Exhibit 611

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

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

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. Sirianni, Court Reporter and Notary Public in and for the State of New York.

APPEARANCES:

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Attorneys for Defendants
1100 L Street, NW, Suite 3314
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BY: CINDY M. HURT, ESQ.
BY: ELIZABETH PLATT, ESQ.
BY: JOSEPH TURNER, ESQ., Via Zoom
BY: ANNA ELLISON, ESQ., Via Zoom

Also Present:
David Freedman, Videographer

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STIPULATIONS:

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

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

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

IT IS FURTHER STIPULATED AND AGREED that the witness shall read and sign the original deposition transcript within 60 days upon receipt.

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

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

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

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

957 Panorama Trail South, Suite 100, Rochester, New York.

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

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

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

MS. HURT: Cindy Hurt for The United States.

MS. PLATT: Elizabeth Platt for The United States.

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

THE WITNESS: Heidi Schwarz for

Plaintiff.

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

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

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

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

THE VIDEOGRAPHER: Joey Turner?

MS. HURT: Yes, Joey Turner.

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

H E I D I S C H W A R Z,

having been first duly sworn by a Notary Public within and for the State of New York, was examined and testified as follows:

HEIDI SCHWARZ, MD, FAAN by MS. HURT

EXAMINATION

BY MS. HURT:

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

A. Correct.

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

A. Heidi Beck Schwarz.

Q. And what is your current address?

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

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

A. I do understand that.

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

A. I do understand.

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

(Brief recess.)

THE VIDEOGRAPHER: Time on the

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monitor is 9:08. This begins media 2. We're on the record.

BY MS. HURT:

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

A. I understand that.

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

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

A. I understand that.

MR. MICELI: And just for the

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record, we'll reserve the right to read and sign.

MS. HURT: Okay. Great.

BY MS. HURT:

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

A. No.

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

A. No.

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

A. No.

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

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PERC, and Parkinson's disease is PD. Is that fair?

A. Yes. That makes life simpler.

MR. MICELI: For the court reporter, especially.

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

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

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

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

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

A. Yes, I have.

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

A. Yes, I have.

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

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A. Yes, I have.

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

A. No. There is not.

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

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

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

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

MS. HURT: Okay.

BY MS. HURT:

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

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A. Correct.

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

A. Correct.

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

MS. HURT: Okay.

BY MS. HURT:

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

A. No. I did not.

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

A. No. They were my reports.

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

(EXHIBIT NO. 3 AND 4 WERE MARKED

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FOR IDENTIFICATION.)

A. I do.

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

A. Yes, it is.

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

A. Yes, it is.

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

A. I do.

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

A. Correct.

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

A. Yes, it is.

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

A. That is correct.

Q. Did you have any staff do any editing?

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

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

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THE WITNESS: No.

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

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

BY MS. HURT:

Q. And did you have any research assistance?

A. No. I did not.

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

A. Not at this time.

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

A. Correct.

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

A. Not at this time.

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

A. Yes, they are.

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

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general sections of both of these reports for Mr. Sparks and Mr. Welch that are the same in both reports, correct?

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

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

A. That would be fine.

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

A. Understood.

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

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

Q. And do you remember when this happened?

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

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

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A. Dr. Dorsey.

Q. Dr. Dorsey.

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

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

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

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

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

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

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

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

A. No.

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

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

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

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

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

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

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

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

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Dorsey reached out separately to him.

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

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

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

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

Q. And did Dr. Barbano share those concerns?

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

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

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

Q. Is there anything else?

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

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

A. No. I -- no.

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

MR. MICELI: Object to the form.

A. I do not.

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

A. Yes, I have.

Q. Okay. Virtual exams. You also mentioned

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that you were worried about bias. What would you -- what did you mean by that statement?

MR. MICELI: Object to the form.

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

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

A. I found --

MR. MICELI: Object to the form.

Excuse me.

A. I found no bias.

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

MR. MICELI: Object to the form.

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

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scientific basis to objectively review the epidemiologic evidence.

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

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

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

MR. MICELI: Object to the form.

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

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

MR. MICELI: Object to the form.

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

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no toxic exposure.

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

MR. MICELI: Object to the form.

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

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

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

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

A. I have not.

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

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

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

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you shortly after that?

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

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

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

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

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

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

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

A. I did not.

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

MR. MICELI: Object to the form.

A. I was retained as a specific causation expert.

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Q. Okay. And who specifically retained you?

A. The Mike Dolan firm.

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

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

A. Could you clarify that question.

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

MR. MICELI: Same objection.

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

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

A. The Camp Lejeune Justice Act.

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

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

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

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

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

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

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

MR. MICELI: Object to the form.

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

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

A. I am not a lawyer.

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

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correct?

A. Correct.

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

A. Correct.

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

A. No. I had not.

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

A. They did.

Q. What was your compensation for this litigation?

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

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

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

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

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work for Mr. Sparks and Mr. Welch?

A. Yes, it does.

Q. Do you receive a bonus for anything?

A. Not that I'm aware of.

MR. MICELI: Me either.

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

A. No.

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

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

MS. HURT: But you can --

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

MS. HURT: Correct.

BY MS. HURT:

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

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A. No. I did not.

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

A. No. I did not.

(EXHIBIT NO. 5 WAS MARKED FOR IDENTIFICATION.)

Q. In Exhibit 5, what I just handed you, is a letter that was received from Plaintiff's Counsel, it has the Bates stamp, CL_PLG-EXPERT_SCHWARZ_, with the Bates number ending in 5. And the heading says "Camp Lejeune Justice Act Plaintiff's Leadership Group," and it's addressed to Dr. Schwarz.

Doctor, have you seen this letter before today?

A. Yes.

Q. And when did you receive this letter?

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

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

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

MR. MICELI: For the record, this

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is all I'm aware of.

MS. HURT: Okay.

BY MS. HURT:

Q. Are you reimbursed for any expenses or cost?

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

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

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

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

A. Correct.

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

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

Q. And prior to working on this litigation,

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how much of your annual income was based on expert services.

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

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

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

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

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

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

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

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I go in and meet the patient and whoever accompanies them. I do focused history and focused exam, and then we discuss management. And then the resident writes their note. I cosign and attest the note with my own addendum. And then if tests are ordered, I follow-up with that.

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

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

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

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

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

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

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

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invoices that you provided.

(EXHIBIT NO. 6 WAS MARKED FOR IDENTIFICATION.)

Q. So Exhibit 6 is an invoice, 001. It's dated February 6, 2025. It's directed to Lori Merz, and the Bates number is CL_PLG-EXPERT_SCHWARZ_ Bates number ending in one. This begins Bates. Dr. Schwarz, have you seen this document before today?

A. Yes.

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

A. Yes, it is.

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

A. That is correct.

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

A. Yes, it is.

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

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A. I'm ready.

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

A. Yes, they are.

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

A. I do not.

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

A. That is correct.

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

A. That is correct.

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

A. You did.

Q. What does complete accounting mean?

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

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with counsel, versus review of medical records, versus review of reports and literature, I would be able to provide that to them.

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

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

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

A. No. They did not.

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

A. I did not.

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

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

THE WITNESS: I did not.

(EXHIBIT NO. 7 WAS MARKED FOR IDENTIFICATION.)

BY MS. HURT:

Q. Handing you what is Exhibit 7. It is

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another invoice. It's invoice 002. It's dated June 8, 2025. It's Bate stamped CL_PLG-EXPERT_SCHWARZ_ Bates number ending in three for the begin Bate. Dr. Schwarz, do you recognize this letter?

A. I do.

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

A. It is.

Q. And do you remember providing this to counsel?

A. I do.

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

A. Yes, you did.

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

A. It is.

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

A. I'm ready.

Q. Okay. Can you confirm that the details

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provided in this invoice are accurate?

A. They are.

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

A. I do not.

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

A. They are.

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

A. I did not.

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

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

A. Yes, I did.

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

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

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reviewed before, and had conferences with counsel.
Q. And you said review prior literature. What do you mean?
A. I have a set of references at the back of both of my expert witness statements, and I reviewed again some of those references. And then I believe you've been provided with some new articles that I've also reviewed.
Q. What new articles are these?
A. There was an article by Sallmen, an article by Nielsen. Nielsen was actually already in my report. There were -- there was a article from Korea about epilepsy and Parkinson's disease; and another article from JAMA Neurology regarding anticonvulsants and Parkinson's disease; and there was a review article by Dorsey and Boehme about epidemiology of Parkinson's disease.
MS. HURT: Can we go off the record for --
THE VIDEOGRAPHER: Time on the monitor is 9:51. We're off the record.
(Brief recess.)
THE VIDEOGRAPHER: Time on the monitor is 10:00. This begins media 3.

HEIDI SCHWARZ, MD, FAAN by MS. HURT

We're on the record.

BY MS. HURT:

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

A. Correct.

Q. And you reviewed that document?

A. Yes, I did.

Q. And why did you review that transcript?

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

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

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

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

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

Q. And you agree with that, what you just

HEIDI SCHWARZ, MD, FAAN by MS. HURT

said?

A. Yes, I do.

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

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

Q. And have you read Lipscomb's report?

A. No. Just the deposition.

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

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

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

A. No.

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

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

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

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looked at risk assessment?

MR. MICELI: Object to form.

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

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

MR. MICELI: Object to the form.

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

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

MR. MICELI: Object to the form; foundation.

A. I would have to ask an EPA expert.

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

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

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

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contaminants of concern in this litigation before you reviewed Lipscomb's transcript?

A. Yes.

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

MR. MICELI: Object to the form. No objection there.

A. No. Not in a substantive way.

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

A. I have not.

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

A. I have.

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

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

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

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

Q. And was anyone else present during those meetings?

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A. Just myself and counsel.

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

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

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

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

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

A. These were discussions.

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

MR. MICELI: Object to the form. Do not discuss anything we discussed to the extent you can answer without divulging discussions.

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

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

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

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

A. A combination.

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

A. I found that myself.

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

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

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

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

Q. And then the draft deposition transcript,

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was that provided by counsel?

A. That was.

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

A. Yes.

Q. And when were you provided that document?

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

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

A. Yes, they did.

Q. And when did they provide it to you?

A. Late May or early June 2025.

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

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

Q. Can you name those for me?

A. No. I cannot name those for you.

Q. Can you give me an example?

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

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

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

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

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

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

A. I have not.

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

A. No. I have not.

Q. You know Dr. Barbano, correct?

A. I do.

Q. How would you define the relationship

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between you and Dr. Barbano?

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

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

A. That is correct.

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

A. Yes.

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

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

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

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

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

A. I worked on several. Two or three

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telemedicine in Parkinson's disease studies.

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

A. I have not.

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

A. I have not.

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

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

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

A. Yeah. Excuse me.

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

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examiner.
BY MS. HURT:
Q. Oh, I'm sorry.
A. Yeah. Site examiner. Exactly.
Q. That was my fault. What is the site -- what does that mean, site examiner?
A. So I am a professional certified -- I'm a professional experienced in Parkinson's disease who examines participants in the trial to gather a history and to look for motor and non-motor findings of Parkinson's disease in the participants, and then examining them, and using a standardized exam for this particular study.
Q. And when you say standardized exam is -- what was the exam?
A. So the exam is a combination of looking at the features that we see in Parkinson's disease: Slowness of movement, tremor, rigidity, postural instability, timing walk, timing ability to rise from a chair, timing -- or observing the ability to turn, looking at arm swing, all of the features that go along with Parkinson's disease.
Q. And were these conducted virtually or in person?

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A. Combination.

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

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

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

A. Correct.

Q. And what did you do with the data?

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

Q. And who performed the statistical analysis?

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

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

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

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

A. Golly. I would say at least 20.

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

A. No.

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

A. Yes.

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

A. Yes.

(EXHIBIT NO. 8 WAS MARKED FOR IDENTIFICATION.)

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

A. It appears so. Yeah.

MR. MICELI: What was Exhibit 7?

THE WITNESS: 7 was my second invoice.

HEIDI SCHWARZ, MD, FAAN by MS. HURT

MR. MICELI: Okay. I'm sorry.

BY MS. HURT:

Q. Have you seen this report before today?

A. I have not.

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

MR. MICELI: Object to the form; foundation.

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

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

A. I do consider him qualified.

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

A. No.

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

A. I am not.

Q. Okay.

MR. MICELI: Are you done with this.

MS. HURT: Yeah. I am for now.

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Thank you.

BY MS. HURT:

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

A. I have not.

Q. Did you have discussions with Dr. Reynolds?

A. I did not.

Q. And you never met with Dr. Reynolds?

A. I never met with Dr. Reynolds.

Q. You never met virtually with Dr. Reynolds?

A. I did not.

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

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

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

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A. I did not.

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

A. Correct.

Q. Is this your up to date CV?

A. Pretty up to date.

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

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

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

A. Posters. Yeah.

Q. What's a poster?

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

Q. Oh, okay.

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

Q. So -- oh, okay.

A. Basically a big PowerPoint slide that

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projects --

Q. So a poster's a poster?

A. Right.

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

A. Yes.

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

A. Correct.

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

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

Q. But is it a primary focus?

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

(EXHIBIT NO. 9 WAS MARKED FOR IDENTIFICATION.)

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

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you recognize this?

A. I've never seen it.

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

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

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

A. I've never seen this.

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

A. I did not write this. No.

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

MR. MICELI: Object to the form. And I'll stipulate that you read it correctly. But I object to the form on basis of foundation. She's never seen this before.

BY MS. HURT:

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Q. Okay. But you --

A. You read it correctly.

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

A. Not currently. No.

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

A. I don't practice headache medicine anymore.

Q. Okay.

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

Q. Okay.

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

Q. Okay. What does headache medicine mean?

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

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

A. Correct.

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

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

Q. You're not an epidemiologist, correct?

A. I am not.

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

A. I do not.

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

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

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

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

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Q. And what does DynaMed do?

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

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

A. That is accurate.

Q. What do you mean by long experience?

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

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

MR. MICELI: Object to the form.

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

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article reading.

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

A. I do not.

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

A. I do not.

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

A. I do not have experience as an epidemiologist.

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

A. I have not.

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

A. I have not.

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

A. Yes.

Q. What did you do to conduct that?

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

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search words to PubMed, NIH, or sometimes Google Scholar, and then review the posts that come up and usually click on at least the abstract to determine whether I feel that the content of the article is relevant and reliable.

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

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

Q. And would that be your exclusion criteria?

MR. MICELI: Object to the form.

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

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

MR. MICELI: Same objection.

