

# Exhibit 601

IN RE: )  
CAMP LEJEUNE WATER LITIGATION )

The videotaped deposition upon oral examination of GAIL H. VANCE, M.D., a witness produced and sworn before me, Valerie Fillenwarth, RPR, a Notary Public in and for the County of Shelby, State of Indiana, taken on behalf of the Plaintiffs in the offices of the US Attorney's Office, 10 W. Market Street, Suite 2100, Indianapolis, Marion County, Indiana, taken on July 8, 2025, commencing at 9:00 a.m., pursuant to Indiana Rules of Procedure, with Notice as to the time and place thereof.

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ALSO PRESENT:

Kelly Herring, Videographer

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(Reporter's Note: Quotation marks are  
used for clarity and do not necessarily reflect  
a direct quote.)

1 THE VIDEOGRAPHER: We are now on the  
2 record. My name is Kelly Herring. I'm the  
3 videographer for Golkow, a Veritext division.  
4 Today's date is July 8, 2025, and the time is  
5 9:20 a.m.

6 This deposition is being held at 10 West  
7 Market Street in Indianapolis, Indiana, in the  
8 matter of In Re: Camp Lejeune Water  
9 Litigation, for the United States District  
10 Court, for the Eastern District of  
11 North Carolina, Southern Division.

12 The deponent is Dr. Gail Vance.

13 Will counsel please identify themselves?

14 MR. ROBERTS: Jim Roberts, appearing on  
15 behalf of the plaintiff, Jacqueline Tukes.

16 MR. WHITE: Lucas White and Camille  
17 Johnson on behalf of the United States.

18  
19 GAIL H. VANCE, M.D.,  
20 having been first duly sworn to tell the truth,  
21 the whole truth, and nothing but the truth,  
22 testified as follows:

23 DIRECT EXAMINATION,

24 QUESTIONS BY MR. ROBERTS:

25 Q. Could you state your full name for the record,

1 please?

2 A. Gail Vance.

3 Q. Okay. Dr. Vance, my name is Jim Roberts. I'm  
4 a lawyer from North Carolina --

5 A. Uh-huh.

6 Q. -- and I represent Jacqueline Tukes in the  
7 claims that she has against the United States  
8 government.

9 I understand, ma'am, that you have  
10 testified prior to today, is that correct?

11 A. Testified?

12 Q. Yes, ma'am, in deposition.

13 A. Oh, not for this case.

14 Q. No.

15 A. Correct. In other cases?

16 Q. Yes, ma'am.

17 A. Yes, I have.

18 Q. Okay. So you understand some of the ground  
19 rules we're going to be following today.

20 You understand that you're under oath,  
21 correct?

22 A. Yes.

23 Q. And if I ask you a question that you, for  
24 whatever reason, don't understand, would you  
25 please let me know, and I'll be happy to go

1 back and rephrase it, fair?

2 A. Correct.

3 Q. And if you don't ask me to do that, I'll assume  
4 that you understand the question, fair enough?

5 A. That's fair.

6 Q. Dr. Vance, let me ask you, first of all, what  
7 do you understand about Jacqueline Tukes'  
8 allegations in this case?

9 MR. WHITE: Object to form.

10 Go ahead, Doctor.

11 A. I understand that she's claiming that her  
12 kidney cancer was a result of toxic water she  
13 was exposed to at Camp Lejeune.

14 BY MR. ROBERTS:

15 Q. Okay. Do you know what chemicals were found in  
16 the groundwater at Camp Lejeune?

17 A. I do not.

18 Q. Do you know the levels that Jacqueline Tukes  
19 was exposed to?

20 A. No.

21 Q. Do you know whether or not the chemicals that  
22 Mrs. Tukes was exposed to have the potential to  
23 cause disease?

24 A. I do not.

25 MR. WHITE: Object to form.



1 I'm sorry. Just give me a --

2 THE WITNESS: A pause.

3 MR. WHITE -- quick half second --

4 THE WITNESS: Yeah.

5 MR. WHITE: -- to get the objection in.

6 But --

7 THE WITNESS: Yeah.

8 MR. WHITE: -- object to form.

9 Go ahead. Sorry.

10 BY MR. ROBERTS:

11 Q. Ma'am?

12 A. No.

13 Q. So I'm trying to understand, Dr. Vance, sort of  
14 the basis of your opinions.

15 Are you telling us that it was not  
16 important in reaching your opinions to know the  
17 levels of carcinogens that Mrs. Tukes was  
18 exposed to and the nature of those carcinogens?

19 MR. WHITE: Object to form.

20 A. Correct.

21 BY MR. ROBERTS:

22 Q. Okay. So that's not something that you even  
23 wanted to consider?

24 MR. WHITE: Object to form.

25 A. No.

1 BY MR. ROBERTS:

2 Q. Why is that?

3 A. Because of her clinical presentation. It was  
4 compatible with hereditary renal carcinoma.

5 Q. Okay. Have you ever had a patient that was  
6 exposed to carcinogens?

7 MR. WHITE: Object to form.

8 A. Not to my knowledge. I mean, most people are  
9 exposed to some kind of carcinogen.

10 BY MR. ROBERTS:

11 Q. Right. But have you ever had a patient walk  
12 into your office, like Ms. Tukes, that says,  
13 "Dr. Vance, I was exposed to carcinogens. I  
14 think I might be sick from that exposure"? Has  
15 that ever happened during the course of your  
16 career?

17 MR. WHITE: Object to form.

18 A. No.

19 BY MR. ROBERTS:

20 Q. Okay. Did you read Mrs. Tukes's deposition in  
21 this case?

22 A. Yes.

23 Q. Did you read how she -- how she testified how  
24 she was exposed to the chemicals at Camp  
25 Lejeune?

1 A. Yes.

2 Q. Did you read the depositions of any -- of  
3 Mrs. Tukes's treating physicians or medical  
4 providers?

5 A. Yes.

6 Q. Which ones did you read, ma'am?

7 A. Dr. McCarthy.

8 Q. Okay.

9 A. And -- she's a genetic counselor, Katie  
10 Gabarini.

11 Q. Okay. Anyone else?

12 A. Their depositions?

13 Q. Yes, ma'am.

14 A. No.

15 Q. Okay.

16 A. Dr. Allen.

17 Q. Okay. So --

18 A. He's not a treating physician, but --

19 Q. That's correct.

20 A. Yes.

21 Q. So I'm just trying to get an understanding in  
22 my mind of what you read to form your opinions  
23 in this case.

24 So you read three depositions, is that  
25 correct?

1 MR. WHITE: Object to form.

2 A. Dr. Allen, Dr. McCarthy, Jacqueline Tukes, and  
3 Katie Gabarini. That's four.

4 BY MR. ROBERTS:

5 Q. Okay. Four, okay. Thank you.

6 Any other depositions?

7 A. No.

8 Q. Okay. Can you tell us who Dr. McCarthy is?

9 A. He's a urologist.

10 Q. Okay. Did he treat Ms. Tukes?

11 A. Yes.

12 Q. And what was the nature of his treatment of  
13 Jacqueline Tukes?

14 A. Multiple surgeries, both partial and full  
15 nephrectomies.

16 Q. And he -- Dr. McCarthy treated her over a  
17 period of years, fair?

18 A. Correct.

19 Q. Did you -- I don't guess you read the  
20 deposition of Mrs. Tukes's oncologist, did you?

21 A. No.

22 Q. Dr. Jayaram?

23 A. No.

24 Q. Were you aware that he'd even been deposed in  
25 this case?

1 A. No.

2 Q. Nobody told you that?

3 A. No.

4 MR. WHITE: Object to form.

5 (WHEREUPON, Deposition Exhibit 1 was  
6 marked for identification.)

7 BY MR. ROBERTS:

8 Q. Now, in your report -- and I'll go ahead and  
9 mark this as Exhibit 1 to your deposition.

10 A. Okay.

11 Q. And for the record, Dr. Vance, if you could  
12 identify Exhibit 1 as a copy of your expert  
13 report that you prepared in this case?

14 A. Yes, this is a copy of my expert report.

15 Q. Yes, ma'am.

16 And does this report have all the  
17 opinions that you intend to offer in this case?

18 A. Well, yes.

19 Q. Okay.

20 A. I mean, it composes the basis of my conclusion.

21 Q. Okay. Well, Dr. Vance, today is the day that  
22 my side gets to ask you questions to make  
23 sure --

24 A. Correct.

25 Q. -- that we completely and fully understand all

1           the opinions that you're going to offer at  
2           trial.

3       A.    Yes.

4       Q.    You understand that?

5       A.    Correct.

6       Q.    My question to you again is:  In looking at the  
7           report, is that the complete universe of  
8           opinions that you're going to offer at trial in  
9           this case?

10      A.    Complete universe?  I mean, do I have another  
11           opinion that's not in this report?  I might  
12           state it differently, but this is my report.

