked if this lack of  
5 recall is evidence of a traumatic brain injury  
6 earlier. Do you believe it was a result of a  
7 traumatic brain injury?

8 A. Looking at the totality of the history  
9 that's provided here, reading it more carefully, it  
10 appears to me that this was much more of a  
11 psychiatric issue and a bit of an anger management  
12 issue that resulted in a dissociative state. That  
13 probably explains why he experienced "gone blank".

14 Q. Okay. All right. That's all I have on  
15 that one. Doctor, do you agree -- Dr. Schwarz, do  
16 you agree with the statement that loss of  
17 dopaminergic neurons and receptors is a known  
18 mechanism for causing Parkinson's disease?

19 A. Yes.

20 Q. Okay. We've already talked a little bit  
21 about the funnel concept of how you do your research  
22 literature search and review. You were asked a  
23 question at one of the points in the deposition on  
24 this topic about whether you exclude studies from  
25 consideration or inclusion on your materials



1 HEIDI SCHWARZ, MD, FAAN by MR. MICELI  
2 considered list because of -- and I thought it was  
3 solely because of the quality of the study, does  
4 relevance play any part of your analysis of what to  
5 include and what not to include?

6 A. It does. I would say that when I look at  
7 the articles regarding TCE, the initial articles are  
8 often smaller studies, case control studies that  
9 then fueled further research and better study. So  
10 as I describe, the evidence that supports TCE being  
11 positively related to Parkinson's disease, I start  
12 there because that's where we started as scientists,  
13 and then from there gained more information.

14 Q. Okay. Thank you. I want to talk to you  
15 just briefly about your virtual visits. When you  
16 conducted your virtual visit of Mr. Welch, did you  
17 have information concerning his medical records, his  
18 deposition, his -- or what all information did you  
19 have?

20 A. I had medical records. I had depositions  
21 by the patient, and I think in one case I also had  
22 depositions by the spouse. I had depositions by the  
23 treating physicians and multiple treating  
24 physicians, not just neurologists, but internists,  
25 dermatologists, sleep medicine, psychiatry.

1 HEIDI SCHWARZ, MD, FAAN by MR. MICELI

2 Q. Okay. You said you don't do IMEs? Is  
3 that --

4 A. I do not do IMEs.

5 Q. Had you done them in the past?

6 A. No.

7 Q. Okay. And did you have similar type of  
8 information when you did the virtual visit for Mr.  
9 Sparks?

10 A. I did.

11 Q. Okay. You had -- you were asked some  
12 questions earlier today about a systemic literature  
13 review. Do you recall that?

14 A. Yes.

15 Q. Okay. Was it necessary for you to conduct  
16 a systemic literature review to provide your  
17 opinions for Mr. Welch and Mr. Sparks?

18 A. No. I reviewed a lot of literature, but I  
19 didn't create a systematic review.

20 Q. And do you feel it was necessary to do so?

21 A. No.

22 Q. And was that just simply an exercise of  
23 your professional judgment?

24 A. Correct.

25 Q. Okay. I want to make sure we're clear on

1 HEIDI SCHWARZ, MD, FAAN by MR. MICELI  
2 this for the court. But you were asked some  
3 questions about what was -- what are termed as  
4 potential causes in your report. Do you recall  
5 that?

6 A. I do.

7 Q. Okay. And then you had mentioned, I  
8 believe. I don't want to put words in your mouth  
9 with regard to, like, male sex, you said XY  
10 chromosomes don't cause Parkinson's disease?

11 A. Correct.

12 Q. Okay. Is there a pathophysiologic  
13 mechanism for an XY chromosome to cause a disease  
14 like Parkinson's disease?

15 MS. HURT: Objection to form.

16 A. No.

17 Q. Okay. And you had also discussed with Ms.  
18 Hurt the difference between simply an association  
19 and what you might consider as a causative risk  
20 factor. Do you recall that?