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

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design, population studied, size of the cohorts, duration of the study, who funded the study. I think that's probably at least five. And then and then it sort of gets into the weeds about, you know, dosages used or exposures measured and how they were measured, et cetera.

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

(Answer was read back.)

MR. MICELI: Got it. Thank you.

BY MS. HURT:

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

MR. MICELI: Object to the form.

A. Can you clarify the question.

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

A. Correct.

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

A. Yes.

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Q. And do you use the same process?

A. I do.

Q. You're not a toxicologist, correct?

A. I am not.

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

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

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

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

Q. What type of experimental work?

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

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

A. No. I have not.

Q. Do you have a certification in toxicology?

A. I do not.

Q. And you've never been a principal

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investigator for a toxicological study, correct?

A. I have not.

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

A. I have not.

Q. Have you taught any courses on toxicology?

A. I have not.

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

A. Correct.

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

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

Q. Why is risk assessment not germane to causation?

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

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to determine causation.

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

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

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

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

MR. MICELI: Object to the form.

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

Q. Let's take a break.

MR. MICELI: Okay.

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

(Brief recess.)

THE VIDEOGRAPHER: Time on monitor

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is 10:54. This begins media 4. We're on record.

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

A. Yes.

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

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

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

A. No.

Q. When was the most recent?

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

MS. HURT: Uh-huh.

MR. MICELI: Okay. I just want to

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make sure because if there's something other than that.

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

BY MS. HURT:

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

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

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

A. No. I don't believe so.

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

A. Correct.

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

MR. MICELI: Object to the form.

A. Not that I know of.

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

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MR. MICELI: Object to the form.

A. Not that I know of.

(EXHIBIT NO. 10 WAS MARKED FOR IDENTIFICATION.)

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

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

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

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radiculopathy" --

MR. MICELI: Radiculopathy.

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

A. You did.

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

A. It would appear so. Yes.

Q. But you don't remember?

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

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

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

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

MR. MICELI: Okay.

BY MS. HURT:

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

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the claim fails within -- falls within the ruling and bates supra. The board panel concludes that the claim is disallowed and the case is closed." Did I read that correctly?

A. Yes.

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

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

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

A. I do not.

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

A. I have not.

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

A. I have not.

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

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A. I have not.

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

A. The last DCE?

Q. Yeah.

A. I don't know what DCE is.

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

A. Nope. I have not published on it.

(EXHIBIT NO. 11 WAS MARKED FOR IDENTIFICATION.)

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

A. I do.

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

A. Correct.

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

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

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Q. Okay.

A. -- analysis.

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

A. That is correct.

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

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

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

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

Q. Was this article peer reviewed?

A. Yes.

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

A. Yes.

Q. And do you agree with the findings?

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A. Yes.

Q. What prompted the study of these attorneys?

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

Q. Okay.

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

Q. And do you know when that happened?

A. I do not.

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

A. You did.

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

A. No.

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

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

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

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

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

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

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

A. Correct.

Q. Do you know what recall bias is?

A. Yes.

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

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

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a study is based on.

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

MR. MICELI: Object to the form.

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

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

MR. MICELI: Object to the form.

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

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

MR. MICELI: Object to the form.

A. Correct.

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

MR. MICELI: Object to the form.

A. No.

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

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

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one on Page 610. Thank you.

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

MR. MICELI: That's table two.

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

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

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

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

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

BY MS. HURT:

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

A. Yes.

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

A. Correct.

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

MR. MICELI: Object to the form; foundation.

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

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

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

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

A. That is correct.

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

A. Okay. Bariatric scale.

Q. Scale for outcomes. You see that?

A. Yes.

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

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8.5, 5.3 is in the parentheses for standard deviation. And then it has 10 with 6.2 for the comparison group is the standard deviation, and P equals the P value is 0.06, correct?

A. Correct.

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

MR. MICELI: Object to the form.

A. I'm not a statistician.

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

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

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

(EXHIBIT NO. 12 WAS MARKED FOR IDENTIFICATION.)

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

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Schwarz, and it's dated 2022. Do you recognize this, Dr. Schwarz?

A. I do.

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

A. That is correct.

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

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

Q. So what section did you write?

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

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

A. Yes, I do.

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

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been reported to be associated with slower disease progression." Did I read that correctly?

A. You did.

Q. And do you agree with the statement?

A. I do.

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

A. Dopaminergic.

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

A. Striatal.

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

A. Yes, you did.

Q. Do you agree with that statement?

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

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

A. You did.

Q. And do you agree with this statement?

A. I do.

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

A. You did.

Q. And do you agree with that statement?

A. I do.

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

A. Absolutely.

Q. And how often do you make that recommendation?

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A. Every time.

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

MR. MICELI: Object to the form.

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

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

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

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

MR. MICELI: Object to the form.

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

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

A. Yes.

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

A. Probably at least 500.

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

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

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

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

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have. And then lastly, is when medications fail to be -- to adequately control symptoms, referral to someone who could consider either deep brain stimulation or continuous infusion of levodopa.

Q. What is continuous infusion of levodopa?

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

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

MR. MICELI: Object to the form.

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

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

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ago.

Q. And when did that evolution occur?

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

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

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

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

A. Correct.

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

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

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

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Welch?

A. I did.

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

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

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

Q. And had it?

A. Yes.

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

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

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

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

Q. Is it standard practice to perform MOCA virtually?

MR. MICELI: Object to the form.

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

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

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

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

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

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

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

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

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

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

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

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

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

A. I have.

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

MR. MICELI: Object to the form.

A. I would have to speculate.

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

MR. MICELI: Object to the form.

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

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same words.

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

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

A. No.

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

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

Q. How does it distinguish between the two?

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

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

Q. And is there scientific literature that supports this?

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

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

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

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

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accurate description of Parkinson's disease, was the MPTP experience.

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

A. I am.

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

A. I have not.

Q. What about PCE?

A. I have not.

Q. Do you typically, in your clinical practice, determine the cause of someone’s Parkinson’s disease?

MR. MICELI: Object to the form.

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

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

A. Yes. There's what we call microvascular

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Parkinson's disease, can be due to small vessel infarcts. So if somebody has risk factors for that, I will explore that option. I also explore potential risk factors. So issues such as head trauma, heavy metal exposure, you know, somebody is a welder. So those are the ones that I look for.

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

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

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

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

MR. MICELI: Object to the form.

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

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

A. Yes.

Q. How so?

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

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

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

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

people to know if they've been exposed.

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

MR. MICELI: Object to the form.

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

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

MR. MICELI: Object to the form.

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

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

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

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

A. Well, any factor with scientific data

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behind it.

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

MR. MICELI: Object to the form; foundation.

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

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

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

MR. MICELI: Object to the form; foundation.

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

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

A. Yes.

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

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

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

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

A. Can you rephrase.

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

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how do you determine if risk factor is more likely than not the cause of someone's Parkinson's disease?

MR. MICELI: Object to the form; foundation.

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

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

A. I think we've said --

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

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

MR. MICELI: I understand. We'll

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go off the record. She can leave the room, and we can have a discussion then off the record. I'm not going to let her -- you -- excuse me. Can you please leave the room?

THE WITNESS: Yes, I will.

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

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

THE VIDEOGRAPHER: Time on the monitor is 11:46. We're off the record.

(Brief recess.)

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

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

MS. HURT: Okay. Thank you.

BY MS. HURT:

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

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halfway down the page. It says, "From my review of materials, I understand that the plaintiff in this case must prove causation under the Camp Lejeune Justice Act to a level of at least as likely as not, which is a lower burden and more likely as not causation standard." Did I read that, correctly?

A. Correct.

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

MR. MICELI: Objection; form.

A. More likely is greater than 50 percent chance.

Q. And what is as likely as not?

A. 50 percent.

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

A. Yep. Yes.

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

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

of the disease.

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

A. You did.

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

A. I did.

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

A. Greater than 50 percent chance. Yes.

Q. Why did you use that standard here?

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

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in his history.

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

MR. MICELI: Object to the form.

A. It depends on what other factors they were.

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

MR. MICELI: Object to the form.

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

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

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

Q. And what would constitute significant?

A. Well, again, because diesel fuel does not

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have enough research to clearly establish a mechanism, I'm not able to give you an exact number, but his exposure was probably no more than yours or mine.

Q. Have you worked at a gas station?

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

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

A. For a short period of time. Yes.

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

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

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

MR. MICELI: Is that a question?

MS. HURT: Uh-huh.

MR. MICELI: Object to the form.

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

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significant.

BY MS. HURT:

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

A. Correct.

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

A. You did.

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

A. I did.

Q. And how do you define that standard?

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MR. MICELI: Object to the form.

A. You asked me that before.

Q. And can you repeat how you define it?

MR. MICELI: Object to the form.

THE WITNESS: Can you read it back to me.

BY MS. HURT:

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

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

(Answer was read back.)

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

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

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

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

A. Yes.

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

A. Correct.

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

MR. MICELI: Object to the form.

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

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

MR. MICELI: Object to the form.

A. I felt comfortable saying as likely as not.

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

MR. MICELI: Same objection.

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

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

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

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with toxin exposure to actually develop disease.

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

A. Based on my clinical judgment.

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

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

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

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

Q. What does fairly mean?

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

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increased disability follows a trajectory that is fairly typical of Parkinson's disease.

Q. What's your hesitation there?

MR. MICELI: Object to the form. Well, object to the form.

A. My hesitation about what?

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

MR. MICELI: Object to the form; foundation.

A. My clinical judgment.

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

A. I think I just discussed that.

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

MR. MICELI: Object to the form.

A. Those were factors. Yes.

Q. What other factors?

A. I think those were the major ones.

Q. Was there any other factors?

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

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

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never have developed Parkinson's disease?

MR. MICELI: Object to the form; foundation.

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

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

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

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

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

MR. MICELI: Object to the form; foundation.

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

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

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

(Brief recess.)

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

BY MS. HURT:

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

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

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

MR. MICELI: Object to the form.

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

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

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

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disease.

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

MR. MICELI: Object to the form.

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

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

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

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

A. Correct.

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

A. Page 9.

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

A. Okay.

Q. Summary of the opinions and the methodology.

A. Oh, okay.

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

MR. MICELI: On Page 2?

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MS. HURT: On Page 2.

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

MS. HURT: Yes.

MR. MICELI: Okay. Thank you.

BY MS. HURT:

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

A. Yes.

Q. What do you mean by scientific literature?

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

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

A. Yes.

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

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

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

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

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

A. Correct.

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

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

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

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A. I do not.

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

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

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

Q. So did your search list evolve over time?

A. Yes.

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

A. I did not.

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

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

Q. So with the exception of new literature

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coming out over time, would somebody else be able to reproduce the search that you did without having those search terms?

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

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

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

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

A. Correct.

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

A. Absolutely.

Q. And which ones are those?

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

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But I would say from the epidemiology, I think my starting point was clearly the articles by both DOVE and Sam Goldman because they dealt specifically with the population that includes Mr. Sparks and Mr. Welch.

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

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

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

MR. MICELI: Object to the form.

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

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

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Lejeune and developed Parkinson's disease, including a professional basketball player who's only 32 but was a child on the base.

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

MR. MICELI: Object to the form; foundation.

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

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

MR. MICELI: Object to the form.

A. I think that has been discussed before, but either randomized controlled trials or case controlled trials where potentials for bias are

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identified and in some way adjusted or rectified are certainly the gold standard. I also think that smaller studies can be helpful because they can identify a signal.

It seems likely there's an association there and, for instance, in Dr. Gash's studies they took that further by actually looking at the neurotoxicity of trichloroethylene.

Q. Are all the materials you considered in your materials considered list on the supplemental materials considered list? Is that --

A. Oh, are they all the articles?

Q. Yeah.

A. Yes. They are the ones that I considered.

Q. So earlier, I think this probably is just a confusion of terms. Earlier, you testified that you reviewed but did not include certain articles. Were those included on your materials considered list?

MR. MICELI: Object to the form.

A. No. If I did not find them relevant, or well done, I didn't include them.

Q. And they're not on your materials considered list, right?

A. Not just on my materials --

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MR. MICELI: You got to let her finish so that I can make an objection. And then you're not talking over each other for Renaye's benefit as much as anybody's. Object to form.

BY MS. HURT:

Q. Okay. So my question is, I'm trying to ascertain whether or not those articles that you deemed to be not of sufficient quality would be included on your materials considered list?

MR. MICELI: Object to the form; foundation.

A. They are not on my list.

Q. Okay. You've reviewed the Plaintiff's general causation expert reports, correct?

A. Correct.

Q. Which ones did you review?

A. As stated in my expert witness statement, I reviewed Dr. Jason Cannon, Dr. Amelia Boehme, B-O-E-H-M-E, Dr. Lucio Costa, C-O-S-T-A, Dr. Briana De Miranda, Dr. Gary Miller, and Dr. Kelly Reynolds. Kelly Reynolds was probably not so much causation, but quantification of exposure.

Q. And did you disagree with anything you read

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in those reports?

MR. MICELI: Object to the form.

A. No. I didn't find anything that I disagree with.

Q. Did you perform an independent analysis of the findings in these reports?

MR. MICELI: Same objection; foundation.

A. I am not a toxicologist, so I could not comment on that aspect of their technique.

Q. Did you review the studies or publications cited in these reports?

A. Some of them, but not all of them.

Q. And how do you determine which ones to review?

A. If it presented data that I hadn't heard before, I wanted to go back and find out how they based their information. If it was information that I already knew, I tended not to review the reference.

Q. Can you give me an example of information you haven't heard before?

A. Yes. So I hadn't heard, for instance, didn't -- I hadn't heard that there was a

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relationship between MPP plus, which is the metabolite of MPPP and some of the mechanisms that were found to be in play with PCE toxicity.

I had not heard about the fact that some of the effects of TCE mimic the effect of the LRRK2 gene mutation, which is associated with Parkinson's disease.

And then the last thing I would say is that there's a metabolite of TCE called TACLO that has characteristics very similar to MPPP, and produces mitochondrial toxicity and oxidative stress. So those were things that I explored further.

Q. And did you perform outside research on those? By that, I mean, did you look, like, on PubMed or Google Scholar, run searches on some of these topics?

A. So I looked at the reference that was in their material, the toxicology material, and reviewed that. If there was something in there that caught my eye as far as a reference in that article, then I would follow that through.

Q. Okay. For the exposure report, did you evaluate the methodology Dr. Reynolds undertook in creating his report?

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MR. MICELI: Object to the form.