13      Q.    Okay.  So it's complete, as we sit here in  
14           your --

15      A.    Yes.

16      Q.    -- deposition today?

17      A.    Yes.

18      Q.    All right.  In your report on pages 15 and 16,  
19           you go through Mrs. Tukes's background and  
20           medical history, is that fair?

21      A.    Yes.

22      Q.    And you don't mention in any of the background  
23           her exposure to carcinogens, do you?

24                   MR. WHITE:  Object to form.

25      A.    I read her medical records.  That was not a

1 part of her medical records that I reviewed.

2 BY MR. ROBERTS:

3 Q. Well, ma'am, you understand that we're here  
4 today to get your opinions on what you say the  
5 cause of her kidney cancer is, fair enough?

6 A. Yes.

7 Q. And my question again is: In your background  
8 and history of Mrs. Tukes, you nowhere mention  
9 her exposure to carcinogens, do you?

10 MR. WHITE: Object to form.

11 A. No.

12 BY MR. ROBERTS:

13 Q. Okay. Have you ever offered an opinion in a  
14 case that a patient's cancer was likely the  
15 result of exposure to a carcinogen as opposed  
16 to having a hereditary --

17 MR. WHITE: Object to form.

18 BY MR. ROBERTS:

19 Q. -- component?

20 MR. WHITE: I'm sorry. Object to form.

21 I didn't mean to interrupt you, sir.

22 A. No.

23 BY MR. ROBERTS:

24 Q. Okay. How would you define a carcinogen?

25 MR. WHITE: Object to form.

1 A. A carcinogen would be something, as the name  
2 implies, that's capable of causing cellular  
3 damage and potentially cancer.

4 BY MR. ROBERTS:

5 Q. And how would you define the term genotoxicity?

6 A. Just as the name implies. It's toxic to the  
7 gene structure itself.

8 Q. Okay. And --

9 A. And the gene function.

10 Q. And how would you define a tumor suppressor  
11 gene?

12 A. A tumor suppressor gene is a gene that we can  
13 contain in our genome that works to control the  
14 cell cycle.

15 Q. All right. You say "control the cell cycle."  
16 What you do mean by that?

17 A. It will interrupt the cell cycle from  
18 proliferation if it senses damage. It will  
19 interrupt so that there's not overproliferation  
20 of cells.

21 Q. Have you read any literature during the course  
22 of your career that carcinogen can impact tumor  
23 suppressor genes?

24 MR. WHITE: Object to form.

25 A. We know that there are mutating substances in



1 the universe that we're exposed to, and a  
2 carcinogen can be one of those.

3 BY MR. ROBERTS:

4 Q. Okay.

5 A. UV radiation is another one. Your natural  
6 mutation or your natural proliferation or  
7 replication of cells can also cause mutations.

8 Q. Do you know if trichloroethylene can cause  
9 those mutations?

10 A. Not specifically.

11 Q. Did you look into that at all in rendering your  
12 opinions?

13 A. No.

14 Q. How about tetrachloroethylene, also known as  
15 PCE, did you look into the characteristics that  
16 they can -- that that chemical can put on DNA  
17 or genes?

18 A. No.

19 Q. Same question with respect to vinyl chloride,  
20 did you give any consideration to the effect of  
21 vinyl chloride on DNA or genetic material?

22 A. No.

23 Q. Same question with benzene, did you consider  
24 the potential effect that benzene could have on  
25 DNA repair genes or other genes in the body?

1 A. No.

2 Q. All right. What is an oncogene?

3 A. An oncogene is -- a proto-oncogene is a normal  
4 gene within our genome that controls  
5 proliferation and replication.

6 Q. And if that replication is interrupted for some  
7 reason, can that cause cancer?

8 A. Typically not by itself.

9 Q. What do you mean by that?

10 A. So damage to one oncogene by itself does not  
11 usually lead to cancer. It may cause  
12 instability in the genome but not frank cancer.

13 Q. Okay. Now, what percentage of cancers would  
14 you say, in your opinion, Dr. Vance, are  
15 associated with a genetic predisposition?

16 MR. WHITE: Object to form.

17 Go ahead.

18 A. What kind of cancer? All cancers?

19 BY MR. ROBERTS:

20 Q. Well, let's stick to renal cell carcinoma.

21 A. Okay. Renal cell carcinoma, as a small  
22 component, are heritable. It's usually between  
23 3 and 5 percent is what's been quoted.

24 Q. So I guess the question is whether or not  
25 Mrs. Tukes falls within that 3 to 5 percent.

1           Would you agree with that?

2                   MR. WHITE: Object to form.

3       A.     That's the question?

4                   BY MR. ROBERTS:

5       Q.     Yes, ma'am.

6       A.     I believe she does.

7       Q.     Okay. So you have -- you have reached the  
8               conclusion that she does not fall in the other  
9               roughly 95 to 97 percent?

10      A.     That's correct.

11      Q.     Okay. Now, in your report, you also discuss  
12             what I think you say are features suggesting an  
13             inherited predisposition to cancer. Do you  
14             recall discussing that in your report?

15      A.     Yes.

16      Q.     And the first one was early age at onset. Do  
17             you remember discussing that one?

18      A.     Yes.

19      Q.     And another one you discussed was cancers of a  
20             specific type occurring together?

21      A.     Yes.

22      Q.     And multiple or bilateral cancers?

23      A.     Yes.

24      Q.     And rare cancers?

25      A.     Yes.

1 Q. Now, would you agree that these conditions can  
2 be caused by exposure to carcinogens?

3 MR. WHITE: Object to form.

4 A. Not solely, no. Typically when we see that, we  
5 look for a predisposing inherited gene  
6 mutation.

7 BY MR. ROBERTS:

8 Q. Well, I guess my question is: Is it your  
9 testimony that someone that does not have a  
10 predisposition to cancer cannot get cancer if  
11 they're exposed to carcinogens, such as TCE and  
12 PCE?

13 MR. WHITE: Object to form.

14 A. I don't know. I'm not an expert in exposures,  
15 toxic exposures.

16 BY MR. ROBERTS:

17 Q. All right. But I guess my question is, you're  
18 not suggesting, are you, ma'am, that of the  
19 95 percent of cancers that are not related to a  
20 genetic predisposition, okay, for renal cell  
21 carcinoma, you're not telling this court, are  
22 you, ma'am, that exposure to carcinogens,  
23 without having a predisposition, cannot cause  
24 cancer, are you?

25 MR. WHITE: Object to form.

1 A. I'm not telling you that, but typically cancer  
2 occurs because of a susceptible genetic  
3 background and exposures, lifetime of  
4 exposures.

5 BY MR. ROBERTS:

6 Q. Okay. And in your report I believe you talk  
7 about both a genetic and an environmental  
8 component to cancer. Do you remember talking  
9 about that?

10 A. I do.

11 Q. And would the enviro- -- one of the  
12 environmental conditions, could that  
13 potentially be exposure to carcinogens such as  
14 exist at Camp Lejeune?

15 A. Yes.

16 MR. WHITE: Object to form.

17 BY MR. ROBERTS:

18 Q. Dr. Vance, do you have an opinion as to whether  
19 or not carcinogen exposure contributes to  
20 sporadic cancer?

21 MR. WHITE: Object to form.

22 A. No, I don't have an opinion on that.

23 BY MR. ROBERTS:

24 Q. Do you have an opinion as to whether or not  
25 carcinogen exposure contributes to inherited

1 cancer?

2 MR. WHITE: Object to form.

3 A. No, I don't have an opinion on that.

4 BY MR. ROBERTS:

5 Q. Do you have an opinion as to whether exposure  
6 to carcinogens contributes to hereditary  
7 cancer?

8 MR. WHITE: Object to form.

9 A. No, I don't have an opinion on that.

10 BY MR. ROBERTS:

11 Q. Okay. Now, in your report I believe you talk  
12 about something known as Knudson's two-hit  
13 theory. Do you recall talking about that --

14 A. I do.

15 Q. -- in your report, ma'am?

16 A. Go to --

17 Q. And, in fact, if you could turn over -- I  
18 believe it starts on page 10.

19 A. Correct.

20 Q. And is that a well-accepted causation model for  
21 cancer?

22 MR. WHITE: Object to form.

23 A. Yes.

24 BY MR. ROBERTS:

25 Q. Is it -- it's well accepted in your field,

1 correct?

2 MR. WHITE: Same objection.

3 A. Yes.

4 BY MR. ROBERTS:

5 Q. And you give an example, I think, in your  
6 report, if I'm -- if I'm not mistaken, about  
7 children with bilateral eye cancer having a  
8 predisposition to that cancer?

9 A. Yes.

10 Q. Now, in the two-hit model, would you agree that  
11 carcinogen exposure can be the second hit in  
12 the model?

13 MR. WHITE: Object to form.

14 A. It can contribute to the second hit.

15 BY MR. ROBERTS:

16 Q. So let me ask you this: If -- and, again, I'm  
17 not trying to put words into your mouth, but  
18 it's your opinion that Ms. Tukes had a  
19 predisposition for renal cell carcinoma,  
20 correct?