21 A. I do.

22 Q. Have you ever heard it said that, like, the  
23 rooster crows in the morning and then the sun comes  
24 up?

25 MS. HURT: Objection to form.

1 HEIDI SCHWARZ, MD, FAAN by MR. MICELI

2 Q. And that's an association?

3 A. I have not heard that before.

4 Q. Would you agree with me that if a rooster  
5 crows at 6:00 a.m. and the sun comes up at 6:15 p.m.  
6 -- or 6:15 a.m., the rooster crowing had nothing to  
7 do with the sunrise?

8 MS. HURT: Objection to form.

9 A. I would agree with that. Many roosters  
10 crow at other times.

11 Q. Okay. I want to talk to you briefly about  
12 the -- I'm going to butcher this, too. Padmakumar,  
13 article on traumatic brain injury.

14 A. Padmakumar.

15 Q. Padmakumar?

16 A. Yes.

17 Q. Thank You. You were -- if you go to the  
18 second page of the article with me, if you look on  
19 the sort of the middle blank space coming down,  
20 there's a 23 that has, like, a closed bracket, and  
21 then there's a sentence that starts, although. Do  
22 you see that?

23 A. Are you --

24 Q. Right here.

25 A. On that page?

1 HEIDI SCHWARZ, MD, FAAN by MR. MICELI

2 Q. Yes.

3 A. That side of the page. Okay. Yes, I do.

4 Q. I believe that Ms. Hurt started in the  
5 middle of the sentence that begins, the strongest  
6 evidences of TBI. Do you see that?

7 A. Yes.

8 Q. Okay. Do you recall those questions?

9 A. I do.

10 Q. Those questions. If you look over to the  
11 left side of the page and really go into the front  
12 page, the bottom of the first or the right column on  
13 the first page begins, "Therefore, the damage caused  
14 by TBI can either be confined to a more localized or  
15 specific area of the brain or spread over a wider  
16 region in the conditions referred to as to focal and  
17 diffuse brain injuries, respectively." Do you see  
18 that?

19 A. Yes, I do.

20 Q. Okay. And did you see any objective  
21 evidence in the medical records of either Mr. Sparks  
22 or Mr. Welch that they suffered any focal or diffuse  
23 brain injuries prior to their diagnosis with  
24 Parkinson's disease?

25 MS. HURT: Objection to form.

1 HEIDI SCHWARZ, MD, FAAN by MR. MICELI

2 A. I did not. I specifically asked them if  
3 they had any limitations of their normal functioning  
4 the day following, any kind of potential impact with  
5 Mr. Welch. Mr. Sparks, I was not aware of any  
6 potential head trauma. And Mr. Welch strongly  
7 denied any limitation of function and that he was to  
8 function at his normal level immediately after these  
9 events.

10 Q. Okay. If you come down to just a couple of  
11 lines after the bracketed number 12 there, it says  
12 "Skull fracture, concussions, contusions, diffuse  
13 axonal injury and lacerations, et cetera, belong to  
14 the class of primary injuries which could either be  
15 penetrating open head injuries or non-penetrating  
16 closed head acceleration or non-acceleration  
17 injuries". Do you see that?

18 A. I do.

19 Q. Did you see any objective evidence in the  
20 medical records of either Mr. Welch or Mr. Sparks  
21 that either suffered a fractured skull?

22 MS. HURT: Object to form.

23 A. I did not.

24 Q. Did you see any objective evidence in  
25 either Mr. Sparks or Mr. Welch's medical records

1 HEIDI SCHWARZ, MD, FAAN by MR. MICELI  
2 that documented a concussion?

3 MS. HURT: Object to form.

4 A. I did not.

5 Q. Did you see any diffuse axonal injuries  
6 documented in the medical records of Mr. Welch or  
7 Mr. Sparks?

8 A. I did not.

9 Q. Okay. Did you look for those things?

10 A. I did.

11 Q. Did you ask them -- did you ask them about  
12 these types of head injuries when you met with them?

13 A. I did.

14 Q. And what did they say?

15 A. They denied them.

16 Q. Okay.

17 A. And specifically, the diffuse axonal injury  
18 is what we associate with post concussive syndrome  
19 and limitation of function after a head impact. And  
20 I asked very pointedly with Mr. Welch on the three  
21 occasions that are noted in his records, and he  
22 denied it in all three.