A. Her report. No. I did not.

Q. Can you explain the methodology that Dr. Reynolds understood?

MR. MICELI: Object to the form.

A. I am not an expert in what Dr. Reynolds does. So, no, I cannot explain it. I can understand most of her graphs, but I can't explain her methodology. That's her area of expertise.

Q. Did you review the records Dr. Reynolds stated she relied on in creating the report?

MR. MICELI: Object to the form.

A. I don't recall what she stated as where she got that information. So I can't comment on that.

Q. Okay. Do you disagree with any of Dr. Reynolds's assumptions?

MR. MICELI: Object to the form.

A. I do not. I have no basis to disagree.

Q. And do you disagree with any of Dr. Reynolds' conclusions?

MR. MICELI: Same objection.

A. I relied on Dr. Reynolds as an expert, so I agree with her findings.

Q. Okay. So we're going to go -- you

HEIDI SCHWARZ, MD, FAAN by MS. HURT conducted an independent medical examination in this case, correct?

MR. MICELI: Object to the form.

A. I don't do independent medical examinations. I did a virtual visit.

Q. What do you mean "don't do"?

A. IMEs are something that are a part of the workers' compensation system. I don't do IMEs.

Q. And you said you did a virtual visit?

A. Correct.

Q. What's included in the virtual visit?

A. So, first of all, agreeing to a time and a place and making sure that the both of us have the computer capabilities to interface with each other. And then, once we've connected, I introduce myself and I regather history from the patient. Basically, I have medical records from which I've gleaned history, but I then asked the patient specifically about that history to make sure that it's correct.

And that includes occupational history, and past medical history, and family history. And then from there, I completed an examination, which included both a Montreal cognitive assessment and a focused neurologic exam on the features of

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Parkinson's disease that can be assessed remotely.

And I also documented medications taken and specifically when his last dose of medications were taken because that informs how I interpret his examination.

Q. And did the methodology you employ in taking Mr. Sparks' virtual visit differ from how you took Mr. Welch's virtual visit?

A. No. They were the same.

Q. And in your opinion, what's the difference between an IME and a virtual visit?

MR. MICELI: Object to the form.

A. So an independent medical exam, in my mind, is an exam that is required by a workers' compensation insurance company and paid for by them. So quite frankly, I don't view them as independent.

And then the report goes to the workers' compensation carrier. In my situation with a virtual exam, it is purely to assess in this situation was to assess the nature of the symptoms and confirm the history and confirm the diagnosis. But it had no bearing on their ability to work or workers' compensation.

Q. You mentioned you took a neurologic exam.

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Can you tell me what you meant by that statement?

A. So I looked at eye movements. I looked for any evidence of weakness, particularly asymmetric weakness. These are sort of parts of the general neurologic exam that you can do remotely. And I looked at speech and language. So how articulate someone is and how they do with word finding, et cetera. And looked at their ability to walk and to walk in challenged situations such as heels and toes and what we call tandem gait.

So those are all sort of part and parcel of that general neurologic exam. And then more specifically, in both situations, I looked for what we call movements, dyskinesias dystonia. I looked for tremor. I looked for masked facial expression. I looked for voice volume. I looked for speed of movement.

And I looked at their ability to get up out of a seated position, at their ability to walk, and how their arm swing goes, and what the stance of their gait is, how many steps it takes to corner, and then stress gait, such as tandem gait.

I can't check rigidity, and I can't check postural instability unless they actually happen to

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falter during the exam. Those are the two things that I would add if I saw the patient in person.

Q. How long did you have a virtual visit with Mr. Welch?

A. I believe I -- oh, Mr. Welch. Okay. Hold on. I'm on Sparks right now. Sorry. 70 minutes.

Q. And how long did you have a virtual visit with Mr. Sparks?

A. Mr. Sparks was, I want to say, 50 minutes. I just recently pulled it up. Oh, here we are. I'm pretty sure it was 50 minutes, and it's -- I'm sure it's in the notes that I -- handwritten notes that I sent over, but I do not believe I've documented it in my statement.

Q. And is there a reason why Mr. Welch's exam was longer than Mr. Sparks?

A. Not any specific reason that I recall. I will say that Mr. Welch was not at home. When I did it, he was visiting his daughter over the Christmas holiday. So I think there was -- he wasn't using his usual computer. And so I think there was just a little bit more technical difficulty.

Q. Did anyone attend your virtual visit with Mr. Welch?

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A. His wife was there at the beginning because I think she wanted to help him connect because he wasn't used to the computer that they were on. But after that, she left.

Q. And was there anyone else?

A. No.

Q. No? Was counsel there?

A. No.

Q. And at Mr. Sparks' virtual visit was anyone else present?

A. No. He was on his own.

Q. And counsel wasn't at that one?

A. And counsel was not present.

Q. Typically, how long does your virtual visits like this last?

A. So a virtual visit to assess a patient probably lasts somewhere between 45 minutes and an hour and 15 minutes. A virtual visit where I examine a patient, take a history, and then educate them and suggest treatment usually takes at least an hour-and-a-half for a first patient -- first time visit. But I was not giving any advice on management or education.

Q. Did you talk to the treating physicians for

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Mr. Sparks?

A. No. I did not.

Q. And did you talk to the treating physicians for Mr. Welch?

A. No. I did not.

Q. Or did you communicate that --

A. And I did not communicate with them in any way.

Q. Do you have a standard set of questions you ask during a virtual visit?

A. I have some standard things that I ask about when symptoms started, et cetera. But from there the questions are tailored depending on the patient's response.

Q. What are the standard questions you ask?

A. What brought you in today? What's your most bothersome symptom? How long have you had it? Where do you notice it? Anything that makes it better or worse?

So, you know, basically, those are sort of the starting point for my history of present illness. And then from there, depending on the answers, they may generate more questions.

After I go through the history of present

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illness, then I will go to past medical history, and then I will go to medications. And from there I will go to social history, which will include, you know, what their support system is. Are they married? Are they working? Do they smoke? Do they drink alcohol? Is there illicit drug use?

Social determinants of health, are they able to afford their medications? Et cetera, and then family history. So that would be the questions I would be asking.

Q. Do you typically perform a differential diagnosis when conducting a virtual visit?

A. If I am asked if I'm seeing a patient to determine a diagnosis, I consider a differential diagnosis. Yes.

Q. Have you ever examined any other plaintiffs in this litigation besides Mr. Sparks and Mr. Welch?

MR. MICELI: Object to the form. To the extent she's done that, she would have been a consultant I don't think that's allowable. But I think I know the answer, so you can go ahead and answer the question.

THE WITNESS: No. I have not.

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BY MS. HURT:

Q. Okay. In your report you state that Mr. Sparks had substantial exposure to this contaminated water at Camp Lejeune, correct?

A. Correct.

Q. And you don't define substantial exposure in your report, correct?

A. Correct.

Q. And you don't quantify as a substantial exposure in your report, correct?

A. Correct.

Q. And you do not identify a threshold amount of exposure to TCE whereby an individual is guaranteed to develop Parkinson's disease, correct?

A. Correct.

MR. MICELI: Object to the form.

A. I don't think that that will ever be determined because each individual is different.

Q. Is any dose of TCE harmful?

MR. MICELI: Object to the form.

A. I don't think we have the answer to that question yet.

Q. You base your opinions in part on Dr. Reynolds' report of February 6, 2025, correct?

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A. Correct.

Q. And to the extent that you assert that exposure to contaminated water at Camp Lejeune caused Mr. Sparks and Mr. Welch's Parkinson's disease, is that opinion based on Dr. Reynolds' exposure calculation?

MR. MICELI: Object to the form.

A. In part based on that, also in part based on statistics from both articles as far as concentration of TCE and the water supplies that both gentlemen were exposed.

Q. And Dr. Reynolds dates for calculations of Mr. Sparks and Mr. Welch's cumulative exposures and contaminants consent data from Mr. Maslow's report, correct?

A. I don't have Dr. Reynolds' report in front of me right now, so I can't comment on that.

Q. Hypothetically, if Mr. Welch's data was incorrect, would Dr. Reynolds' calculations be impacted?

MR. MICELI: Object to the form.

A. I cannot comment on that. It's a very vague question. What's incorrect? I mean, it could be off by a fraction or --

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Q. That's fair. If Mr. Maslow's data was -- what would be enough for you to be -- scratch that -- come back to that. For example, if you could show actual concentrations were 15 percent lower than the values Mr. Maslow calculated, Dr. Reynolds' exposure calculations would be too high, correct?

MR. MICELI: Object to the form.

A. That would be up to Dr. Reynolds to answer.

Q. So you wouldn't be able to testify to that?

A. Correct. I relied on her data.

Q. If Dr. Reynolds' cumulative exposure numbers decrease, would that impact your opinions on causation, Mr. Sparks?

MR. MICELI: Object to the form; foundation.

A. It really depends on the magnitude. If she found if there was no exposure, that would change my opinion. Other than that, I don't think I can comment.

Q. So if there was any exposure above zero, it wouldn't change your opinion?

MR. MICELI: Object to the form.

A. I would have to review the data. I can't

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-- that would be speculative on my part.

Q. What threshold is enough for there to be causation?

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

A. I think that we don't know what is enough. In my view, 70 times the EPA standard is certainly enough.

Q. Are you aware of whether the total mass ingested is generally accepted in the field of toxicology?

MR. MICELI: Object to the form; foundation.

A. I'm not a toxicologist.

Q. So you couldn't speak to that?

A. So I could not speak to that.

Q. Are you aware of whether epidemiological studies apply the same exposure metrics that Dr. Reynolds did in her report for this case?

MR. MICELI: Object to the form; foundation.

A. I am not aware.

Q. And is that because you're not an epidemiologist?

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A. Or a toxicologist.

Q. Let's take a break.

THE VIDEOGRAPHER: Time on the monitor is 2:00. We're off the record.

(Brief recess.)

THE VIDEOGRAPHER: Time on the monitor is 2:16. Starting media 7. We're on the record.

BY MS. HURT:

Q. Okay. Dr. Schwarz, did you independently calculate the amount of TCE to which Mr. Sparks was exposed during his time at Camp Lejeune?

A. No. Those calculations were done by Dr. Reynolds.

Q. Okay. And the same is true for Mr. Welch?

A. Correct.

Q. Are you aware of whether the EPA uses maximum contaminant levels to evaluate potential risk to human health?

A. My understanding is that maximum MCLs are not used as causative. As I said before, they're like the canary in the coal mine. Anything above that has potential risk, and that's where toxicologists come in to determine toxic levels.

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Q. And are you aware of how the EPA establishes MCLs?

MR. MICELI: Object to the form; foundation.

A. No. I am not.

Q. Were you aware that MCLs are designed to be acceptable daily drinking water concentrations over a lifetime of exposure?

MR. MICELI: Object to the form; foundation.

A. I knew that MCL is related to prolonged exposure, but I can't say that I know the specifics. No.

Q. Are you aware of the health protective assumptions that go into determining an MCL?

MR. MICELI: Same objection; foundation.

A. I'm not an EPA.

Q. Were you aware that the EPA uses cumulative dose averaged over a lifetime?

MR. MICELI: Object to the form; foundation.

A. I've heard that, but I wouldn't know how to apply that in these cases. That's why I have

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toxicologists and Dr. Reynolds that I rely on.

Q. And exposure to drinking water -- contaminated drinking water and excess of an MCL does not necessarily constitute a health risk, right?

MR. MICELI: Object to the form; foundation.

A. I cannot answer that question.

Q. Are you aware of what a systematic review of epidemiological literature is?

A. I'm aware of what a systematic review is. Yes.

Q. How do you define systematic review?

A. So a systematic review does a literature search of pertinent articles that have been published and then collates that data as much as it can because oftentimes studies vary in how they're conducted.

So the data isn't necessarily equatable. And based on the quality of the studies that have been done, they then often draw a conclusion about the given subject that they're studying.

Q. And have you conducted any systematic reviews?

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A. I have not done any systematic reviews. I have reviewed systematic reviews in my role as a guideline developer at the American Academy of Neurology, so.

Q. And what do you look for when you review a systematic review?

A. A lot of what I just mentioned.

Q. Okay. And how would you distinguish a systematic review from other types of reviews?

A. Well, a systematic review basically collates the data. So a clinical review is often just a synopsis of what's known based on the authors of the study.

A systematic review actually takes all the data that's available, tries to collate it or compare it with each other, and then using statistical methods, determines whether there are conclusions that can be reached that are statistically significant.

Q. Are you familiar with the Bradford Hill criteria?

A. I know of the Bradford Hill. I don't think it's criteria, though. It's another C-word. Let me see what have I got here. So it isn't that, and I

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-- the reason I raised that point is that the Bradford Hill factors, you don't need all of them in order to reach a conclusion. So you don't have to check every box in order to have it meet the Bradford Hill. And I don't know if I've got it here.

Q. I think in your report, you say using the Bradford Hill framework?

A. Framework. Okay. Right.

Q. Did you apply the Bradford Hill framework to your report in this case?

A. I did not. I deferred to those who did.

Q. So you didn't perform any Bradford Hill analysis?

A. I did not.

Q. I'm trying to figure out where it was at on this page. Oh, I think I'm looking at the wrong --

MR. MICELI: 14 would be the references.

Q. So it's turning to Mr. Welch's report, Exhibit 4.

A. Okay.

Q. It says using the Bradford Hill framework.

MR. MICELI: So we're clear -- I

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want to make sure you're clear for the record on the Welch report page 14?

MS. HURT: Yeah.

MR. MICELI: Okay.

BY MS. HURT:

Q. At the bottom, it says "Using the Bradford Hill framework applied to the general causation experts like Dr. Cannon, Dr. De Miranda, Dr. Miller, Dr. Costa, and Dr. Blum." And then you put in parentheses, strength of association, consistency, temporality, biological gradient, plausibility, coherence, experimental evidence, and analogies; is that correct?

A. Correct.

Q. What are the items in the parentheses?

A. Those are aspects of the Bradford Hill framework or consensus.

Q. And sufficiency is one of those aspects, correct?

MR. MICELI: Object to the form.

A. I don't see specific --

Q. Yes. It's not listed. Specificity, I'm sorry.

A. I don't see that listed either.

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(EXHIBIT NO. 13 WAS MARKED FOR IDENTIFICATION.)

Q. Exhibit 13 is -- yes. "Environment and Disease: Association Or Causation," is the title by Sir Austin Bradford Hill. Have you seen this document before, Dr. Schwarz?