21 A. Correct.

22 Q. And if she was exposed to the carcinogens that  
23 we talked about, based on what you just said,  
24 that could be the second hit that caused her  
25 cancer, right?

1 MR. WHITE: Object to form.

2 A. Could be.

3 BY MR. ROBERTS:

4 Q. Can a chemical that causes a DNA mutation cause  
5 cancer?

6 MR. WHITE: Object to form.

7 A. Can you say that again?

8 BY MR. ROBERTS:

9 Q. Yes, ma'am.

10 Would a genetic mutation that causes a  
11 loss of -- let me restate that.

12 Would a mutation that causes a loss of  
13 function in a tumor suppressor gene, which  
14 you've explained previously, increase the  
15 susceptibility of a person exposed to a  
16 carcinogen?

17 MR. WHITE: Object to form.

18 A. So we've now moved away from retinoblastoma.  
19 So you're talking about any tumor suppressor  
20 gene?

21 BY MR. ROBERTS:

22 Q. Yes, ma'am.

23 A. It will lead to instability.

24 Q. Okay. And I think you've given us examples of  
25 that in your report of APC mutations?



1 A. That is correct.

2 Q. BRCA1?

3 A. Yes.

4 Q. And p53?

5 A. Yes.

6 Q. And would you agree that a mutation that causes  
7 a loss of function in a tumor suppressor gene  
8 would result in someone being susceptible to  
9 cancer at lower levels of carcinogens?

10 MR. WHITE: Object to form.

11 A. I can't agree to that because I don't know  
12 the -- the first mutation in a tumor suppressor  
13 gene, as I've given an example in my report,  
14 leads to instability. Now, that instability  
15 itself could remain for years, or there could  
16 be exposures. There could be something that  
17 causes the loss of the second tumor suppressor  
18 gene. That's hard to put your hand on, so you  
19 really don't know what the cause was. But then  
20 it's usually after the second hit that the  
21 cancer would develop but not after the first.

22 BY MR. ROBERTS:

23 Q. Okay. But the second hit, under your example,  
24 could be an exposure to a carcinogen, right?

25 MR. WHITE: Object to form.

1 A. As one of the possible --

2 BY MR. ROBERTS:

3 Q. Yes, ma'am.

4 A. -- causes of the second.

5 Q. Which is -- which is exactly what Ms. Tukes is  
6 saying in this case, right?

7 MR. WHITE: Object to form.

8 A. I don't think she's saying the same thing.

9 BY MR. ROBERTS:

10 Q. Okay.

11 A. She's not saying that carcinogens cause the  
12 second hit of her allele for a gene that we  
13 have not been able to identify.

14 Q. Well, she's just saying that she drank water  
15 that was contaminated with carcinogens and it  
16 gave her cancer, right?

17 MR. WHITE: Object to form.

18 A. I believe that's what she's saying. I -- I  
19 mean, I read her deposition, but she didn't say  
20 that exactly.

21 BY MR. ROBERTS:

22 Q. Can a chemical that increases cell  
23 proliferation or reduce cell death cause  
24 cancer?

25 MR. WHITE: Objection to form.

1 A. Yes.

2 BY MR. ROBERTS:

3 Q. Would you agree that a mutation that causes  
4 loss of function in a gene that controls DNA  
5 transcription increases the susceptibility of a  
6 person that is exposed to a carcinogen?

7 A. It really depends on the gene. Not every gene  
8 would do that.

9 Q. Okay. How about the genes in the 30-gene panel  
10 that Mrs. Tukes was tested for?

11 A. Well, not all of those genes either. Some of  
12 those are recessive. Some of those are  
13 dominant.

14 Q. What about PSM2 (sic) and SMARCA4?

15 A. Okay, PMS2 is one of the five Lynch genes. So  
16 your question again?

17 Q. Can a chemical that increases cell  
18 proliferation or reduce cell death cause  
19 cancer?

20 MR. WHITE: Object to form.

21 A. Say that again.

22 BY MR. ROBERTS:

23 Q. All right.

24 A. Yeah, one more time.

25 Q. Can a cell -- can a chemical that increases

1 cell proliferation or reduce cell death cause  
2 cancer?

3 MR. WHITE: Same objection.

4 A. Well, you're saying the chemical itself is  
5 doing that. I don't know.

6 BY MR. ROBERTS:

7 Q. You don't have an opinion on that?

8 A. No.

9 Q. And you won't have an opinion on that at trial,  
10 then, right?

11 A. No, not that I'm aware of.

12 Q. We may have discussed this briefly. I think we  
13 touched on it. On page 11 of your report --

14 A. Okay.

15 Q. -- at the bottom of the page, you say -- you  
16 state that, and I'm quoting, "Familial cancer  
17 represents 15 to 20 percent of cancers and is  
18 usually associated with more common cancers  
19 such as breast, colon, and prostate cancer," is  
20 that correct?

21 A. Correct.

22 Q. And I believe you'd indicated previously that  
23 renal cell carcinoma is much rarer than the  
24 forms of cancer that I just described, is that  
25 fair?

1 A. That's fair.

2 Q. Okay. In the first sentence of that last  
3 paragraph on page 11 --

4 A. Uh-huh.

5 Q. -- you state, "In addition to hereditary cancer  
6 and sporadic cancer, there's a third  
7 classification called familial cancer."

8 Did I read that correct?

9 A. That's correct.

10 Q. And do you recall stating in here -- and,  
11 again, I think we touched on this previously --  
12 that environment has an effect on all of these  
13 cancers that we just discussed?

14 A. It could have an effect on them, because,  
15 again, most cancer is a cause of your genetic  
16 background and your exposures throughout your  
17 lifetime.

18 Q. Now, you understand that -- and I've read it in  
19 your report, that Mrs. Tukes underwent genetic  
20 testing, is that correct?

21 A. Yes.

22 Q. And the testing was done by Invitae, which is  
23 now Labcorp, is that correct?

24 A. Yes.

25 Q. And it was ordered by her treating physicians

1           and healthcare providers at UNC-Chapel Hill  
2           Healthcare?

3       A.     Yes.

4       Q.     And what do you know about UNC-Chapel Hill, the  
5           hospital?

6                   MR. WHITE:   Object to form.

7       A.     Well, it's a really well-known, exceptional  
8           university and academic center.

9                   BY MR. ROBERTS:

10      Q.     Okay.   Now, the 30-gene panel that was tested,  
11           was it done in August of 2018?

12      A.     It's 2018.   I'm not sure if it was August.

13      Q.     Do you know it was ordered by Dr. McCarthy?

14      A.     No.

15      Q.     Okay.   And I believe in your report you agreed  
16           that the genes were inclusive for all known  
17           hereditary renal cell disorders as outlined in  
18           the National Comprehensive Cancer Center  
19           Network, is that true?

20                   MR. WHITE:   Object to form.

21      A.     That is true.

22                   BY MR. ROBERTS:

23      Q.     And would you agree that the renal urinary  
24           tract cancer panel was the standard test to  
25           evaluate for hereditary renal cell disorders?

1 MR. WHITE: Object to form.

2 A. Yes, at -- in 2018.

3 BY MR. ROBERTS:

4 Q. Yes. And it still is today, correct?

5 MR. WHITE: Object to form.

6 A. No. It's been changed slightly.

7 BY MR. ROBERTS:

8 Q. Okay. How has it been changed?

9 A. Some of the genes have been replaced.

10 Q. Okay.

11 A. I think I put that in my report.

12 Q. All right. Well, let ask you this: Have you  
13 ever, in your practice, ordered the Labcorp  
14 renal urinary tract cancer panel?

15 A. I may have. I typically use the laboratory  
16 called Ambry Genetics.

17 Q. Do they do the same panel that Mrs. Tukes --

18 A. Similar.

19 Q. -- had?

20 A. Similar.

21 Q. Okay. Now, you said that some genes had been  
22 added. Where is that in your report, ma'am?

23 A. Let's go -- okay, if you look on page 19.

24 Q. Uh-huh.

25 A. So it says that the changes include removal of

1 MITF, PALB2, SDHA, SDHD, and the addition of  
2 BLM, REST, TRIM28, and TRIP13.

3 Q. And you further state, do you not, that "It is  
4 unlikely that the new panel would identify a  
5 pathogenic variants in any of the genes tested  
6 for Ms. Tukes"? Is that correct?

7 A. That is correct.

8 Q. Okay. What were the results of the genetic  
9 testing on Mrs. Tukes?

10 A. Which genetic test are you referring to?

11 Q. Let's talk -- I thought we were talking about  
12 the one in 2018.

13 A. Well, she had one previous.

14 Q. We'll get to that one.

15 A. Okay.

16 Q. That was the VHL gene?

17 A. VHL.

18 Q. Okay. We'll get to that one.

19 I'm talking about the 2018 panel of 30  
20 genes that were tested. What were the results  
21 of that?

22 A. The results were negative except for two  
23 variants of unknown significance; one in PMS2,  
24 and one in SMARCA4.