23 Q. Okay. When you come down towards the  
24 bottom of that column, to the right of where the  
25 bracketed number 19 is, it says, "On the other hand,

1 HEIDI SCHWARZ, MD, FAAN by MR. MICELI  
2 sequestration of calcium, particularly in the  
3 mitochondria by calcium influx can result in the  
4 formation of free radicals, oxidative stress, and  
5 initiation of apoptosis." Do you see that?

6 A. I do.

7 Q. And did you see any evidence of calcium  
8 deposits in the brain of either of these gentlemen  
9 on your review?

10 A. No.

11 Q. Okay. And then if you go over to the Page  
12 3, next page, there's a section 2.2, neuronal loss  
13 and white matter degeneration. Are you familiar  
14 with white matter degeneration?

15 A. Yes.

16 Q. What is the proper mechanism or the proper  
17 test for looking for white matter degeneration?

18 A. The most sensitive way to look at it would  
19 be to use MRI scanning. But again, you would  
20 probably need to have a pre and post MRI scan to  
21 attest to loss of white matter.

22 Q. Sure. Did you see any objective evidence  
23 in the medical record of either Mr. Sparks or Mr.  
24 Welch that where any of their contemporaneous  
25 treating physicians decided it was necessary to



1 HEIDI SCHWARZ, MD, FAAN by MR. MICELI  
2 conduct an MRI to look for white matter  
3 degeneration?

4 MS. HURT: Object to form.

5 A. I know that Mr. Welch had two MRI scans of  
6 his head. The first was in early 2000s to evaluate  
7 his chronic headaches, which is where they found the  
8 cavernous angioma in his caudate.

9 And then he had a second one, I think, in  
10 maybe 2021, 2022, with his diagnosis of Parkinson's  
11 disease. And there was no change in the cavernous  
12 angioma. And neither report mentioned any white  
13 matter degeneration.

14 Q. Thank you. Because you were asked about  
15 pollution and particularly PM2.5. And that's  
16 mentioned in the environmental section of, I think,  
17 both of your reports?

18 A. Yes.

19 Q. Have you been provided with any information  
20 today that would demonstrate what the PM2.5 levels  
21 are in Laredo, Texas, or Nuevo Laredo, Mexico?

22 A. No.

23 Q. Okay. Now, I just have two more questions  
24 for you. You sat here through, it's at 8 hours and  
25 10 minutes of on and off deposition time. Do you

1 HEIDI SCHWARZ, MD, FAAN by MR. MICELI  
2 still remain confident in your opinions with regard  
3 to the causation of Parkinson's disease for Mr.  
4 Welch?

5 MS. HURT: Objection to form.

6 A. I do. I can.

7 Q. Okay. Do you still have confidence in your  
8 -- do you still remain confident in your opinion  
9 concerning the causation of Mr -- did I say Mr.  
10 Welch the first time or Sparks?

11 A. Welch.

12 Q. Mr. Sparks. Let me ask it again. So it's  
13 clean on the record. Do you still remain confident  
14 in your opinion on the causation of Mr. Sparks'  
15 Parkinson's disease?

16 A. I do.

17 Q. And do you hold your opinions as you've  
18 expressed in your report and explained today to a  
19 reasonable degree of medical certainty?

20 A. I do.

21 Q. Okay. I have nothing further.

22 MS. HURT: I don't have anything  
23 further.

24 MR. MICELI: Okay. Thanks.

25 MS. HURT: I will just say on the

1 HEIDI SCHWARZ, MD, FAAN by MR. MICELI  
2 record that as we discussed at the  
3 beginning of the deposition, we're  
4 leaving this open, subject to getting  
5 the late production last night of the  
6 IME notes.