A. I have not.

Q. And then on page 297, at the top, it says "Specificity: One reason, needless to say, is the specificity of association, the third characteristic, which invariably we must consider. If as here, the association is limited to specific workers in particular sites and types of diseases and there is no association between the work and other modes of dying, then clearly there is a strong argument in favor of causation."

Is there a reason that you didn't put proficiency in your -- is there a reason you didn't put specificity in your report?

A. No. I think when I explored the aspects of the Bradford Hill framework or consensus, that didn't come up on the resource that I looked at.

Q. And what resource did you look at?

A. I actually suspect, but cannot tell you for

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sure, that it probably came from one of these causation experts.

Q. Okay. So had you heard of the Bradford Hill framework before this litigation?

A. No. I had not.

Q. I'm looking at Welch.

MR. MICELI: Are we done with the Hill article?

MS. HURT: Yeah.

BY MS. HURT:

Q. In Welch's report, you state that the evidence strongly supports a casual relationship -- causal relationship between TCE exposure and development of PD, correct?

A. I think so. Can you tell me where you're reading from.

A. I think it's on Page 14 to 15.

Q. Yeah. It's --

A. Okay. Yeah. The last sentence?

Q. Yeah.

A. Correct.

Q. You did not find that evidence strongly supports the causal relationship between PCE exposure and the development of PD, correct?

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A. I did not. I did not choose to comment on that. Correct.

Q. Why did you choose not to comment on that?

A. Because this case involves TCE exposure.

Q. Is PCE -- TCE is also another contaminant of concern in this litigation?

MR. MICELI: Object to the form; foundation.

A. There's also less scientific evidence regarding PCE. I think it's entirely likely that PCE will prove to be equally toxic, but my charge was to look at the data with regard to TCE.

Q. The Bradford Hill analysis that we just talked about, that's not used to determine the cause of someone's Parkinson's disease, correct?

A. It's used to prove not for a specific person, but it is used to support the argument of a toxin being related to the development of a disease.

Q. And then you've seen association found before Bradford Hill analysis is used, correct?

MR. MICELI: Object to the form; foundation. She said she hadn't heard of it before this.

A. So I -- yeah. I mean, I think that

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association is usually what drives the next steps. And if there was no evidence of association and had been looked for, we wouldn't be going through the Bradford Hill framework.

Q. Go ahead and look at Sparks on Page 3. Okay. So you referred to Parkinson's disease, and it says one understand -- "our understanding of Parkinson's disease has evolved significantly." Do you see where I'm at?

MR. MICELI: I don't --

THE WITNESS: Third paragraph.

MR. MICELI: Thank you.

BY MS. HURT:

Q. "Our understanding of the cause of Parkinson's disease has evolved significantly over the last 30 years. In the late 1990s, clusters of families with PD were identified resulting in identification of the first gene mutation associated with PD." Then you'd go on to talk about MPTP. And then -- here you go. This is where I'm at.

"Parkinson's disease was once called an idiopathic disease, one without a clear cause. But current research is now providing evidence through mechanistic and animal studies for the scientific

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conclusion that environmental factors can be causative in the development of Parkinson's disease."

When you say “once was referred to as idiopathic,” what do you mean there?

A. So I mean that, when in the 1980s when I was trained, idiopathic meant we have no idea what caused it. So cause was unknown. And currently, there are a number of things that we know are causative or significant risk factors for Parkinson's disease. So to say that the disease is idiopathic and we have no idea what causes it is no longer accurate.

Q. Do you define idiopathic as a disease without a clear cause?

A. I just define idiopathic as a disease without any known cause.

Q. So you wouldn't use idiopathic to say for if you didn't know a particular individual's cause of Parkinson's disease?

MR. MICELI: Object to the form.

A. I think it's a matter of semantics. Personally, I think a more accurate term is typical versus atypical Parkinson's disease.

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But idiopathic, I think, implies that we are clueless as to what causes Parkinson's disease, and we are no longer clueless. But we may not know what an individual whose individual's cause for Parkinson's disease is. We may not know in an individual the cause or causes of Parkinson's disease.

Q. But you wouldn't refer to that as idiopathic?

A. You can, but it gets misinterpreted a lot. And so that's why I just call it typical or of, you know, of uncertain cause.

Q. So can someone have atypical part -- I'm sorry. Let me rephrase that. Can someone have typical symptoms of Parkinson's disease and still not know the cause of their disease?

A. Yes.

Q. But you wouldn't refer to that as idiopathic or --

A. I think that the term can be confused, so I would -- I would just call it typical Parkinson's disease cause unidentified at this point.

Q. And do you use that in your practice? Do you use that phrase?

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A. I use typical Parkinson's disease, yeah, versus atypical.

Q. Okay. And typical and atypical I've normally heard that referred to as, like, typical symptoms versus atypical symptoms. But you're -- is that how you're using it here?

Typical, in a way, refers to a typical clinical presentation versus an atypical clinical presentation, correct?

A. Well, in a sense, it has to do with cause too because atypical Parkinson's disease often has different causes than typical.

Q. Can you give me an example?

A. So PSP is a tauopathy, T-A-U-O-P-A-T-H-Y. So it's mediated through tau protein, whereas typical Parkinson's disease is not a tauopathy.

Q. And would you say that Mr. Sparks' symptoms are typical for Parkinson's disease?

A. They are typical.

Q. And you would say that Mr. Welch's symptoms are typical for Parkinson's disease?

A. Yes. I believe they are both typical for Parkinson's disease. There will be others who would still use the term idiopathic. I just find it not

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particularly accurate in this day and age.

Q. I'm going to take another break.

A. Okay.

THE VIDEOGRAPHER: Off the record. Time on the monitor is 2:37.

(Brief recess.)

THE VIDEOGRAPHER: Time on the monitor is 2:47. This begins media 8. We're on the record.

BY MS. HURT:

Q. There's not a test to know any one cause of Parkinson's disease, correct?

A. Correct.

Q. Okay. And given the scientific literature, do we know all the causes of Parkinson's disease?

A. No.

Q. And if we -- given that, how can you conclude that TCE was the specific cause of Mr. Sparks' Parkinson's disease?

MR. MICELI: Object to the form; foundation.

A. I am not saying that TCE is the only cause of Mr. Sparks' Parkinson's disease, but I feel that it is as more likely than not with Mr. Sparks that

it is a significant factor in causing his Parkinson's disease. There may be others.

Q. And for Mr. Welch, how can you conclude that TCE was the specific cause of his Parkinson's disease?

MR. MICELI: Objection; foundation.

A. So, again, I feel that TCE is one thing that clearly increased his risk of Parkinson's disease by a factor, 50 percent likelihood. And that's based on my research and the toxicology studies, the epidemiology studies, and his exposure.

Q. You said 50 percent there. What did you mean?

A. As likely as not.

Q. Okay. Looking at the report for Mr. Sparks, your report distinguishes between potential causes of Parkinson's disease and causes of Parkinson's disease, correct?

A. Correct.

Q. What is the difference -- what is the potential cause of Parkinson's disease? What is the difference?

A. So the potential causes of Parkinson's disease, as the footnote indicates, is that these

are associations that have been found with Parkinson's disease, but the actual mechanism and the toxicology has not been worked out. That's only one of the three branches we're looking for causation.

Q. And the -- what are the three branches?

A. So epidemiology, which these potential causes have. Toxicology, looking at the toxic impact of these factors and mechanism.

Q. What does mechanism mean?

A. Mechanism means how can you, for instance, with traumatic brain injury, how can you show that that mechanism of TBI produces the changes that you see in the brain of people with Parkinson's disease.

Q. And so for TBI, which elements are missing?

A. We don't have a mechanism. And we don't have, in essence, a toxicology. Like, how much is enough to create an increased risk of Parkinson's disease. Plus, I will add that with TBI, even the epidemiologic data doesn't always agree. Some studies find there's association, and some studies find there is not.

Q. What's the difference between a risk factor and a cause of Parkinson's disease?

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A. So I liken it to, if someone tells you, you have Strep throat, you know the cause of that is Streptococcus bacteria. A risk factor is, for instance, smoking and lung cancer. So not everyone that smokes gets lung cancer, and not everyone with lung -- not everyone who has lung cancer has smoked.

So it increases your risk, but it doesn't mean that it definitely is going to cause that disease in every person. Whereas a Streptococcus infection in your throat will cause Strep throat in everybody.

Q. So how do you go from a risk factor to cause with Mr. Sparks?

MR. MICELI: Object --

A. So --

MR. MICELI: Excuse me. Object to the form.

A. So I equate the risk factor is as likely as not to cause this. Just like I would say if you were a smoker and you got lung cancer, it's as likely as not, or maybe more likely than not that the smoking was the cause of your lung cancer.

Q. Are the ones -- under potential causes of Parkinson's disease, you have traumatic brain

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injury, particulate matter and melanoma listed. Are there other potential causes of Parkinson's disease that are not listed here?

A. Yes, although the other ones, I think, have less evidence. And it's purely epidemiologic. So, for instance, male sex. So we know that Parkinson's disease is more common in men than in women, but that's an association.

But there are so many factors that may influence that, so that the XY chromosome may have absolutely nothing to do, and that's what defines male sex. With the development of Parkinson's, it may have to do that men are more exposed to toxins. So that I feel doesn't have -- there's so many other confounding variables that may account for that association.

There's an association with, for instance, diabetes and pre-diabetes, but there's no mechanism by which diabetes or pre-diabetes causes the pathology that you see in Parkinson's disease.

Q. Does the -- I don't know how to say this correctly. Does the -- is it neurological field? That's not right. Like the field of study that you're in, how would you say? The neurology, I

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guess.

A. Yeah.

Q. In the field of neurology, is there an agreed upon set of risk factors for Parkinson's disease?

A. It's ever evolving. I mean, if you had asked me how many genes caused Parkinson's disease 20 years ago, I would have said five, six. Now there's over a 100.

Q. And so for causes of Parkinson's disease, you have genetics, drug exposure, environmental exposures, correct?

A. Correct.

Q. And are there any other known causes, I guess, of Parkinson's disease?

A. There probably are, we just don't know them yet.

Q. And what makes TCE exposure a known cause versus a potential cause?

A. Because it has strong epidemiologic data, it has strong toxicology data, and mechanistically, it produces the changes that we see in Parkinson's disease. So it has all three.

Q. And how do you define strong?

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A. Meaning that the epidemiologic data, largely, with very few exceptions, shows an association between TCE and Parkinson's disease. The toxicology data in various animal models shows that the changes that occur in animal models in the brain are the same as what happens in Parkinson's.

And then looking at the mechanism of action of TCE, it is very similar to a number of known factors that cause Parkinson's disease. It's similar to MPP+, it's similar to LRRK2 gene mutation, and it causes the same microbiome changes and gut changes that we see in patients with Parkinson's disease. So everything points in one direction.

Q. So we were just talking about age -- so we were just talking about male sex. So you -- do you consider that to be a risk? You don't consider that to be a risk factor?

A. No, I consider that to be an association.

Q. Okay. And what's the difference between association and risk?

A. So an association means if you study a population and you find people with, say, Parkinson's disease and you find that there are more

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men than women, then you can say Parkinson's disease is associated with men more than it is with women.

Q. What studies show that the TCE mechanism is similar?

A. That, I'm going to refer you back to the toxicologists, I think, who have already been deposed. There are a number of studies in there.

Q. Is there any -- that's what you rely upon in that statement?

A. Yes. I don't examine brains.

Q. And then age. Do you consider that a risk factor?

A. I do not. It's a little like male sex. If you look at any given age, the older someone is, the higher the likelihood that they will develop Parkinson's disease. But for instance, you take the age of 75. So 2 to 5 percent of people who are 75 have Parkinson's disease. Why don't the other 95 percent? Age can't be the determining factor.

The other thing that I think is important about age is, you know, people have said, well, Parkinson's is, we know, is the fastest growing neurodegenerative disease in the world. There are more patients with Alzheimer's but the rate of

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increase is highest in Parkinson's disease. And people say, well, that's because the population is aging. But if you look at the rate of Alzheimer's disease corrected for age, it has been stable.

If you look at the rate of Parkinson's disease corrected for age, it has grown 22 percent. So something other than age is the factor here.

Q. So I guess earlier we talked about how Parkinson's disease -- you called it multifactorial, correct?

A. Correct.

Q. But right -- like I'm trying to understand this. So when you were talking about this just now, you were saying there's this dissociation, which kind of, to me sounded like a known cause, right?

MR. MICELI: Object to the form; foundation.

A. No. Association does not prove known cause. It would be like saying, because you're male, that means that you're -- because of the male chromosome, you're going to get Parkinson's disease. That's not true.

Q. But with a multifactorial disease, multiple things could contribute to someone developing

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Parkinson's disease, correct?

A. Correct.

Q. 14?

MR. MICELI: 14.

(EXHIBIT NO. 14 WAS MARKED FOR IDENTIFICATION.)

BY MS. HURT:

Q. Okay. Thank you. So Exhibit 14 is an article titled "Traumatic Brain Injury and the Development of Parkinsonism. Understanding Pathophysiology, Animal Models and Therapeutic Targets." The lead author on it, or the first one listed, is Padmakumar, and it's dated 2022. Dr. Schwarz, are you familiar with this article?

A. Yes, I am. I will have to review it because I haven't looked at it recently. But I did cite it in my --

Q. Okay. And then in the abstract, it says "There's a strong molecular association between the pathogenesis of traumatic brain injury and development of Parkinsonism in humans, has been well established." Do you agree with that statement?

A. I would say -- I would quibble with the fact, a strong molecular association. There is a

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molecular association. And I think the other thing to point out here is with traumatic brain injury. So traumatic brain injury runs a large spectrum.

And so are they talking about -- and in an abstract, you know, you synthesize things, but are they talking about severe TBI? Are they talking about mild TBI? I mean, it's a very broad, sweeping statement that I think probably requires more specifics and qualifications.

Q. So on to page 2, middle of the page, it says the strongest evidences for TBI cases. Do you see that? Lateral sclerosis is the beginning of the word in the line.

MR. MICELI: Okay.

BY MS. HURT:

Q. "The strongest evidence for TBI cases has been linked to the development of PD. A seminal study conducted by Gardner et al, in the year 2018 in military veterans reported a 56 percent increase in risk of developing PD for mild TBI and moderate to severe TBI, accounting for 83 percent. A recent study by Morissette reported that a single concussion escalates the risk of developing Parkinson's disease by 57 percent." Do you disagree

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with this statement?

MR. MICELI: Object to the form; foundation.