25 Q. Okay. And I believe in your report you state,



1 do you not, that "the genetic testing did not  
2 reveal a gene mutation that could be a  
3 potential cause of her renal cell carcinoma"?  
4 Did I read that correctly?

5 A. That is correct.

6 Q. So as you sit here in your deposition today,  
7 Dr. Vance, would you agree that the only  
8 objective genetic testing that was done in this  
9 case for Mrs. Jacqueline Tukes was negative?

10 MR. WHITE: Object to form.

11 A. I agree.

12 BY MR. ROBERTS:

13 Q. All right. Now, on -- let me ask this  
14 question: When that report of the genetic  
15 testing came back, Mrs. Gabarini communicated  
16 with Ms. Tukes, right? Do you recall those  
17 letters that she wrote?

18 A. Yes, I do.

19 Q. And according to Ms. Gabarini, the results of  
20 those tests being negative, she said, was good  
21 news. Do you recall that?

22 A. I do.

23 Q. Do you disagree with what Ms. Gabarini said?

24 A. I wouldn't have stated it that way.

25 Q. Okay. Why not?

1 A. Because a negative test result in the face of  
2 her clinical phenotype would not dissuade me  
3 from thinking she had an underlying genetic  
4 susceptibility.

5 Q. But all of the genetic testing that was done on  
6 Mrs. Jacqueline Tukes was all negative, right?

7 A. Of 30 genes.

8 Q. And VHL?

9 A. Uh-huh.

10 Q. And another test. What was the other one she  
11 had? She had three of them, right?

12 A. Yes. She had the VHL first. Then she had the  
13 30-gene panel. And she also had -- what was  
14 it? RYR4 rhabdomyolysis.

15 Q. And they were all negative, correct?

16 A. They were all negative.

17 Q. So my question again, in Jacqueline Tukes's  
18 position, she would take that as good news,  
19 wouldn't she?

20 A. I don't know what Jacqueline Tukes would do,  
21 what she would say. I don't know what her  
22 opinion would be. I know what my opinion would  
23 be.

24 Q. Do you know what Dr. McCarthy's opinion was?

25 A. Not really, no.

1 Q. Well, in your report you use the word  
2 "unfortunately." On page 18, you say,  
3 "Unfortunately, genetic testing, performed  
4 during her cancer care, was unable to identify  
5 a gene mutation as a potential etiological  
6 explanation for her disease."

7 Now, Dr. Vance, why -- why was that  
8 unfortunate?

9 A. I would -- I would say that was unfortunate  
10 because it would be very helpful in her case to  
11 pin down the gene responsible for her disease.  
12 Not only could we identify that for her as an  
13 etiological agent, but also we could see if any  
14 other family members might be at risk for renal  
15 cancers if they carried a similar or the same  
16 mutation in the gene that was identified.

17 Q. So is it your testimony that it would have been  
18 better for Jacqueline Tukes if the genetic  
19 testing would have come back positive? Is that  
20 what I'm understanding you to say?

21 MR. WHITE: Object to form.

22 A. No. I would object to your form, too. I would  
23 say it's not better, it's that it was not  
24 informative.

25 BY MR. ROBERTS:

1 Q. But all -- again, all the objective genetic  
2 test results that were done on Jacqueline Tukes  
3 for hereditary renal cell carcinoma were  
4 negative?

5 A. That is correct, for those that were done, yes.

6 Q. Well, I mean, I thought you said that that  
7 panel is the standard panel. Isn't that what  
8 you said?

9 MR. WHITE: Object to form.

10 A. I did say that's a standard panel.

11 BY MR. ROBERTS:

12 Q. Okay. And that was negative again, right?

13 A. That is correct.

14 Q. And the genes that you talked about on page 19  
15 of your report, you stated that it was unlikely  
16 that the new panel would identify any  
17 pathogenic variance in any of the genes tested,  
18 correct?

19 A. Yes.

20 (WHEREUPON, Deposition Exhibit 2 was  
21 marked for identification.)

22 BY MR. ROBERTS:

23 Q. Now, I would like to hand you a portion of the  
24 deposition of Dr. McCarthy. And I'm going to  
25 mark this, ma'am, as Exhibit 2 to your

1 deposition.

2 MR. ROBERTS: Madam Court Reporter, I  
3 will be happy to handle the marking of these  
4 exhibits so we don't have to throw these papers  
5 across this big table. Do you want to -- thank  
6 you.

7 MR. WHITE: You enjoy throwing something  
8 at us.

9 THE WITNESS: I can help you.

10 BY MR. ROBERTS:

11 Q. And, again, for the record, Dr. McCarthy had  
12 been treating Jacqueline Tukes for years,  
13 right?

14 A. Yes.

15 Q. And he's obviously not a paid expert, right?

16 A. I don't know.

17 MR. WHITE: Just -- just before we go a  
18 little further, I just want to note an  
19 objection to completeness grounds for the --

20 MR. ROBERTS: Sure.

21 MR. WHITE: -- on the partial thing. I  
22 didn't -- I wanted to get that in before I  
23 interrupted you at a worse time.

24 MR. ROBERTS: Look, I hear ya. You know,  
25 I can only carry so much material on the plane.

1 BY MR. ROBERTS:

2 Q. So the portion of Dr. McCarthy's deposition  
3 that I want to direct your attention to is on  
4 page 128.

5 A. All right.

6 Q. And I believe you said you read his deposition.  
7 Did you read the question that was asked: "To  
8 the extent that there is genetic testing and  
9 that genetic testing comes back negative or  
10 with no mutations, that type of thing, does  
11 that -- what does that tell you in terms of an  
12 inherited or genetic-type cancer?"

13 Answer: "I would say that would lead me  
14 to believe that this is probably not related to  
15 her mother's cancer."

16 Question: "Okay."

17 Answer: "She did not inherit anything  
18 from her mother predisposing her to kidney  
19 cancer."

20 Did I read that correctly?

21 A. You did.

22 Q. So I take it you disagree with Dr. McCarthy,  
23 who was Mrs. Tukes's treating physician for her  
24 kidney cancer for years? Is that your  
25 testimony?

1 A. Yes.

2 MR. WHITE: Object to form.

3 I'm sorry, Doctor. Just give me half a  
4 second --

5 THE WITNESS: Yeah.

6 MR. WHITE: -- to get in there.

7 THE WITNESS: Yeah.

8 MR. WHITE: It makes it much easier on  
9 the court reporter.

10 BY MR. ROBERTS:

11 Q. All right. You never -- you have never heard  
12 of Dr. Nagesh Jayaram, have you?

13 MR. WHITE: Object to form.

14 A. He's in her reports, but I don't know him.

15 BY MR. ROBERTS:

16 Q. Did you know even what he -- the nature of the  
17 care and treatment he rendered to Ms. Tukes  
18 before you walked in your deposition today?

19 A. No, I don't.

20 (WHEREUPON, Deposition Exhibit 3 was  
21 marked for identification.)

22 BY MR. ROBERTS:

23 Q. I'm handing you what's been marked as  
24 Exhibit 3.

25 A. Okay.

1 MR. WHITE: Same objection on  
2 completeness grounds.

3 BY MR. ROBERTS:

4 Q. And do you see, beginning on line 17 of  
5 page 7 -- 71, it states, "And we discussed  
6 earlier that a genetic test cannot definitively  
7 rule out a predisposition for cancer." Do you  
8 see that?

9 A. Uh-huh.

10 Q. And he says, "I think we kind of say when the  
11 genetic test is negative, we rule out the  
12 predisposition."

13 Did I read that correctly?

14 A. You did.

15 Q. So I take it you would also take issue with  
16 Dr. Jayaram?

17 A. Yes.

18 Q. Okay. Let me see if I can understand better in  
19 my mind, Dr. Vance, the opinions that you offer  
20 in this case. And I'm just trying to  
21 understand the basis for your opinions.

22 And on page 20 of your report, I believe  
23 you say, "A negative test result in an  
24 individual with a suspected hereditary cancer  
25 syndrome does not exclude a heritable cause for



1 the cancer. Advances in genetic testing  
2 technology and genetic knowledge may later  
3 identify gene mutations not currently  
4 recognized."

5 Did I read that correctly?

6 A. Yes.

7 Q. All right. So correct me if I'm wrong,  
8 Dr. Vance, what you're saying is that at some  
9 indeterminate time, some unknown gene will have  
10 some unknown mutation that could potentially  
11 explain Mrs. Tukes's renal cell carcinoma as  
12 being hereditary? Is that your testimony?

13 MR. WHITE: Object to form.

14 A. Yes.

15 BY MR. ROBERTS:

16 Q. All right. Dr. Vance, you would agree that  
17 that is absolutely pure speculation, wouldn't  
18 you?

19 MR. WHITE: Object to form.

20 A. No.

21 BY MR. ROBERTS:

22 Q. Okay. All right. You can't identify the gene,  
23 correct?

24 MR. WHITE: Object to form.

25 A. Not at this time.

1 BY MR. ROBERTS:

2 Q. You can't identify the mutation?

3 MR. WHITE: Same objection.

4 BY MR. ROBERTS:

5 Q. Correct?

6 A. Not at this time.

7 Q. And you can't say when this unknown gene or  
8 unknown mutation will be discovered, can you?

9 MR. WHITE: Object to form.

10 A. That is correct.

11 (WHEREUPON, Deposition Exhibit 4 was  
12 marked for identification.)