7 MR. MICELI: Yeah. Well, of the  
8 virtual visit notes.

9 MS. HURT: Okay. Virtual visit  
10 notes.

11 MR. MICELI: We can agree to  
12 disagree on the characterization, but I  
13 just want to make sure we're clear on  
14 the record.

15 THE VIDEOGRAPHER: Let me wrap this  
16 up, please. We're off the record at  
17 5:11 p.m. And this concludes today's  
18 testimony given by Heidi Schwarz, MD.  
19 The total number of media units was 10  
20 and will be retained by Veritas.

21 (Deposition concluded.)  
22  
23  
24  
25

AFFIDAVIT:

STATE OF NEW YORK

COUNTY OF \_\_\_\_\_

I have read my deposition, and the  
same is true and accurate, save and except  
for changes and/or corrections, if any,  
as indicated by me on the correction sheet  
attached hereto.

\_\_\_\_\_  
HEIDI SCHWARZ, MD, FAAN

SUBSCRIBED AND SWORN TO before me this  
\_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_.

\_\_\_\_\_  
NOTARY PUBLIC

My commission expires on \_\_\_\_\_.

Witness: Heidi Schwarz, MD, FAAN

[illegible]

Page	Line	Correction and reason
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[illegible]

CERTIFICATION:

STATE OF NEW YORK

COUNTY OF STEUBEN

I, RENAYE SIRIANNI, the officer before whom the foregoing deposition was taken, do hereby certify that the witness whose testimony appears in the foregoing deposition was duly sworn by me.

I further certify that the testimony of said witness was taken by me in Stenotype and thereafter reduced to typewriting under my supervision.

I further certify that the said deposition constitutes a true record of the testimony given by said witness to the best of my ability.

I further certify that the said deposition was taken before me at the time and place specified in the notice.

I further certify that I am neither counsel for, related to, nor employed by any of the parties to the action in which this deposition was taken, nor financially or otherwise interested in the outcome of the action.

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RENAYE SIRIANNI, Notary Public

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Federal Rules of Civil Procedure

Rule 30

(e) Review By the Witness; Changes.

(1) Review; Statement of Changes. On request by the deponent or a party before the deposition is completed, the deponent must be allowed 30 days after being notified by the officer that the transcript or recording is available in which:

(A) to review the transcript or recording; and

(B) if there are changes in form or substance, to sign a statement listing the changes and the reasons for making them.

(2) Changes Indicated in the Officer's Certificate. The officer must note in the certificate prescribed by Rule 30(f)(1) whether a review was requested and, if so, must attach any changes the deponent makes during the 30-day period.

DISCLAIMER: THE FOREGOING FEDERAL PROCEDURE RULES ARE PROVIDED FOR INFORMATIONAL PURPOSES ONLY.

THE ABOVE RULES ARE CURRENT AS OF APRIL 1, 2019. PLEASE REFER TO THE APPLICABLE FEDERAL RULES OF CIVIL PROCEDURE FOR UP-TO-DATE INFORMATION.



VERITEXT LEGAL SOLUTIONS

COMPANY CERTIFICATE AND DISCLOSURE STATEMENT

Veritext Legal Solutions represents that the foregoing transcript is a true, correct and complete transcript of the colloquies, questions and answers as submitted by the court reporter. Veritext Legal Solutions further represents that the attached exhibits, if any, are true, correct and complete documents as submitted by the court reporter and/or attorneys in relation to this deposition and that the documents were processed in accordance with our litigation support and production standards.

Veritext Legal Solutions is committed to maintaining the confidentiality of client and witness information, in accordance with the regulations promulgated under the Health Insurance Portability and Accountability Act (HIPAA), as amended with respect to protected health information and the Gramm-Leach-Bliley Act, as amended, with respect to Personally Identifiable Information (PII). Physical transcripts and exhibits are managed under strict facility and personnel access controls. Electronic files of documents are stored in encrypted form and are transmitted in an encrypted

fashion to authenticated parties who are permitted to access the material. Our data is hosted in a Tier 4 SSAE 16 certified facility.

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