A. I don't object to what's quoted there, but it also fails to acknowledge other articles that I have in my discussion with Mr. Welch. So reference 51 for me showed no association between PD -- that's the Kenborg article, the Danish case control study.

Q. And so you --

A. So I'm saying that they quoted articles that support their theory, and that's sort of the nature of what we do when we write articles. But they fail to acknowledge that there are articles that show the opposite, that there's no association between traumatic brain injury and Parkinson's disease.

Q. Do you disagree with the study cited by this article when it says, Gardner, do you disagree with that study?

MR. MICELI: Object to the form.

A. I don't necessarily disagree with the fact that they quoted what was in that article, but what I would say is, unless I looked at that particular study to see how many people were included, what the

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statistical significance was, and the latency between TBI and the onset of PD.

I mean, I can't -- there's so many variables that can't -- that are not included in this statement. So I know that's what the study said, but -- and I actually quoted that study in my --

Q. In your report?

A. In my report. Actually, I probably quoted this study, let me just see if I quoted it.

Q. I think you -- I think it's one of the ones.

A. Yeah, no, I did quote.

Q. Yeah, you quote Gardner.

A. Gardner. Okay. Oh, yeah. 50 -- okay.

Q. After you quote those 56 percent, you -- let me read the whole sentence. You say some studies estimate that TBI increases the risk of Parkinson's disease by 56 percent. However, other epidemiological studies have shown no association between TBI and PD. And is that --

A. So we have a disagreement in study results. So it leaves one wondering whether there is an association or not. I do think that some of the

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data on potential mechanism is compelling, and we may well reach a point where we feel that it is definitely a potential cause, that it is actually a cause or a risk factor for Parkinson's disease. But I don't think it's there yet.

Q. And what is, like, the dividing line that would make you feel -- like what pushes it over the threshold that is now a risk factor? How do you know that that's the case?

MR. MICELI: Object to the form.

A. I would like to see more epidemiologic studies with closer evaluation of the severity of the TBI, the age of the TBI, and the latency between TBI and the onset of symptoms, as well as more pathologic or toxicology kind of data that would prove that actually what you create is the pathology that you see in Parkinson's disease.

So synuclein, alpha-synuclein deposition, neuroinflammation. You do see that in TBI, but I don't know that we've documented that there's alpha-synuclein deposition, I mean, the hallmarks pathologically of Parkinson's disease. And I'm not saying that we won't get there, but I don't think we're there yet.

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Q. Okay. So you list the potential causes of Parkinson's and the causes of Parkinson's disease. Do you have like -- do you weigh some of these more than others? Some of these risk factors?

A. And what do you mean, weigh them?

Q. Are some more likely to be the cause than others?

A. I think it depends on the individual. So I think that TBI is probably closer to being recognized as a true risk factor than particulate matter or melanoma.

Although, it depends on how research goes. I will say that I have a few people with repeated TBI that were boxers and their Parkinson's disease was not typical in any way. So I don't know that the pathology is actually going to be the same.

Q. When you say not typical there, what do you mean?

A. Not responsive to the usual medications, not associated with motor fluctuations as time progresses, early onset dementia, which is usually later onset in Parkinson's disease, typical Parkinson's disease.

Q. I'm going to turn to -- this is Exhibit 8.

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A. Exhibit 8.

MR. MICELI: Barbano report?

Q. Yeah. So on page 18 of the Barbano report for Mr. Peterson under head trauma, it says, "While there is an association between head trauma and Parkinson's disease, the risk increases with more severe head trauma and with multiple episodes of trauma." Did I read that correctly?

A. Yes.

Q. And Dr. Barbano stated that there was an association between head trauma and Parkinson's disease, correct?

A. I don't know. I wasn't there during his deposition.

Q. Well, the sentence says, "While there is an association between head trauma and Parkinson's disease."

A. Okay, yes.

Q. Do you disagree with Dr. Barbano?

A. I do. I think that the association is not with head trauma. It's with traumatic brain injury. Head trauma, it can run the spectrum. So it could be me bumping my head going out the door here. So I don't think that there is data to show that all head

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trauma is associated with Parkinson's disease.

Q. Going back to the Sparks' report.

MR. MICELI: We're done with Barbano for now?

MS. HURT: For now.

MR. MICELI: Okay.

BY MS. HURT:

Q. On page 10 in Sparks'. So on page 10 of Mr. Sparks under head trauma, you say, "Mr. Sparks has no history of head trauma and denies head injury." Did I read that correctly?

A. You did.

Q. In addition, the MRI of his brain showed no evidence of prior brain trauma, allowing me to rule out those risk factors of potential etiology. Did I read that correctly?

A. Correct.

(EXHIBIT NO. 15 WAS MARKED FOR IDENTIFICATION.)

Q. So Exhibit 15 is the National Archives and Record Administration file for Mr. Richard Sparks. The beginning bates number of the document is 00682_SPARKS_NARA_ with the bates number ending in 1. Have you seen this document before, Dr. Schwarz?

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A. No. I asked for these records, but I never received them.

Q. You never received Mr. Sparks' military records?

A. Well, I -- for instance, I'm looking at this one from the Naval Medical Center in Bethesda, and I asked for that and I never got it. So I saw summaries of it in other people's reports, but I never actually saw it.

Q. And when you said you asked for it, who did you ask for it from?

A. I asked counsel about it.

Q. Okay.

A. And they said that --

MR. MICELI: Do not discuss what you discussed with counsel.

A. Okay.

Q. Are there other records you asked about that you did not receive --

MR. MICELI: Object to the form. Do not answer the question.

MS. HURT: Can you -- are you going to instruct the witness not to answer.

MR. MICELI: I'm going to instruct

her not to answer. If you're asking did you ask for and did they say something, yes.

BY MS. HURT:

Q. No, that's not my question. My question is, are there other records you asked for that you did not receive?

A. Not that I know of.

Q. Okay.

MR. MICELI: This is 15.

Q. So I'm looking at the Bates number, end is 4. This is --

MR. MICELI: The one with the circle on it.

MS. HURT: Yeah. The one with the coffee stain.

BY MS. HURT:

Q. Do you see the page here?

A. Oh, yeah, there. Okay.

Q. And then about halfway down the page, it says "Two weeks prior to admission." Do you see that?

A. Yes.

Q. "Two weeks prior to the admission, the

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patient was riding with his girlfriend and another marine in a government vehicle. The patient claimed he became unaware of his surroundings and in that state was involved in a multi car accident, hitting two cars and a tree. After each of these episodes, the patient related that he had gone blank and had no conscious reason for his behavior at those times." Did I read that correctly?

A. Yes.

Q. And this is from November 16, 1973, is the clinical record I just read from, correct?

A. Correct.

Q. Would you consider this to be a head trauma?

MR. MICELI: Object to the form.

A. Without being there, it's hard for me to say. I mean, I don't know whether he hit his head from this description, I would have to rely on what -- if he sought medical care at that time, what that description was. I mean, this could be anything from drinking too much to having a small seizure or something like that. I mean, I just don't know what's written there.

Q. Did you -- have you seen Dr. Young's report

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for Mr. Sparks?

A. Yes, I have.

Q. And in his report, he talks about the IME he conducted, correct?

A. Correct.

Q. And he talks about how Mr. Sparks relayed to him that he hit his head and had stitches during the car accident, correct?

A. I believe so. I don't have that report in front of me right now, but that was the first I had heard about it.

Q. Okay. And is that why it's not mentioned in your report?

A. Correct.

MR. MICELI: Object to the form.

Q. A head injury that caused someone to go blank, would that be considered serious?

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

A. The question is, what's the chicken and what's the egg? Did he go blank and then have the accident or -- so I can't answer that.

Q. The more the severe the head trauma is, the greater the risk for Parkinson's disease?

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MR. MICELI: Object to the form.

A. There is some data that supports that.

Q. What is your opinion?

A. I think it is probably true.

Q. We can put this aside for right now. We're going to come back to it. See, I've already lost the page. Going back to the Sparks report on Page 4, talking about particulate matter. You say research suggests an association between air pollution, PM2.5, and Parkinson's disease, correct?

A. Correct.

Q. And you also state in your report on page 10, under environmental exposure. You also state that pollution, and specifically particulate matter, PM2.5, may increase the risk of Parkinson's disease, correct?

A. Correct.

(EXHIBIT NO. 16 WAS MARKED FOR IDENTIFICATION.)

Q. So what I just introduced as Exhibit 16, this is the deposition transcript of Mr. Richard Sparks. And this litigation is dated January 26, 2024. Dr. Schwarz, have you seen this deposition transcript before?

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A. Yes, I have.

Q. So I'm going to go to Page 75 line -- We'll start at line 20. Do you see where that's at?

A. Uh-huh.

Q. Question: And were you around any chemicals or solvents?

Answer: We also work the cargo facilities. It's one of the largest land border cargo facilities in the United States. So we had a lot of trucks and a lot of rail traffic.

Did I read that correctly?

A. Correct.

Q. Would you expect there to be car exhaust fumes in an area that had a lot of vehicle traffic?

MR. MICELI: Object to the form.

A. I mean, it depends. My understanding was that he worked in a cargo facility, which means that these trucks, et cetera, are stopped and trains are stopped so that they can go in and check it. So if they're stopped, then there wouldn't probably be much diesel exposure.

Q. And did you account for this in your report?

A. I didn't feel it was significant.

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Q. And you don't feel it's significant because?

A. Because I didn't -- when I asked him about exposure to diesel fumes, he said, I never had any significant exposure, so, and he was the one that was doing the job.

Q. And did you define significant exposure for Mr. Sparks?

A. Were you around a lot of diesel fumes.

Q. And he said no?

A. Yeah.

Q. Did you ask during the IME for Mr. Sparks if trucks were stopped? Or I guess, let me rephrase that question. Did you ask during your virtual visit with Mr. Sparks if the trucks were stopped?

A. I think he described it to me. Let's see. Okay. I don't have it documented here, so I can't say.

Q. Can you completely rule out environmental exposures such as air pollution as a potential risk factor for Mr. Sparks' Parkinson's disease?

MR. MICELI: Object to the form.

A. As I put in my report, air pollution at this point is an association, but not a clear cause.

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And because 92 percent of the world lives in areas where PM2.5 is above WHO recommendations, trying to make that association is going to be quite difficult.

Q. And can you explain to me what you mean by above, like, how that -- how the WHO standards relate to what you just -- like, why that makes a difference?

A. Well, I can't explain to you how the WHO came up with a standard for 2.5, what is high. But basically what I'm saying is that most of us live in areas where the PM2.5 level is higher than what's recommended by the WHO.

So trying to determine why only a small percentage of us get Parkinson's disease if we're all exposed to the same risk is going to be challenging. And it doesn't mean that it can't be done. But it hasn't been done.

Q. Mr. Sparks has been diagnosed with obstructive sleep apnea, correct?

A. Correct.

Q. And Mr. Sparks was prescribed a CPAP machine, correct?

A. Correct.

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Q. But Mr. Sparks doesn't use the CPAP machine, correct?

A. Let me go back and read. I think that you are right on that, but --

Q. We can also look at the deposition transcript if that would be helpful.

A. Do you know what page that's on?

Q. Yes. On Page 129.

A. Okay.

Q. At line 14.

MR. MICELI: 129. 14?

Q. Yeah.

Question: When did you stop using the CPAP?

Answer: After the first night.

Question: So you only used it once?

Answer: Yeah.

A. Yes. So it does appear that he is not using it.

Q. And obstructive sleep apnea can lead to dopaminergic neuron cell degeneration, correct?

MR. MICELI: Object to the form; foundation.

A. I have -- I know that there's an

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association. I've not heard about there's a change in dopaminergic levels.

Q. Do you consider obstructive sleep apnea to be a risk factor for Parkinson's disease?

A. I think it's bidirectional. So in the sense that some people develop obstructive sleep apnea before they develop Parkinson's disease, but 40 percent of people develop OSA after they are diagnosed with obstructive sleep apnea.

And if I'm not mistaken. Let's see. I don't know when he was diagnosed, so. But I know that he was diagnosed, yeah 2014, 2015. Which was after he was diagnosed with Parkinson's disease.

Q. So you -- I can't remember what you said. You said you didn't know whether or not sleep apnea can lead to dopaminergic neuron cell degeneration, correct?

A. Correct.

Q. If it did lead to dopaminergic neuron cell degeneration, would not using a CPAP machine make your Parkinson's worse?

MR. MICELI: Object to the form; foundation.

A. I would have to look at the data.

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Q. Okay. Does dopaminergic neuron cell degeneration, how does that relate to Parkinson's disease?

A. So dopamine neurons die and drop out in Parkinson's disease. So that's one of the changes that occur in the brain. Not the only one.

Q. Did you consider this when reaching your opinion on Mr. Sparks?

A. I considered that his sleep apnea was probably a result of his Parkinson's disease and loss of muscle tone at night when he sleeps, so his airway collapses. So I didn't consider it causative.

Could it have made it worse? Possibly. I don't know. There are no studies that I know of that have shown a different rate of progression in Parkinson's disease in people who have obstructive sleep apnea who use CPAP versus those who don't use CPAP.

Q. I'm going to the Welch Report Exhibit 4.

A. Page 4?

Q. No, it's Exhibit 4.

A. Oh, okay. Okay.

Q. It is also on page 4. You state

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environmental factors play a substantial role in the development of Parkinson's disease, correct?

A. Can you show me where that is? Yeah, I think I probably do, but I'm not readily seeing it.

MR. MICELI: It's the end of the second sentence.

THE WITNESS: Oh, the top of the page?

MR. MICELI: Yeah, it starts -- Sentence starts. Parkinson's disease was once called --

THE WITNESS: Okay, thank you.

MR. MICELI: You can read down to about the fifth line.

BY MS. HURT:

Q. Yeah, so yeah.

A. Correct.

Q. How do you define substantial here?

A. Meaning that it's more than 50 percent likely to be a causative factor. So more likely than not.

Q. And environmental factors is that -- that's not exclusive to TCE, correct?

A. Correct. So the environmental factors that

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I list here were exposure to pesticides, heavy metals, cleaning chemicals and solvents.

Q. Okay. I'm going to compare this to Mr. Sparks' report.

MR. MICELI: It's on Page 3, middle of the second, first -- second full paragraph, I think, is what you're looking for.

THE WITNESS: Okay.