13 BY MR. ROBERTS:

14 Q. I would like to shift gears, if we could. I'm  
15 going to mark Exhibit 4 to your deposition,  
16 which I will represent to you are the National  
17 Comprehensive Cancer Network Clinical Practice  
18 Guidelines in Oncology. Is that correct?

19 A. Yes.

20 Q. Dr. Vance, if you could turn over -- let me  
21 exchange this one for yours because I had the  
22 page marked, so we won't have to be fumbling  
23 around.

24 To make it easier for you, Dr. Vance, I  
25 have tabbed the page that I'm going to be

1           talking to you about.

2           MR. WHITE:   Is there a page number you  
3           can give --

4           MR. ROBERTS:   Yeah.

5           MR. WHITE:   -- me so I can follow along?

6           MR. ROBERTS:   It's -- and I'll give you a  
7           moment, Luke, to find that.   It's H-E-R-E-D,  
8           HERED-RCC-1.

9           MR. WHITE:   Okay.   I may need a moment to  
10          find that.

11          THE WITNESS:   It's after the KID.

12          MR. ROBERTS:   Let me know when you're  
13          there, Luke.

14          MR. WHITE:   I'm really sorry, I cannot  
15          find that.

16          THE WITNESS:   It was after KID.   It's  
17          about 30 pages in.

18          MR. WHITE:   This one goes from KID-E to  
19          ST-1.

20          MR. ROBERTS:   Let me give you this one.

21          THE WITNESS:   Yeah, that's not correct.

22          MR. ROBERTS:   Here you go.

23          THE WITNESS:   You're missing --

24          MR. WHITE:   I'm sorry, that's got my  
25          little exhibit not on that.   I'm sorry.

1 MR. ROBERTS: See if you can find it now.  
2 I apologize for that.

3 MR. WHITE: No, it's okay.

4 There we go. I got HERED-RCC-1?

5 MR. ROBERTS: Yep.

6 MR. WHITE: All right. Thank you, sir.  
7 I appreciate that.

8 BY MR. ROBERTS:

9 Q. Now, in your report that you've given in this  
10 case, you've mentioned that the National  
11 Comprehensive Cancer Network lists different  
12 criteria when evaluating someone for hereditary  
13 renal cell carcinoma. Do you recall that?

14 A. Yes.

15 Q. And I'd like to direct your attention to the  
16 subheading that states: "Criteria for Further  
17 Genetic Risk Evaluation for Hereditary Renal  
18 Cell Carcinoma Syndromes."

19 Did I read that correctly?

20 A. Yes.

21 Q. Now, I have read this document several times.  
22 And, Dr. Vance, I did not see anywhere in the  
23 document that said you could diagnose someone  
24 as suffering from hereditary renal cell  
25 carcinoma based solely on the clinical picture.

1 Did I miss that?

2 MR. WHITE: Object to form.

3 A. I would point your attention to number 2.

4 BY MR. ROBERTS:

5 Q. Okay.

6 A. Any individual with RCC, renal cell carcinoma,  
7 with any of the following, any of the  
8 following: One, diagnosed less than or equal  
9 to 46 years; two, bilateral or multifocal  
10 tumors; three, greater or equal to one first-  
11 or second-degree relative with RCC.

12 Ms. Tukes has all three.

13 Q. All right. But if we look at the heading that  
14 I just read to you --

15 A. Uh-huh.

16 Q. -- those criteria are for further genetic risk  
17 evaluation, are they not?

18 A. That is correct.

19 Q. So as I read this document, if you present with  
20 one or more of these criteria, then according  
21 to the NCCN guidelines, then you go to genetic  
22 testing, isn't that correct?

23 MR. WHITE: Object to form.

24 A. That -- that is the most direct and the  
25 strongest component under evaluation, but

1 evaluation includes more than just genetic  
2 testing. It includes their medical history.  
3 It includes their family history. And it also  
4 includes genetic testing. And then it may,  
5 depending on those results or what you find,  
6 then include management.

7 BY MR. ROBERTS:

8 Q. Dr. Vance, are you telling us that these NCCN  
9 guidelines allow you to diagnose hereditary  
10 renal cell carcinoma based solely on clinical  
11 features?

12 MR. WHITE: Object to form.

13 A. They're guidelines. So that the -- do they  
14 allow me to? Yes.

15 BY MR. ROBERTS:

16 Q. All right. In your expert report, you also  
17 talk about differential diagnosis. That's  
18 something a clinician does, correct?

19 A. Correct.

20 Q. And what do you understand a differential  
21 diagnosis to be?

22 A. Differential diagnosis has what you are  
23 thinking about as the etiology -- and actually  
24 not only the etiology, but the presentation and  
25 possible management of an illness.

1 Q. So when you're doing a differential diagnosis  
2 as a clinician, is it important to you to  
3 consider other causes of renal cell carcinoma  
4 or any cancer that you're involved with?

5 MR. WHITE: Object to form.

6 A. Yes.

7 BY MR. ROBERTS:

8 Q. All right. So in other words, in Jacqueline  
9 Tukes's case, and you focus on the second  
10 criteria of the NCCN guidelines, which you said  
11 diagnosed at 40 years -- 46 years old or less,  
12 bilateral multifocal tumors, first- or  
13 second-degree relative with RCC. That's the --  
14 that's the main component or criteria of the  
15 NCCN guidelines that you are relying on in this  
16 case, correct?

17 A. All three, yes.

18 Q. Okay. But there's four boxes, right?

19 A. Uh-huh.

20 Q. And the only one that Mrs. Tukes fits in is  
21 number two, "an individual with RCC with any of  
22 the following criteria," correct?

23 A. That is correct.

24 Q. And -- so let me -- let me ask this question.  
25 I think you were asked earlier, and I don't

1 want to repeat myself, but have you seen any  
2 medical literature that people 46 years of age  
3 or younger that are exposed to carcinogens can  
4 develop renal cell carcinoma or other cancers?

5 MR. WHITE: Object to form.

6 A. No.

7 BY MR. ROBERTS:

8 Q. Okay. Do you know if bilateral or multifocal  
9 tumors can be present in people that are  
10 exposed to carcinogens?

11 A. No.

12 Q. Do you know -- let me -- let me strike that and  
13 back up.

14 If that is the case, would that alter  
15 your opinions in this case?

16 MR. WHITE: Object to form.

17 A. I -- I don't think so. My experience leads me  
18 to believe that Ms. Tukes had classical  
19 hereditary renal cell carcinoma. She met every  
20 box. She had extensive disease. She's not  
21 like any of the renal cancers that we typically  
22 see in clinic. I mean, I just think that -- I  
23 was describing this earlier, that of the bell  
24 curve. She's on the one tail of the bell  
25 curve. She has extraordinary disease.



1 BY MR. ROBERTS:

2 Q. Would it change your opinions if her treating  
3 oncologist testified that the other patients  
4 that fit the description that you just gave for  
5 Ms. Tukes are also people that were exposed to  
6 carcinogens at Camp Lejeune?

7 MR. WHITE: Object to form.

8 A. No.

9 BY MR. ROBERTS:

10 Q. Okay. All right. So you didn't -- in reaching  
11 your opinions in this case, you based it solely  
12 on clinical features because all of the genetic  
13 testing was negative, true?

14 A. Clinical features and my experience.

15 Q. Okay. You did not give any consideration  
16 whatsoever, did you, doctor, to whether or not  
17 her cancer could have been due to exposure to  
18 carcinogens at Camp Lejeune, did you?

19 MR. WHITE: Object to form.

20 A. No.

21 MR. ROBERTS: Okay. Let's take a quick  
22 break.

23 MR. WHITE: Sure.

24 THE VIDEOGRAPHER: Off the record

25 10:09 a.m.

1 (WHEREUPON, at this time a brief recess  
2 was taken.)

3 THE VIDEOGRAPHER: We are back on the  
4 record at 10:15 a.m.

5 BY MR. ROBERTS:

6 Q. Dr. Vance, when we took our brief break, we  
7 were talking about the NCCN guidelines. Do you  
8 recall that discussion we were having?

9 A. Yes.

10 Q. I guess what I'm trying to understand -- and,  
11 again, I don't want to belabor this point, but  
12 as I look at the guidelines, I did not see  
13 anywhere in those guidelines that said that you  
14 can diagnose renal cell carcinoma based solely  
15 on clinical presentation. Did I miss it or is  
16 it not there?

17 MR. WHITE: Object to form.

18 A. She has renal cell carcinoma. So we're not  
19 diagnosing renal cell carcinoma. She had  
20 multiple incidences of renal cell carcinoma.

21 BY MR. ROBERTS:

22 Q. Let me restate the question. Hereditary renal  
23 cell carcinoma.

24 A. So can you say the full question then?

25 Q. Yes, ma'am.

1                   In looking at the National Comprehensive  
2                   Cancer Network Guidelines that we've been  
3                   talking about --

4       A.     Yes.

5       Q.     -- does it anywhere say in this document that  
6                   you can diagnose someone to be suffering from  
7                   hereditary renal cell carcinoma based solely on  
8                   the clinical presentation in the face of a  
9                   negative genetic test? Does it say that  
10                  anywhere?

11               MR. WHITE: Object to form.

12       A.     No.

13               BY MR. ROBERTS:

14       Q.     Okay. All right. Let's go back to RCC-1. I  
15                  think you've got it open there, right?

16       A.     Yes, I do.

17       Q.     And you see -- we talked about this before our  
18                  break -- Criteria for Further Genetic Risk  
19                  Evaluation for Hereditary --

20       A.     Uh-huh.

21       Q.     -- Renal Cell Carcinoma Syndromes, correct?

22       A.     Correct.

23       Q.     So as I read this document, Dr. Vance, it says  
24                  if a patient or person meets the criteria that  
25                  are in those boxes on page RCC-1, then you go

1 to genetic testing. Am I reading that  
2 correctly?

3 A. No. As I said earlier, it's genetic risk  
4 evaluation, and genetic risk evaluation  
5 includes more than genetic testing. It  
6 includes an assessment of personal history, the  
7 family history, and then, if appropriate,  
8 genetic testing.

9 Q. Well, again, maybe I'm misunderstanding you.  
10 These criteria, if somebody meets them, would  
11 you then not do the genetic testing?

12 A. It's unlikely.

13 Q. You would -- that would lead you to do the  
14 genetic testing, right?

15 A. Yes.

16 Q. So my question to you is, if you can diagnose  
17 hereditary renal cell carcinoma based solely on  
18 these criteria that are in the NCCN guidelines,  
19 why even do the genetic testing?

20 MR. WHITE: Object to form.

21 A. I think I've mentioned this before, but I'll  
22 say it again. When you do genetic testing,  
23 what you're trying to understand is etiology.  
24 With etiology, you sometimes will see that  
25 they're at risk for other things other than

1 renal cell carcinoma, such as skin disorders  
2 or, you know, an increased risk for breast  
3 cancer as well as renal cell carcinoma.

4 The other reason you do that is to help  
5 with your management, because you understand  
6 the disease a little bit more, and also for  
7 family risk assessment so that individuals that  
8 are first- and second-degree relatives can then  
9 potentially be tested, if they so desire, and  
10 then be screened for the cancers associated  
11 with that gene mutation.

12 BY MR. ROBERTS:

13 Q. Well, I think in your report you indicated that  
14 there was some question about whether  
15 Mrs. Tukes's mother's renal cell carcinoma was  
16 primary or had it -- it was the result of a  
17 metastasis, is that fair?

18 MR. WHITE: Object to form.

19 A. It's in my report because that was in the  
20 medical records, that there was some ambiguity  
21 about her mother's cancer. However, in reading  
22 Ms. Tukes's deposition, she clearly states her  
23 mother had renal cell carcinoma.

24 BY MR. ROBERTS:

25 Q. But the question is: Was it primary or was it

1 the result of a metastasis, correct? And that  
2 was -- that was the question.

3 A. I don't know.

4 Q. So you don't -- all right.

5 A. I don't know.

6 Q. All right. Well, let me -- let me ask you this  
7 question: When did Mrs. Tukes's mother develop  
8 her kidney cancer?

9 A. It's stated in the medical record that she  
10 developed it at 67 and she died at 67.

11 Q. Now, so for her to get hereditary renal cell  
12 carcinoma -- I'm sorry. I didn't mean to cut  
13 you off.

14 A. No. I meant years, is what I meant to add.

15 Q. All right. So for Mrs. Tukes's mother to have  
16 hereditary renal cell carcinoma, she would have  
17 had to have inherited it from one of her  
18 parents, correct?

19 MR. WHITE: Object to form.

20 A. Most likely.

21 BY MR. ROBERTS:

22 Q. Okay. And hers did not develop until she was  
23 67, correct?

24 A. That is correct.

25 Q. So to what weight do you give the fact that

1 Mrs. Tukes's mother did not -- was not  
2 diagnosed with renal cell carcinoma until 67?

3 A. There are so many reasons for that. So I don't  
4 give a lot of weight to that. I don't know  
5 Mrs. Tukes's mother's care. I don't know how  
6 she presented. I don't know the rest of her  
7 medical history. All I know is what I read in  
8 the medical report, Ms. Tukes's -- Jacqueline  
9 Tukes's medical report, that her mother had  
10 renal cell carcinoma, and then Ms. Tukes  
11 herself repeats that in her deposition.

12 Q. Look, my question is: If Mrs. Tukes's mother  
13 had hereditary renal cell carcinoma, based on  
14 what we're looking at in the NCCN guidelines,  
15 isn't your testimony that that should have  
16 presented prior to the time she was diagnosed  
17 at 67?

18 MR. WHITE: Object to form.

19 A. It is not my testimony, no. I tried to explain  
20 this. I -- her renal cell carcinoma could have  
21 presented later. It could have presented  
22 earlier and she decided not to see a physician  
23 about it.

24 BY MR. ROBERTS:

25 Q. That's, again --

1 A. I don't know.

2 Q. -- that's pure speculation, right?

3 A. Yeah. I have no idea.

4 Q. And it's pure speculation as to whether or not  
5 her mother's renal cell carcinoma was a primary  
6 or whether it was a metastasis, correct?

7 MR. WHITE: Object to form.

8 A. I don't know that it's speculation. There  
9 might be evidence somewhere in a medical  
10 record, but I don't know it.

11 BY MR. ROBERTS:

12 Q. Okay. Again, so you can't base your opinion on  
13 it if you don't know it, right?

14 MR. WHITE: Object to form.

15 A. I cannot base my opinion on whether Ms. Tukes's  
16 mother was -- renal cell carcinoma was primary  
17 or metastatic disease without further  
18 information.

19 BY MR. ROBERTS:

20 Q. Okay. Now, let's turn over to the second page  
21 RCC-2.

22 A. Okay.

23 Q. And do you see this discusses hereditary renal  
24 cell carcinoma syndromes? Do you see that?

25 A. I do.



1 Q. And, again, all the genes that are listed in  
2 the first column, Mrs. Tukes was tested for and  
3 they were all negative, correct?

4 A. That is correct.

5 Q. Such as, I think you mentioned,  
6 von Hippel-Lindau, that was negative, along  
7 with the other genes, correct?

8 A. Correct.

9 Q. All right. Now, let's turn to the third page.  
10 And I'm -- and what I want to ask you,  
11 Dr. Vance, is whether or not the guidelines,  
12 the NCCN guidelines, were followed over at  
13 NC -- over at UNC to the letter. They were,  
14 were they not?

15 MR. WHITE: Object to form.

16 A. I actually can't answer that.

17 BY MR. ROBERTS:

18 Q. Okay.

19 A. I don't know if they followed them to the  
20 letter.

21 Q. Okay. Is there anything that you think UNC  
22 hospital should have done with Mrs. Tukes that  
23 they didn't do?

24 MR. WHITE: Object to form.

25 A. Are you referring to her appointment in 2018?

1 BY MR. ROBERTS:

2 Q. Well, just any -- based on any of the medical  
3 records that you've seen.

4 MR. WHITE: Same objection.

5 A. Well, I can't make that statement because she  
6 was treated -- she was tested in 2018. I don't  
7 know if she was seen by genetics subsequent to  
8 that. I didn't see any report to that. And  
9 then she transferred her care elsewhere.

10 BY MR. ROBERTS:

11 Q. Okay. Well, let's go -- let's go to the --  
12 would you say this is a decision tree --

13 A. Yes.

14 Q. -- over on the second page?

15 MR. WHITE: Is this page GENE-1?

16 MR. ROBERTS: Yes, GENE-1. Sorry.

17 BY MR. ROBERTS:

18 Q. So the first column says, "Individuals with" --  
19 "Individuals with syndrome features," correct?

20 A. Correct.

21 Q. And based on what we saw on the table, item 2,  
22 diagnosed at age 46 or younger, bilateral,  
23 multifocal tumors, first- or second-degree  
24 relative, so that was the basis for -- for  
25 wanting to assess her further, correct?

1 A. Yes.

2 Q. All right. And then as we move through the  
3 decision tree, it talks about psychological  
4 assessment and support, risk counseling,  
5 education, discussion of genetic testing,  
6 informed consent. That was done, correct?

7 A. Yes.

8 Q. And then we go to "No known familial  
9 pathogenic/likely pathogenic variant." We  
10 didn't -- because Ms. Tukes's mom wasn't  
11 tested, we don't know that, correct?