BY MS. HURT:

Q. Thank you. So here you write, "Parkinson's disease was once called an idiopathic disease. But current research is now providing evidence through mechanistic and animal studies for the scientific conclusion that environmental factors can be causative in the development of PD." So in the Welch report, you use the word substantial. There we go. And in Sparks you just say causative. Is there a reason why you use different terms of art here?

A. Not that I can think of.

Q. So to you, the two sentences mean the same thing?

A. Yes.

Q. Do you know why you would have used one

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word choice and not the other?

A. I don't.

Q. Okay. Let's take a break.

THE VIDEOGRAPHER: Time on the monitor is 3:36. We're off the record.

(Brief recess.)

THE VIDEOGRAPHER: Time on the monitor is 3:49. This begins media 9. We're on the record.

Q. Do you have an opinion on Mr. Welch's life expectancy?

A. I can quote you data on average life expectancy for people with his age and Parkinson's disease. So the data would suggest that -- so at age 75, the average life expectancy is five more years with people with Parkinson's disease.

So he's already at 80. So he also has some other comorbidities. So I would expect it's likely that he will pass within the next five years. But I'm not clairvoyant.

Q. And what data are you relying on for the five years after 75?

A. Is it reference 91?

MR. MICELI: This is Sparks or

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Welch?

THE WITNESS: This is --

MS. HURT: Welch.

MR. MICELI: Welch, okay.

THE WITNESS: Let me make sure I do have -- because I used the same reference for both of them.

MR. MICELI: But is it the same number?

THE WITNESS: Yeah, that's right. That's why I'm looking. So I was in Welch. So 91.

BY MS. HURT:

Q. The elephant in the room?

A. Yeah.

Q. The elephant in the room, critical reflections on mortality rates among individuals with Parkinson's. And is that the only thing that you're relying on for that statement?

A. That's the most up to date one I could find, yeah.

Q. You conducted an interview with Mr. Welch in December of 2024, correct?

A. Correct.

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Q. And during the interview you questioned Mr. Welch on his activities of daily living, correct?

A. Correct.

Q. Did Mr. Welch report any difficulties with activities of daily living not listed in your report?

A. I think that I listed everything that he told me.

Q. Are there any difficulties with Mr. Welch's daily living that you do not attribute to Parkinson's disease?

A. Now, all of his symptoms, I think are attributable to either motor or non-motor symptoms of Parkinson's disease.

Q. Are there any of Mr. Welch's difficulties with daily living attributable to his injury sustained while serving in the Marine Corps?

MR. MICELI: Object to the form.

A. I asked him specifically about daily, activities of daily living that I know are impacted by Parkinson's disease.

Q. Okay.

A. So I think it was a targeted questioning. I, for instance, didn't ask him if he plays golf or

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if he -- you know, things like that. So those things may be impacted because he does have orthopedic issues related to his VA or to his service in the armed forces.

Q. Okay. So I don't know if this is in both reports or if it's only in Sparks.

MR. MICELI: Oh, it's not a new exhibit?

MS. HURT: No, I'm trying to find it in my stack of papers. Page 11.

THE WITNESS: In Sparks?

BY MS. HURT:

Q. Yeah. The second paragraph. Okay. It says "This constitutes a substantial exposure. This opinion is based on: One, the amount of exposure, the levels of chemicals in the water and how often Mr. Sparks was consuming the water. Two, the duration of the exposure. Three, the intensity of the exposure as shown by ATSDR water modeling data and other data is the levels of chemicals in the water and the frequency, before the frequency Mr. Sparks was exposed and his day-to-day life at Camp Lejeune." Did I read that correctly?

A. That's correct.

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Q. You say as shown by ATSDR's water modeling data and other data. What do you mean by other data here?

A. Other data is the exposure data that Dr. Reynolds did. So if you look at, I think the next chart, I think that that data has different ATSDR and models that Dr. Reynolds used. But you would have to ask her about that specifically.

Q. Okay. And the same thing applies to Mr. Welch's report, correct?

A. Correct.

Q. On Page 11 you also state, "I was able to determine that Mr. Sparks had substantial exposure just to, based upon the records at issue, Mr. Sparks deposition and the ATSDR water modeling report." Did I read that correctly?

A. That's correct.

Q. What do you mean the records at issue?

A. So the records at issue have to do with when I questioned him about his water consumption and exposure and then of the amount of water exposure and ingestion that he testified to in his deposition.

Q. But you earlier testified that you're not a

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toxicologist, correct?

A. Correct. But I think he consistently shared the volume of water that he consumed.

Q. And do you -- with Mr. Sparks, he testified that he drank about one liter of water a day. How is knowing that, affect enough for you to determine that there is substantial exposure?

A. Well, he --

MR. MICELI: Excuse me. Object to the form and foundation.

A. And also, he may have drunk one liter of water a day, but he drank a lot of coffee, too, which was made with water. And warmer -- TCE in warmer liquids actually has -- it seems to have a greater impact, so. But I'm trying to find here when he --

Q. Are you looking for the one liter or?

A. Yeah, I --

Q. That's in the transcript.

A. Yes. And I think if you look at the handwritten notes that I have from that visit, it will have more specifics in it than what I wrote in this report.

Q. Okay. But you didn't do any independent --

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I just, I guess -- let me start over. So did you do an independent assessment? Because you're saying here that you relied upon the general causation experts and Dr. Reynolds, but that you were also able to determine independently that Mr. Sparks had substantial exposure. Am I correct in understanding that's what you're saying there?

A. What I'm saying is that he told me the same amount of water consumption and bathing that is in his deposition.

Q. Okay. So you just verify that the numbers that they used matched his deposition testimony?

A. Absolutely.

Q. You didn't calculate?

A. I did not calculate concentration or total consumption.

Q. And the same thing would apply for Mr. Welch?

A. Correct.

Q. Okay. The big document, the military records, so we're on, it's going to be page 17. What that looks like is the record of service.

MR. MICELI: 0017?

MS. HURT: Yes.

HEIDI SCHWARZ, MD, FAAN by MS. HURT

THE WITNESS: Okay. Yeah, got it.

BY MS. HURT:

Q. And have you seen the record of service?

A. I think I have seen this.

Q. Okay. And you would agree that Mr. Sparks was at Camp Lejeune from March 25, 1974 to May 30, 1975, correct?

A. Let me -- Yeah. Yep, yep. March 25, '74 to May 30, '75. Correct.

Q. And Mr. Sparks didn't live on the base the entire time he was stationed at Camp Lejeune, correct?

A. Correct.

Q. In fact, he only lived on base for a couple of weeks before he moved into off base apartments, correct?

A. Correct.

(EXHIBIT NO. 17 WAS MARKED FOR IDENTIFICATION.)

Q. I'm going to -- I didn't put that up. So, Exhibit 17 is Plaintiff, Richard Sparks' response to defendant's second set of requests for admission. And it's dated July 31, 2024. Have you seen this document before today, Dr. Schwarz?

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A. No.

Q. Okay. I'm going to represent to you that these are statements the United States sent in written form to Mr. Sparks and which we ask Mr. Sparks to admit or deny. And Mr. Sparks written responses are included under the question.

A. Okay.

Q. Can you turn to question 26. It says, "Admit that you did not reside at the United States Marine Corps Base Camp Lejeune after April 1974? Response: Admit." Did I read that correctly?

A. Yes.

Q. Wouldn't you agree that someone who lived on base for less than 30 days would have less exposure than someone who lived on base for 12 months?

MR. MICELI: Object to the form.

A. I defer to the exposure experts on that, including Dr. Reynolds. But I think it depends on what water supply they're using, et cetera.

MR. MICELI: This was Exhibit 17?

THE WITNESS: Yes. That's what I got here.

(EXHIBIT NO. 18 WAS MARKED FOR

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IDENTIFICATION.)

BY MS. HURT:

Q. Exhibit 18. It starts with the Bates number PLG-EXPERT_REYNOLDS_ ending in 22. These are Dr. Reynolds Parkinson's exposure timeline. Dr. Schwarz, have you seen this document before today?

A. Well, I'm pretty sure I haven't seen McElhiney or Peterson.

Q. Have you seen --

A. Or Rothschild.

Q. The one ending in 26 for Sparks?

A. I am not sure if I have seen this or not. I suspect I have because I have Dr. Brown's report.

Q. Looking under on Page 26 for Sparks. Looking under housing location. The housing location listed for Mr. Sparks is Engineering Support Command, 2nd Engineering Battalion and 2nd Marine Division. And it has the start date as 3/25/1974. And has the end -- the period end, the very period end is May 30, 1975. Dr. Reynolds doesn't show here that Mr. Sparks lived off base, correct?

A. Correct.

Q. Were you aware that Dr. Reynolds' exposure

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calculations were based upon Mr. Sparks living on base?

MR. MICELI: Object to the form of question.

A. You would have to ask Dr. Reynolds that.

Q. But you weren't aware of it?

MR. MICELI: Object to the form.

A. I was not aware of that, no.

MR. MICELI: Under the day late dollar short objection, I'll object foundationally as well.

Q. Given this, isn't it accurate to say that Dr. Reynolds' exposure calculations are inflated?

MR. MICELI: Object to the form of the question; foundation.

A. You need to ask Dr. Reynolds that.

Q. And then would you agree that Mr. Sparks is not an attorney?

MR. MICELI: Object to the form of the question; foundation.

A. Mr. Sparks is not an attorney.

Q. Okay. So on under unit for Mr. Sparks, it was Naval Justice School in line two down. Do you see that?

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A. Uh-huh.

Q. I'll represent to you that Mr. Sparks was never at the Naval Justice School. Were you aware that Dr. Reynolds made this mistake?

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

A. I'm not sure. I mean, it also says on leave. So whether he was on leave, I don't know.

Q. And do you think it's possible if there are these errors, there could be other errors in Dr. Reynolds' assessment?

MR. MICELI: Object to the form; foundation.

A. I'm not convinced there are errors, so.

Q. I'm going to take one more break.

MR. MICELI: Okay.

Q. And then depending on if I have, I might have a couple of more questions, but then --

MR. MICELI: Okay.

THE VIDEOGRAPHER: Time on the monitor is 4:07. We're off the record.

(Brief recess.)

THE VIDEOGRAPHER: Time on the monitor is 4:17. This begins media 10.

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We're on the record.

Q. So we're going to go back to Exhibit 2. This was in your notice of deposition.

So I'm going to looking at Attachment A, would be Page 2, let's get to attachment A. Question number two. It says "All emails, letters, correspondence, text messages, conversations, chats, voicemails, data, technical files or other communication and notes taken in relation to such communications pertaining to:"

"One, Camp Lejeune. Two, plaintiff Richard Sparks. Three, plaintiff Richard -- Robert Welch. Four, Trichloroethylene. Five, Perchloroethylene. Six, Benzene. Seven, Vinyl Chloride. Eight, Trans-1,2-Dichloroethylene. Nine, Parkinson's disease and/or risk factors for Parkinson's disease. 10, idiopathy of Parkinson's disease. "

"11, potential causes of Parkinson's disease. 12, any other topics covered in your expert report and 13, any other topics covered in your expert report, including but not limiting to those with, to or from any of the following:"

"A, Robert Fay. B, Jason Sautner. C, Rene Suarez-Soto. D, Susan Martel. E, Scott Williams.

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F, Frank Bove. G, Mike Partain. H, Jerry Ensminger. I, Lori Freshwater. J, Paul Rosenfeld. K, Samuel Goldman. L, Ray Dorsey. M, Maureen Welch. N, Edward Markus. O, Carolyn Neff. P, Jeff David Tracy. Q, Amir Besharat. R, Maria Sparks. S, Christopher Lewis. T, Barrie Schmitt. U, Maureen Leehey. V, Christen Epstein. W, Sabina Schickli. X, Trevor Hawkins. Y, Edgar Peterson. Z, Gary McElhiney. AA, Diana Rothschild. BB, Richard Sparks. CC, Robert Welch. DD, any family member, employer or medical provider for Richard Sparks or EE, any family member, employer or medical provider for Robert Welch."

Did I read that correctly?

A. Yes.

Q. Do you have any communications with Dr. Dorsey on these topics?

MR. MICELI: Object to the form.

A. I --

MR. MICELI: Excuse me. The form objection is as to, you're referring to only these means of communications. As it's stated in number two.

Q. As it's stated in number two, those means

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of communication and those topics.

A. I don't.

Q. You don't have any, even before your retainment?

A. Not that I maintained.

Q. And when you say not maintained, what do you mean?

A. There -- when we were doing editing on the article, it went out to a LISTSERV and if we had comments, we could put that in. And then it got sent back to Megan who was doing most of the sort of editing of the article. So I don't have anything that I maintained from that.

Q. And do you have any communications with Dr. Goodman on these topics?

A. No. I mean, Oh, Goldman you mean?

Q. Goldman. Sorry.

A. Yeah. I was going to say --

MR. MICELI: If we don't ever talk to Dr. Goodman.

A. Well, if it's a Dr. Goodman it's strong. But that --

Q. No.

A. He doesn't have anything to do with this.

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No, I've never actually communicated with Dr. Goldman.

Q. Okay. I don't have any other questions.

EXAMINATION

BY MR. MICELI:

Q. Okay. I'm going to have a few and because you gave me the heads up, I'm going to go ahead and just do them straight from here. I'm going to go sort of in the order that I have my notes, but I'm going to ask a few sort of preparatory items first. Let me get my exhibits.

First of all, Dr. Schwarz, thank you for your time today. For the purposes of whoever may see, read or see excerpts of this deposition in video form or written form, could you please describe for us your educational background starting with college and bringing us through your formal training as a neurologist and a movement specialist, a movement disorder specialist?

A. I attended college at Mount Holyoke College in South Hadley, Massachusetts starting in 1975, graduating in '79. I did a year, my junior year at Cornell in engineering, chemical engineering. I graduated magna cum laude in chemistry after

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performing research in chemistry and from there I entered University of Rochester Medical School in the fall of 1979.

I graduated from medical school in 1983 from University of Rochester where I was AOA and had the American Medical Women's Association award. And then from there I started an internal medicine residency program at the University of Rochester. I did that for two years and then decided to become a neurologist.

So I switched to the neurology residency program at the University of Rochester and served as chief resident there. Subsequently I did a fellowship in movement disorders under the tutelage of Ira Shoulson who was a recognized expert in the field of both Huntington's disease and Parkinson's disease and lead author in what we call the, DATATOP Study, which was the first study to look at potential disease modifying therapies in Parkinson's disease.

So I helped with that study, but on my own I did research along with Dr. Don Gasch in MPTP induced Parkinsonism in primates as well as doing some rodent research.

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And after that I went out into private practice for 13 years in the Finger Lakes region where I continued to see most of the movement disorder patients in our collective practice of four people. And I continued to teach at the university staffing the VA clinic in Canandaigua, New York.

And then after 13 years I went back to the University of Rochester and started the division of Highland Neurology at Highland Hospital. And I set up a stroke center there. And from there I became involved with the American Academy of Neurology and the Practice Committee and eventually ended up chair of the Practice Committee supervising guideline development and quality measure development.

And I sat on the board of the American Academy of neurology, which represents 15,000 neurologists in the United States. I also served as co-chair of the Burnout Workgroup which remains a big topic in medicine for the American Academy of Neurology.

And I continued my involvement with them. I still am a member and I'm a fellow of the American Academy of Neurology. Subsequently, I left University of Rochester in 2010 related to

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leadership change. And I went to the Unity Health Service which is now part of Rochester Regional.

And it was there that I got my certification in headache medicine based on my extensive experience in headache medicine and recommendations of other headache medicine certified doctors. And then I ended up, after about a four or five month hiatus due to my dad's health, I came back to the University of Rochester and helped develop their first headache center.

And I have been there since then. Throughout all of this time I've served as the AOA counselor for the medical school. I have taught medical students since 1999 or 2000 when I went back to the University of Rochester.

I've subsequently taught neurology residents, neurology fellows and have mentored a number of junior faculty members. In addition to that -- I'm trying to think of all of the things I've done. I've done a number of community events.

I have become involved with editing for DynaMed, which is an organization that produces educational material for any healthcare provider that pays for the subscription and it covers a

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multitude of medical subjects. I am focused as a topic editor for General Neurology and so I usually work with the staff there on four or five topics a year, whether they're new topics or revision of topics, which includes reviewing data literature, verifying the quality of the studies that are being used and the conclusions that are being made.

Then I do a number of volunteer things right now for the medical school, including teaching, interviewing for the first year medical students, reviewing their ability to perform a physical exam and a neurologic exam. And I help to lead brain health workshops in underprivileged communities in Rochester where access to healthcare is very limited.

Q. I want to ask what you do in your spare time, but I'm afraid there isn't any.

A. No, I actually manage an 80-acre hardwood forest in the southern tier.

Q. Yeah. After my own heart. When you say AOA, do you mean the American Academy of Neurology?

A. I mean Alpha Omega Alpha.

Q. Okay. What is that?

A. So Alpha Omega Alpha is sort of like the

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Phi Beta Kappa of undergraduate. It's an honor society.

Q. Okay. Phi Beta or AOA is to medical school. What Phi Beta Kappa is to --

A. Is to undergraduate.

Q. Okay. I want to follow up on just a few things. Just because the people who read this or watch this won't know what, like, the Finger Lakes District is. What does that mean?

A. So the Finger Lakes are, I think, nine small lakes between, say, Buffalo or Batavia, west to about Rome, New York, but south of there.

Q. Okay. Is this in the greater Rochester Buffalo area?

A. No, because it really goes further west than that.

Q. Okay. But it's -- how many hospitals or how many clinics are in that area?

A. So in my Finger Lakes practice, we covered four hospitals.

Q. Okay. And then there's something else I needed to follow up with you on. And you said during your years of private practice in the Finger Lakes District, you also remained active in teaching

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at the University of Rochester Medical School?

A. I did. I did. There was a -- there is a VA in Canandaigua, New York, which is where one of the hospitals that we service and actually where I live. And so I would staff the outpatient neurology clinic with neurology residents. And I did that for about five years.

Q. Okay.

A. Until the VA stopped paying.

Q. Well, that's what I wanted. Canandaigua VA is a VA hospital in that area?

A. Correct.

Q. Okay. And then you said you sat on the board for the American Academy of Neurology. What is the American Academy of Neurology?

A. The American Academy of neurology represents about 13,000 -- 13, to 15,000 it's growing, neurologists mainly in the United States and Canada, but there are members that are from other foreign countries, South America, Europe.

And under my tutelage, we have also added advanced practice providers. So that was an initiative that I initiated, that I started at the American Academy of Neurology.

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Q. Okay. And your other involvement in the American Academy of Neurology, you said included -- I tried to write this. Can't read my own handwriting from five minutes ago. Was it treatment guidelines?

A. Yes. So I was on the Practice Committee, and the Practice Committee was responsible for developing and revising practice parameters, practice guidelines, and then also for developing quality measures.

And currently, reimbursement through Medicare is linked to fulfilling quality measures. So our academy felt it was essential that they determine what the quality measures were for various neurologic diseases rather than letting somebody else dictate to us. So that's --

Q. Okay. So the guidelines and the practice guidelines you were helping develop --

A. Correct.

Q. Those were for neurologists in this 13,000 to 15,000 member organization?

A. Correct.

Q. Okay. And are those the same types of guidelines that when you were talking about your

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volunteering at the medical school and teaching interview techniques, is that what you were doing with the residents?

A. Well, the residents -- in fact, the general public has access to our guidelines, and there's always a patient page, so anybody can refer those.

What I do with the residents, of course, involves applying some of that, but also my clinical experience. I mean, just two days ago, I was on our e-record system, counseling residents about patients we've seen together and their diagnosis, including one with an atypical Parkinson's disease, so.

Q. Okay. And you said you were doing that just the other day?

A. Yeah, just on Sunday.

Q. That gives us a good segue into something you did speak with Ms. Hurt about. You had said that your work is an expert witness. Now, first of all, you were shown two invoices today, correct?

A. Correct.

Q. And one of them was close to $40,000?

A. Actually 50 if you add the two together. I was wrong. Off by about 10,000.

Q. I was getting there. The second one hasn't

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been paid yet, right?

A. The second one has not been paid.

Q. Okay. And you have time since your submission in June of that second one, correct?

A. More hours. Correct. So that's why when I said in the deposition that -- and I totaled it up last night, shy of today's activities, close to 100 hours.

Q. Okay. So and your rate is?

A. $650.

Q. Okay. So somewhere around $65,000?

A. Yeah, yep.

Q. All right. And so when you spoke earlier with Ms. Hurt about how much money you earn through consulting as an expert, like you are in this case, you said it was somewhere in the 40 to 50 percent range of your income?

A. Correct.

Q. What is your earned income -- how is your earned income generated from the University of Rochester currently?

A. So my earned income from the University of Rochester is based solely on staffing the resident clinic, which is $600 for a half day. So when I

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look at last year, before I was involved in this litigation, I earned maybe 15,000.

Q. From Rochester?

A. From Rochester.

Q. And so about 15,000 from doing expert consulting work?

A. Exactly, exactly. And from doing my editing work for DynaMed.

Q. Okay. And so when you say you make 50 percent of your income doing expert work, you're no longer a full time practicing neurologist making whatever that profession makes?

A. Right. Correct.

Q. Okay. I just wanted to make sure we weren't putting out a false --

A. Over inflating.

Q. Over inflating what you earn from this type of work. Now, I want to talk to you a little bit about something. The rest of what I'm going to talk to you about is going to be things or topics that you discussed with Ms. Hurt.

One of the things she spoke with you about a few times throughout this deposition is how you conduct a literature search. And you explained

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search terms earlier. Do you remember that?

A. Correct.

Q. Okay. And then could you explain to us how you go from your initial search to the information that you find on a materials considered list?

A. I put in the search words, which generates a list of references. Some of these references are immediately discounted by me because they're from Medline or they're from WebMD or things like that, that I just -- unless they have a reference within them to an actual article, I don't feel that they are the quality that is needed for an expert witness report.

And then others actually seem pertinent. So then I will click on the link and I will start by reading the abstract. And if the abstract has a small sample size or isn't a blinded study or really has issues with study design, I usually discount it. Like if it has -- it studies only Koreans between the age of 20 and 30 or something like that, that's not applicable to what I'm doing here.

So I basically funnel down until I find articles that are representative of the population that I feel I'm interested in and have well designed

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studies and are not subject to commercial bias, which I'm very sensitive to because of my time at the academy.

Q. When you say commercial bias, do you refer to funding?

A. Funding, yes.

Q. Okay.

A. As well, and funding isn't necessarily from a pharmaceutical company, is not necessarily bad as long as they have absolutely no control over the way the study is run and the way the data is processed. But as soon as they step into that arena, for me, that discounts the study.

Q. Okay. You use the term funneling. And so is your search like a funnel where you look at broad first and you get more narrow as you come to your topic?

A. Right. I mean, I have a plethora of different references. And then I funnel down to those that I think are legitimate and helpful in looking at the question that I have.

Q. Okay. Now, you mentioned earlier that you reviewed Dr. Lipscomb, one of the defendants DOJ's expert's deposition.

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A. Correct.

Q. But you didn't look at his report, right?

A. I did not.

Q. Did you see in his deposition that in fact I discussed his report with him?

A. Yes.

Q. Okay. And I'll leave that where it is. I do want to look at one, but I think -- I don't think I pulled this one out. But it was your web page that you're --

A. Yeah.

Q. That you were shown. I hope it's in here. I may have to --

A. I'm sure I have it here somewhere.

Q. You have it?

A. It was just humorous.

Q. I can find it. I believe it's -- it would be --

A. Maybe that's why people look for me on LinkedIn.

Q. It would be Exhibit No. 9. Here we are. Did you find it?

A. I will. Can't be too much left.

Q. Right there. It's on -- I see it.

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A. Oh, yeah, yeah, yeah. I see it too. Thank you.

Q. I just want to clear some things up because you were shown this in question about some of the summarized areas of expertise or areas of interest for you. Did you have anything to do with writing this?

A. No.

Q. Okay. You do have some expertise in headache medicine?

A. Oh, I do, yes.

Q. And would it be a fair statement to say that you have expertise in Parkinson's disease?

A. Yes.

Q. And that you have sub-particularized expertise in telemedicine and Parkinson's disease?

A. Correct.

Q. So was the conversation you had or conversations or virtual visits that you had with Mr. Sparks or Mr. Welch the first time that you have ever performed a virtual visit with a patient or somebody whose case you were reviewing?

A. No.

MS. HURT: Objection to form.

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Q. Okay. You've done that in the past?

A. I have done that multiple times in the past.

Q. Okay. When you say "multiple times," can you give the court some understanding?

A. Well, are we talking about just Parkinson's disease?

Q. Well, let's start with just any telemedicine visit.

A. Well, you know, you ask that question now after the pandemic. Although I was doing it before the pandemic, but I think between my work with the residents and my work in the office during the pandemic, and there was a period of time after May 2020 where I couldn't come into the office because of immune issues. So I probably have done 300.

Q. Okay. I just want to make sure these weren't your first ones?

A. No, this was not my first rodeo.

Q. Okay. All right. And you talked briefly just a moment ago about your DynaMed experience. DynaMed -- can you explain the service that DynaMed provides to practitioners?

A. So DynaMed is a competitor to UpToDate,

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which is a little bit better known, at least in the medical community. Although DynaMed, I think, is actually used more in Europe.

But basically, if anyone, whether it's a physician or a nurse or an advanced practice provider, has a question about a drug or a diagnosis, they go to the website, they click on -- they put in whatever they're interested in, and then the topic comes up first with an overall review and then with very specific information regarding diagnosis, etiology, treatment, imaging, including videos and diagrams.

Actually, I think we do a better job than UpToDate does on all of those things. And so it's a resource that people use in the office, in the emergency room, in an inpatient unit, particularly if it's a subject they're not as familiar with.

Q. And you say people there, but would it be healthcare professionals that go there to get educated?

A. Yes. Yes. We don't have much of a patient facing resource, but certainly for healthcare providers.

Q. And your services there are providing

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content and editing?

A. Correct.

Q. Okay. And so you're educating doctors potentially worldwide on topics of general neurology?

A. Correct.

Q. Now I want to get some of these other items, I want to if you can. It's right there. Exhibit No. 10. You can put number 9 aside. And this is the workers' comp decision that Ms. Hurt reviewed with you. Do you recall this?

A. I recall her reviewing it with me. I do not recall this case.

Q. And if you look on the second page of this document and the second paragraph, under number two, it says "The claimant's treating neurologist Heidi Schwarz" and it explains what you did in June of 1998, correct?

A. Correct.

Q. Okay. It doesn't say that you were deposed or called as an expert, does it?

A. No. Which might be why I don't remember it.

Q. Right. And so do you recall -- I don't know if it has -- do you recall what patient this is

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referring to?

A. I do not.

Q. And so as we sit here today and looking at this, you can't say whether you were even deposed as a treating physician?

A. Correct.

Q. Okay. And so when whoever this person was, that administrative law judge or judge, I don't know how it works here in New York City or New York State.

A. Administrative law judge. Yeah.

Q. When it says the opinion of doctor -- Excuse me. When it says "The opinion of Dr. Schwarz likewise lacks medical certainty with regard to the cause of the neck condition, her opinion is at most speculative." And it says, "in that it uses the word appear in quotes". Do you see that?

A. Yes.

Q. Okay. And so do you know whether you actually offered an opinion here?

A. I may have offered an opinion in my office note, because if it was billed under workers' compensation, I have to make a link there. But that is speculative. I don't have the notes. So I

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really don't know.

Q. Okay. Thank you. Have you, without looking at that, have you had to provide treatment to people with workers' comp injuries?

A. Yes.

Q. Okay. For every person that you treat with a workers' comp injury, do you have to go appear before an administrative law judge to offer testimony?

A. No.

Q. Okay. Let's see here. Let's look at Exhibit Number 10. Or excuse me. Number 11. I think it may be under 10 over there. It's a Dorsey opinion. Maybe I'm wrong --

A. I have 15.

Q. Here, I think it's -- pardon my reach, but I believe -- here it is.

A. Okay. Yep.

Q. Okay. Now I want you to flip with me. Do you recall that you were asked some questions about Exhibit No. 11?

A. Uh-huh.

Q. I want you to flip over with me to Page 610. And Ms. Hurt went over with you the top part

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of the chart -- or, excuse me, the top of the page, which is the continuation of table number one. Do you recall that?

A. Yes.

Q. And she directed your attention down four lines in this chart where it says, "Risk factors questionnaire, tower cohort equals 46." Do you see that?

A. Yeah.

Q. And then she went to the next line, which smoked 100 or more cigarettes. And then in parentheses, five packs, close paren, in lifetime, N percentage. Do you see that?