12 A. Correct.

13 Q. So we continue on down the decision tree,  
14 correct?

15 A. So are we talking about Ms. Tukes or her  
16 mother?

17 Q. I'm talking about Ms. Tukes.

18 A. Ms. Tukes herself?

19 Q. Yeah, correct.

20 A. Okay.

21 Q. So that leads us to "Consider testing of  
22 individuals with kidney cancer-focused  
23 multigene panel or clinically directed  
24 single-gene testing." She had all that done,  
25 correct?

1 A. Well, she did have a multigene panel. There  
2 are others.

3 Q. Right. But in your report, you said it was  
4 unlikely that would have yielded any useful  
5 information, correct?

6 MR. WHITE: Object to form.

7 A. Yes.

8 BY MR. ROBERTS:

9 Q. All right. So let's continue down the decision  
10 tree.

11 All right. "No pathogenic/likely  
12 pathogenic variant found." That's Mrs. Tukes,  
13 right?

14 A. Correct.

15 Q. And so the next -- the final item on the  
16 decision tree is "Offer research and  
17 individualized recommendations, according to  
18 personal and family history," correct?

19 A. Yes.

20 Q. So you would agree with me that UNC-Chapel Hill  
21 followed the NCCN guidelines to the letter?

22 MR. WHITE: Object to form.

23 BY MR. ROBERTS:

24 Q. Correct?

25 A. Well, I don't know if they offered her

1 research, and I don't know what their  
2 individual recommendations are. So -- and  
3 that's why I'm saying I believe she transferred  
4 her care.

5 Q. So are you -- are you saying that you  
6 UNC-Chapel Hill Hospital and the genetic  
7 professionals there failed to do something that  
8 they should have done with respect to the care  
9 of Jacqueline Tukes?

10 MR. WHITE: Object to form.

11 A. I see where you're going. Okay. Now I  
12 understand more clearly.

13 So the folks at UNC genetics department  
14 did their appropriate work, that is correct.

15 BY MR. ROBERTS:

16 Q. Okay.

17 A. The care was then left to the urological team.

18 Q. Dr. McCarthy?

19 A. Was -- I don't believe he was at UNC.

20 Q. He was not.

21 A. So then we're leaving USC, correct?

22 Q. UNC.

23 A. UNC.

24 Q. Yes, ma'am.

25 A. Yeah.

1 Q. Okay.

2 A. So if we're -- I'd like clarification. So  
3 we're talking about UNC genetics, is that  
4 correct?

5 Q. Yes, ma'am.

6 A. So --

7 Q. Everything -- everything was done  
8 appropriately, in your opinion, correct?

9 MR. WHITE: Object to form.

10 A. At UNC --

11 BY MR. ROBERTS:

12 Q. Genetics --

13 A. -- genetics?

14 Q. -- correct.

15 A. Yes.

16 Q. And did you note that Ms. Gabarini, in one of  
17 her letters to Mrs. Tukes, stated that, "This  
18 normal result is reassuring and indicates that  
19 you do not likely have well understood  
20 hereditary predisposition to renal cancer"?

21 Did I read that correctly?

22 A. I believe so.

23 Q. All right. Would you agree with Ms. Gabarini?

24 A. No.

25 Q. What is it about that statement that you don't

1           agree with?

2       A.    I believe that -- I wouldn't consider her  
3           negative testing good news. I would consider,  
4           as I stated in the report, that her result was  
5           indeterminate. She has the features of  
6           hereditary cancer. We're unable, at that point  
7           in time, was which was 2018, to find a gene  
8           responsible for her disease. And what I would  
9           have recommended is that she return to our  
10          service in five years or so to see if there is  
11          updated testing, which we do because genetic  
12          knowledge continues to expand.

13       Q.   I don't want to go back over what we covered  
14           previously, but as you sit here today -- well,  
15           just strike that. There's no need to go back  
16           over that again.

17                But the question I was asking you is the  
18           statement that Ms. Gabarini made about her  
19           genetic testing -- I didn't say anything about  
20           fortunate or unfortunate.

21                "This normal result is reassuring and  
22           indicates that you do not likely have well  
23           understood hereditary predisposition to renal  
24           cell cancer." Would you agree with that  
25           statement or not?

1 A. I would say, no, but I think the adjective  
2 "well understood" is correct.

3 BY MR. ROBERTS:

4 Q. Okay. And you stick by your testimony that the  
5 fact that her objective genetic testing was all  
6 negative was not good news for Mrs. Tukes, is  
7 that your testimony?

8 MR. WHITE: Object to form.

9 A. That is not the words I used. I wouldn't say  
10 "good news." It was not good news. I would  
11 say it was an indeterminate result and that she  
12 still had features of hereditary cancer and  
13 should be treated as such.

14 BY MR. ROBERTS:

15 Q. Okay. Let me ask you about the PMS2 gene. I'd  
16 like to start by asking you: What is the  
17 function of the PMS2 gene?

18 A. The PMS2 gene is one of the Lynch genes that is  
19 involved in hereditary non-polyposis colon  
20 cancer. It is considered a DNA repair gene.

21 Q. Okay. Let me back up and ask you: In response  
22 to one of my previous questions, Dr. Vance, is  
23 it your -- is it your testimony that you  
24 believe that Mrs. Tukes got wrong advice from  
25 the geneticist at UNC-Chapel Hill?



1 MR. WHITE: Object to form.

2 A. I wouldn't say it was wrong. I think I stated  
3 this previously. I would state it differently.  
4 But she was correct in saying that they didn't  
5 identify a gene mutation.

6 BY MR. ROBERTS:

7 Q. Well, you're not suggesting that the geneticist  
8 at -- over at UNC-Chapel Hill didn't comply  
9 with the standard of care, are you?

10 MR. WHITE: Object to form.

11 A. No.

12 BY MR. ROBERTS:

13 Q. All right. Getting back to the function of the  
14 PMS2 gene, it's involved in DNA mismatch  
15 repair, is that correct?

16 A. That is correct.

17 Q. And what is DNA mismatch repair?

18 A. Well, it was first discovered in E. coli, the  
19 bacteria. And what happens is that when  
20 there's a mismatch of a nucleotide, this  
21 machinery, PMS2 being one of them, will come in  
22 and repair the mismatch of the nucleotide.

23 Q. Is -- the process of DNA mismatch repair, would  
24 you consider that important in cancer?

25 MR. WHITE: Object to form.

1 A. Yes.

2 BY MR. ROBERTS:

3 Q. Why is that important?

4 A. Because it's one of the mechanisms the cell has  
5 to repair damage.

6 Q. And would a loss of function mutation in PMS2  
7 impact the process of mismatch repair?

8 A. It could.

9 Q. And would a loss in PMS2 function be expected  
10 to result in an increase in cancer developments  
11 following exposure to carcinogens or other  
12 agents that damage DNA?

13 MR. WHITE: Object to form.

14 A. I'm not aware of that specifically.

15 BY MR. ROBERTS:

16 Q. Okay. So you don't have an opinion one way or  
17 the other on that, do you?

18 A. No.

19 Q. Okay. You're not going to come to trial and  
20 offer any opinion on that subject, right?

21 A. On what subject?

22 Q. On the one we just talked about, whether a loss  
23 of function could result in increased cancer  
24 development following exposure to agents or  
25 carcinogens that damage DNA.

1 A. I would -- I would testify that loss of  
2 function can increase the risk of development  
3 of cancer, not necessarily to a carcinogen.

4 Q. Okay. But do you have an opinion as to whether  
5 a carcinogen can cause that loss of function?

6 A. No.

7 Q. And you're not going to have an opinion at  
8 trial on that subject, are you?

9 A. Well, you know, I believe, as I've said  
10 previously, that there are multiple reasons  
11 for, like, for instance, a second hit. There  
12 are multiple reasons people develop cancer, and  
13 most likely it's not heritable cancer. It's  
14 related to your genetic background and your  
15 exposures. That's the bulk of what we call  
16 sporadic cancer.

17 Q. Okay. So, again, the second hit that's in  
18 Dr. Knudson's model, it could be exposure to  
19 carcinogens, correct?

20 MR. WHITE: Object to form.

21 A. Yes, it could be.

22 BY MR. ROBERTS:

23 Q. It could be -- the second hit could be exposure  
24 to the carcinogens at Camp Lejeune, correct?

25 MR. WHITE: Object to form.

1 A. Specifically, I don't know. But a carcinogen,  
2 yes.

3 BY MR. ROBERTS:

4 Q. All right. Now, what is a missense mutation?

5 A. A missense mutation is a change of one  
6 nucleotide for another that will change the  
7 amino acid.

8 Q. And can a missense mutation result in a loss of  
9 function?

10 A. A missense mutation can result in a loss of  
11 function, yes.

12 Q. And what is the effect of a loss of function  
13 due to a missense mutation?

14 MR. WHITE: Object to form.

15 A. Okay. A missense mutation causing a loss of  
16 function can then impair the protein associated  
17 with that gene.

18 BY MR. ROBERTS:

19 Q. And if that happens, do you have an opinion as  
20 to whether or not that person would be more  
21 susceptible to cancer from a carcinogenic  
22 exposure?