A. Yes.

Q. And then you come across. And it says 17. And then in parentheses it says 37?

A. Correct.

Q. Okay. Do you recall where she had some problem with understanding how it gets to 37 percent when you divide 17 by 79?

A. Yes.

Q. Okay. If I divide 17 by 79 or excuse me, 17 by 46, which is the N under risk factor questionnaire cohort, 17 divided by 46 is 0.369565.

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Would that be rounded to 37?

A. Yes.

Q. Okay. That's all I wanted to do on that one. So I just wanted to try to help out where we got that 37 from.

A. Thank you. I appreciate that. In fact, we discussed this recently about the fact that fewer people filled out the questionnaire in the tower.

Q. Okay. You were asked some questions about Exhibit No. 12. Do you have that in front of you?

A. I do.

Q. Okay. And this is your article with --

A. It's an editorial, actually.

Q. Editorial. Okay. Editorial with Margaret Mak, Ph.D. titled, "Could Exercise be the Answer?" Do you see that?

A. Yeah.

Q. Okay. Will exercise cure Parkinson's disease?

A. Don't I wish. No.

Q. Okay. People who have Parkinson's disease that progress, will they be increasingly -- or is it predictable that they will be increasingly unable to participate in meaningful aerobic exercise?

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A. Yes.

Q. Okay. People that have advanced Parkinson's disease, often -- well, let me strike that. Do people with advancing Parkinson's disease often end up in a wheelchair?

A. If they live long enough, yes. And something else doesn't intervene.

Q. Okay. So if a person is fortunate enough to have a longer life but still have Parkinson's disease, their progression could get to a point where they need a wheelchair?

A. At least a walker. Yeah.

Q. Okay. Do Parkinson's patients often need help being fed?

A. In the later stages of disease.

Q. Being dressed?

A. In the later stages of disease.

Q. Being washed?

A. In the later stages of disease.

Q. And being cleaned after using the restroom?

A. Yes.

Q. Okay. And you've said in the later stages of the disease. Again, if a person doesn't fall to some other comorbidity and has the benefit of living

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a long life, but with Parkinson's disease, will they end up having to need assistance with all these daily activities of living?

A. Yes.

Q. Okay. You had a rather lengthy discussion with Ms. Hurt during the course of this deposition, or maybe even a couple of times during it, concerning idiopathic Parkinson's disease, or what you were referring to as atypical versus typical Parkinson's. Do you recall that?

A. Yes, I do.

Q. Okay. Through the course of your career, have you seen science develop to the point where there have been recognized causes of Parkinson's disease discovered and accepted as actual causes?

A. Absolutely.

Q. Okay. And are environmental factors one of those?

A. Absolutely.

Q. And have you seen that happen with regard to -- or do you hold an opinion as to whether or not that is true for chemicals TCE and PCE?

MS. HURT: Objection to form.

A. TCE, I think, is unquestionably associated

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with the development of Parkinson's disease. I think PCE most likely is, but further data and study would be helpful.

Q. Okay. You said unquestionably associated with. Can you, to a reasonable degree of scientific certainty with regard to P -- or TCE, say that it is unequivocally or unquestionably causally associated with Parkinson's disease?

A. It is unquestionably associated causatively with Parkinson's disease.

Q. And can you say that to a reasonable degree of scientific and medical certainty?

A. I can.

Q. Okay. You also had some discussions with Ms. Hurt about head injury versus traumatic brain injury. Do you recall those?

A. I do.

Q. First thing I want to ask is, have you seen any information with regard to either -- well, I'm going to ask it separately because it may be looked at separately by the judges. Have you seen anything that demonstrates objective evidence of a traumatic brain injury for Mr. Sparks?

A. I have not.

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Q. Have you seen any objective evidence of a traumatic brain injury suffered by Mr. Welch?

A. I have not.

Q. Okay. You were shown -- I'm trying to find the thick one. I know you -- I know you had it.

A. I have it.

Q. Here we go.

A. Here it is.

Q. Exhibit 15. If you could flip to the page ending in 004 for me. Are you there with me?

A. I am there.

Q. At the top of the page, it says date of admission, 10 October, '73. Date of discharge, 16 November, 1973. Do you see that?

A. I do.

Q. Okay. What is the final diagnosis?

A. Passive aggressive personality.

Q. Okay. This record that you were shown and asked to read a few lines of was for passive aggressive personality?

A. That would be their final diagnosis. Yes.

Q. Okay. And if you go down about four, five lines from the bottom, there's a sentence that begins right in the middle of that coffee stain

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circle. He was first seen --

A. Yes.

Q. Okay. Tell me if I read this correctly. "He was first seen by a Brazilian general practitioner, but because of security reasons, he was transferred to Panama to see a military psychiatrist." Did I read that correctly?

A. Yes.

Q. He was not sent to Panama for a closed head injury or traumatic brain injury, correct?

A. Correct.

Q. Okay. And then it -- continuing on, it says, "After a brief evaluation, the patient was tentatively diagnosed as having chronic anxiety syndrome and acute dissociative reaction." Did I read that correctly?

A. Yes.

Q. Are you familiar with chronic anxiety syndrome and acute dissociative reactions?

A. I am familiar with them. I don't treat them, but I am familiar with them.

Q. Is your familiarity sufficient to understand whether or not they can cause you to have lack of memory?

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A. Yes. And it can cause you to have lack of memory.

Q. Okay. You were asked if this lack of recall is evidence of a traumatic brain injury earlier. Do you believe it was a result of a traumatic brain injury?

A. Looking at the totality of the history that's provided here, reading it more carefully, it appears to me that this was much more of a psychiatric issue and a bit of an anger management issue that resulted in a dissociative state. That probably explains why he experienced "gone blank".

Q. Okay. All right. That's all I have on that one. Doctor, do you agree -- Dr. Schwarz, do you agree with the statement that loss of dopaminergic neurons and receptors is a known mechanism for causing Parkinson's disease?

A. Yes.

Q. Okay. We've already talked a little bit about the funnel concept of how you do your research literature search and review. You were asked a question at one of the points in the deposition on this topic about whether you exclude studies from consideration or inclusion on your materials

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considered list because of -- and I thought it was solely because of the quality of the study, does relevance play any part of your analysis of what to include and what not to include?

A. It does. I would say that when I look at the articles regarding TCE, the initial articles are often smaller studies, case control studies that then fueled further research and better study. So as I describe, the evidence that supports TCE being positively related to Parkinson's disease, I start there because that's where we started as scientists, and then from there gained more information.

Q. Okay. Thank you. I want to talk to you just briefly about your virtual visits. When you conducted your virtual visit of Mr. Welch, did you have information concerning his medical records, his deposition, his -- or what all information did you have?

A. I had medical records. I had depositions by the patient, and I think in one case I also had depositions by the spouse. I had depositions by the treating physicians and multiple treating physicians, not just neurologists, but internists, dermatologists, sleep medicine, psychiatry.

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Q. Okay. You said you don't do IMEs? Is that --

A. I do not do IMEs.

Q. Had you done them in the past?

A. No.

Q. Okay. And did you have similar type of information when you did the virtual visit for Mr. Sparks?

A. I did.

Q. Okay. You had -- you were asked some questions earlier today about a systemic literature review. Do you recall that?

A. Yes.

Q. Okay. Was it necessary for you to conduct a systemic literature review to provide your opinions for Mr. Welch and Mr. Sparks?

A. No. I reviewed a lot of literature, but I didn't create a systematic review.

Q. And do you feel it was necessary to do so?

A. No.

Q. And was that just simply an exercise of your professional judgment?

A. Correct.

Q. Okay. I want to make sure we're clear on

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this for the court. But you were asked some questions about what was -- what are termed as potential causes in your report. Do you recall that?

A. I do.

Q. Okay. And then you had mentioned, I believe. I don't want to put words in your mouth with regard to, like, male sex, you said XY chromosomes don't cause Parkinson's disease?

A. Correct.

Q. Okay. Is there a pathophysiologic mechanism for an XY chromosome to cause a disease like Parkinson's disease?

MS. HURT: Objection to form.

A. No.

Q. Okay. And you had also discussed with Ms. Hurt the difference between simply an association and what you might consider as a causative risk factor. Do you recall that?

A. I do.

Q. Have you ever heard it said that, like, the rooster crows in the morning and then the sun comes up?

MS. HURT: Objection to form.

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Q. And that's an association?

A. I have not heard that before.

Q. Would you agree with me that if a rooster crows at 6:00 a.m. and the sun comes up at 6:15 p.m. -- or 6:15 a.m., the rooster crowing had nothing to do with the sunrise?

MS. HURT: Objection to form.

A. I would agree with that. Many roosters crow at other times.

Q. Okay. I want to talk to you briefly about the -- I'm going to butcher this, too. Padmakumar, article on traumatic brain injury.

A. Padmakumar.

Q. Padmakumar?

A. Yes.

Q. Thank You. You were -- if you go to the second page of the article with me, if you look on the sort of the middle blank space coming down, there's a 23 that has, like, a closed bracket, and then there's a sentence that starts, although. Do you see that?

A. Are you --

Q. Right here.

A. On that page?

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Q. Yes.

A. That side of the page. Okay. Yes, I do.

Q. I believe that Ms. Hurt started in the middle of the sentence that begins, the strongest evidences of TBI. Do you see that?

A. Yes.

Q. Okay. Do you recall those questions?

A. I do.

Q. Those questions. If you look over to the left side of the page and really go into the front page, the bottom of the first or the right column on the first page begins, "Therefore, the damage caused by TBI can either be confined to a more localized or specific area of the brain or spread over a wider region in the conditions referred to as to focal and diffuse brain injuries, respectively." Do you see that?

A. Yes, I do.

Q. Okay. And did you see any objective evidence in the medical records of either Mr. Sparks or Mr. Welch that they suffered any focal or diffuse brain injuries prior to their diagnosis with Parkinson's disease?

MS. HURT: Objection to form.

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A. I did not. I specifically asked them if they had any limitations of their normal functioning the day following, any kind of potential impact with Mr. Welch. Mr. Sparks, I was not aware of any potential head trauma. And Mr. Welch strongly denied any limitation of function and that he was to function at his normal level immediately after these events.

Q. Okay. If you come down to just a couple of lines after the bracketed number 12 there, it says "Skull fracture, concussions, contusions, diffuse axonal injury and lacerations, et cetera, belong to the class of primary injuries which could either be penetrating open head injuries or non-penetrating closed head acceleration or non-acceleration injuries". Do you see that?

A. I do.

Q. Did you see any objective evidence in the medical records of either Mr. Welch or Mr. Sparks that either suffered a fractured skull?

MS. HURT: Object to form.

A. I did not.

Q. Did you see any objective evidence in either Mr. Sparks or Mr. Welch's medical records

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that documented a concussion?

MS. HURT: Object to form.

A. I did not.

Q. Did you see any diffuse axonal injuries documented in the medical records of Mr. Welch or Mr. Sparks?

A. I did not.

Q. Okay. Did you look for those things?

A. I did.

Q. Did you ask them -- did you ask them about these types of head injuries when you met with them?

A. I did.

Q. And what did they say?

A. They denied them.

Q. Okay.

A. And specifically, the diffuse axonal injury is what we associate with post concussive syndrome and limitation of function after a head impact. And I asked very pointedly with Mr. Welch on the three occasions that are noted in his records, and he denied it in all three.

Q. Okay. When you come down towards the bottom of that column, to the right of where the bracketed number 19 is, it says, "On the other hand,

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sequestration of calcium, particularly in the mitochondria by calcium influx can result in the formation of free radicals, oxidative stress, and initiation of apoptosis." Do you see that?

A. I do.

Q. And did you see any evidence of calcium deposits in the brain of either of these gentlemen on your review?

A. No.

Q. Okay. And then if you go over to the Page 3, next page, there's a section 2.2, neuronal loss and white matter degeneration. Are you familiar with white matter degeneration?

A. Yes.

Q. What is the proper mechanism or the proper test for looking for white matter degeneration?

A. The most sensitive way to look at it would be to use MRI scanning. But again, you would probably need to have a pre and post MRI scan to attest to loss of white matter.

Q. Sure. Did you see any objective evidence in the medical record of either Mr. Sparks or Mr. Welch that where any of their contemporaneous treating physicians decided it was necessary to

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conduct an MRI to look for white matter degeneration?

MS. HURT: Object to form.

A. I know that Mr. Welch had two MRI scans of his head. The first was in early 2000s to evaluate his chronic headaches, which is where they found the cavernous angioma in his caudate.

And then he had a second one, I think, in maybe 2021, 2022, with his diagnosis of Parkinson's disease. And there was no change in the cavernous angioma. And neither report mentioned any white matter degeneration.

Q. Thank you. Because you were asked about pollution and particularly PM2.5. And that's mentioned in the environmental section of, I think, both of your reports?

A. Yes.

Q. Have you been provided with any information today that would demonstrate what the PM2.5 levels are in Laredo, Texas, or Nuevo Laredo, Mexico?

A. No.

Q. Okay. Now, I just have two more questions for you. You sat here through, it's at 8 hours and 10 minutes of on and off deposition time. Do you

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still remain confident in your opinions with regard to the causation of Parkinson's disease for Mr. Welch?

MS. HURT: Objection to form.

A. I do. I can.

Q. Okay. Do you still have confidence in your -- do you still remain confident in your opinion concerning the causation of Mr -- did I say Mr. Welch the first time or Sparks?

A. Welch.

Q. Mr. Sparks. Let me ask it again. So it's clean on the record. Do you still remain confident in your opinion on the causation of Mr. Sparks' Parkinson's disease?

A. I do.

Q. And do you hold your opinions as you've expressed in your report and explained today to a reasonable degree of medical certainty?

A. I do.

Q. Okay. I have nothing further.

MS. HURT: I don't have anything further.

MR. MICELI: Okay. Thanks.

MS. HURT: I will just say on the

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record that as we discussed at the beginning of the deposition, we're leaving this open, subject to getting the late production last night of the IME notes.

MR. MICELI: Yeah. Well, of the virtual visit notes.

MS. HURT: Okay. Virtual visit notes.

MR. MICELI: We can agree to disagree on the characterization, but I just want to make sure we're clear on the record.

THE VIDEOGRAPHER: Let me wrap this up, please. We're off the record at 5:11 p.m. And this concludes today's testimony given by Heidi Schwarz, MD. The total number of media units was 10 and will be retained by Veritas.

(Deposition concluded.)

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 _____.

ERRATA SHEET:

Case: Camp Lejeune Water Litigation

Witness: Heidi Schwarz, MD, FAAN

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ERRATA SHEET (continued):

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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.

_____

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.

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