23 MR. WHITE: Object to form.

24 A. I do not have an opinion on that.

25 BY MR. ROBERTS:

1 Q. One way or the other?

2 A. No, because I don't know what the missense  
3 mutation was and I don't know the degree of  
4 loss of protein. So that's just pure  
5 speculation. It's not specific.

6 Q. Well, you know Ms. Tukes has a missense  
7 mutation in the PMS2 gene, correct?

8 A. Yes.

9 Q. Okay. And where does this mutation occur in  
10 the gene and protein with respect to Ms. Tukes,  
11 do you know?

12 A. Say that again.

13 Q. Yes. Where does this mutation occur in the  
14 gene and protein?

15 MR. WHITE: Object to form.

16 A. I -- I don't know. I don't recall -- well, I  
17 don't recall what exon that missense change  
18 occurred of the gene. It's in the report, but  
19 I don't recall what that was.

20 BY MR. ROBERTS:

21 Q. With a missense mutation, is it expected to  
22 change the structure of the protein by  
23 substituting one amino acid for another?

24 A. No, it is not expected.

25 Q. Does that ever happen?

1 A. It can.

2 Q. Okay. So why would it not be expected?

3 A. Because, in this case, it was a neutral change.

4 Q. A neutral change meaning what?

5 A. A substitution of one amino for another that  
6 did not affect the protein.

7 Q. And what is the basis for that opinion?

8 A. In the fact -- the basis is looking at  
9 functional data that's available, looking at  
10 family histories of people with the same  
11 variant, looking at how that missense  
12 mutation -- or missense change, rather, is  
13 conserved in -- over species and conserved in  
14 individuals, humans.

15 So there's different functional criteria  
16 that help to understand whether the missense  
17 change is neutral or affects the protein.

18 Q. And in Ms. Tukes's case, you're saying it's  
19 neutral?

20 A. I'm saying it is benign.

21 Q. Okay. So there would be no loss of function,  
22 is that what you're saying?

23 A. That is what I'm saying.

24 Q. All right. What is the basis for your opinion  
25 that it's benign and it would not result in a

1           loss of function?

2                   MR. WHITE: Object to form.

3       A.   My basis for my opinion is the Invitae report  
4           that in 2018 first identified a missense  
5           change, called then a variant of uncertain  
6           significance because they didn't know if it was  
7           associated with a protein change or not.

8                   Then over time, and I forget the time,  
9           it's in my report, it was changed to likely  
10          benign, meaning neutral, no -- no association  
11          with disease.

12                 BY MR. ROBERTS:

13       Q.   Would Invitae have taken into account the  
14           effect of that missense change when you  
15           introduce a carcinogenic exposure?

16                   MR. WHITE: Objection to form.

17       A.   I can't -- I can't comment on what Invitae  
18           would do.

19                 BY MR. ROBERTS:

20       Q.   Do you know whether or not Invitae even  
21           considered carcinogenic exposure?

22                   MR. WHITE: Object to form.

23       A.   I have no opinion as to that.

24                   MR. ROBERTS: We're up to Exhibit, what,  
25           5?

1 MR. WHITE: I believe so, yes.

2 THE WITNESS: Yes.

3 (WHEREUPON, Deposition Exhibit 5 was  
4 marked for identification.)

5 BY MR. ROBERTS:

6 Q. Dr. Vance, I'm showing you what we've marked as  
7 Exhibit 5 to your deposition. And this is --  
8 is this the Invitae report that you just  
9 alluded to?

10 A. Yes, this is the first one.

11 Q. Okay. And directing your attention to page 2  
12 of this document.

13 A. Pretty small font, but, yes.

14 Q. Do you see the PMS2, Exon 14, uncertain  
15 significance? Do you see that?

16 A. Uh-huh, I do.

17 Q. And do you see the language that says, "An  
18 algorithm developed specifically for the PMS2  
19 gene suggests that this missense change is  
20 likely to be deleterious"? Do you see that?

21 A. I do.

22 Q. So did you understand that Invitae had run an  
23 algorithm specifically for the PMS2 gene?

24 A. That's what it says there.

25 Q. And the fact that Invitae later came back and



1       said it was likely benign, that would not  
2       change the algorithm, would it, that was run by  
3       Invitae that found the missense change would be  
4       likely deleterious, would it?

5               MR. WHITE: Object to form.

6       A. I can't say for certain. I do see that they  
7       only list one article as the foundation of  
8       their opinion. And they state clearly that the  
9       prediction had not been confirmed by published  
10      functional studies or clinical significance.

11      BY MR. ROBERTS:

12      Q. Now, you've looked at the ClinVar data for this  
13      variant, is that correct?

14      A. Yes.

15      Q. And what is the rationale for stating that the  
16      variant is not likely to be pathogenic?

17      A. The data that the laboratories have that they  
18      report in ClinVar is based on what I stated  
19      previously, the incident of the missense, if it  
20      travels with disease, if there are any  
21      functional studies to show that it's damaging  
22      in culture, et cetera.

23      Q. Did you look -- when you looked at the ClinVar  
24      data, did you find any evidence of any studies  
25      that determined that there was a deleterious

1 effect on the protein structure and the  
2 function in the comments section of the ClinVar  
3 data?

4 MR. WHITE: Object to form.

5 A. No. I looked at -- as I stated in my report,  
6 there were 11 other laboratories that had data  
7 on this mutation, and I forget how many of  
8 them, of that 11, stated that it was also  
9 likely benign.

10 BY MR. ROBERTS:

11 Q. Did you see any laboratories that concluded  
12 that the missense variant has a deleterious  
13 effect on protein structure and function?

14 A. That specific missense, no, I did not.

15 Q. Did you bother to pull down the comments on the  
16 screen in the ClinVar data?

17 MR. WHITE: Object to form.

18 A. I'm not sure what you're referring to.

19 MR. ROBERTS: Okay.

20 (WHEREUPON, Deposition Exhibit 6 was  
21 marked for identification.)

22 THE WITNESS: Are these comments from  
23 2018 or 2021? Okay.

24 BY MR. ROBERTS:

25 Q. See there, 2021. Do you see it?

1 A. Yes, uh-huh.

2 Q. Is this the first time you've seen this  
3 document?

4 A. In this format, yes.

5 Q. In any format.

6 A. Well, this is from ClinVar, correct?

7 Q. Right.

8 A. It's not identifiable.

9 Q. Right. Well, I mean --

10 A. It looks like it's from ClinVar.

11 Q. It is from ClinVar. And the ClinVar is very --  
12 it's very -- as you're probably aware, when you  
13 pull it off the computer, it's very small,  
14 right?

15 A. Uh-huh.

16 Q. And I tried to help us out here. But the first  
17 document is from a lab called GeneDx. Are you  
18 familiar with GeneDx?

19 A. Yes.

20 Q. What is GeneDx?

21 A. It's a national laboratory.

22 Q. Well respected, well renowned, correct?

23 A. Yes.

24 MR. WHITE: Object to form.

25 BY MR. ROBERTS:

1 Q. GeneDx does a lot of genetic testing, correct?

2 A. Yes.

3 Q. One of the world's leaders in genetic testing?

4 MR. WHITE: Object to form.

5 A. I don't know if it's a leader. It's a  
6 well-known, well-respected lab.

7 BY MR. ROBERTS:

8 Q. Okay. Do you see the statement that "In silico  
9 analysis supports that this missense variant  
10 has a deleterious effect on protein/function"?  
11 Do you see that?

12 A. I do.

13 Q. Is that the first time you were aware that  
14 GeneDx had reached that conclusion?

15 A. I actually would say probably, yes, because  
16 what I looked at was likely benign as of  
17 June 2021, and it was one of several labs  
18 either stating it was likely benign or of  
19 uncertain significance.

20 Q. So what significance, if any, do you put in  
21 GeneDx's comment with respect to the PMS2  
22 variant that analysis supports this missense  
23 variant has a deleterious effect on protein  
24 structure and function?

25 A. Well --

1 MR. WHITE: Object to form.

2 A. -- I find it confusing, I guess.

3 BY MR. ROBERTS:

4 Q. Okay.

5 A. Because I don't know why they would call it  
6 likely benign and then have a comment that it  
7 could be deleterious.

8 Q. Let's look at the second page. Have you ever  
9 heard of Color Diagnostics, LLC?

10 A. Yes.

11 Q. Another well-renowned, well-regarded genetic  
12 testing laboratory?

13 MR. WHITE: Object to form.

14 A. Not as well known or well regarded.

15 BY MR. ROBERTS:

16 Q. As GeneDx?

17 A. Correct.

18 Q. Okay. Let's go to the page before that. Do  
19 you see Genetic Services Laboratory, University  
20 of Chicago?

21 A. Yes.

22 Q. Have you heard of them before?

23 A. Yes.

24 Q. Very well regarded?

25 MR. WHITE: Object to form.

1 BY MR. ROBERTS:

2 Q. Well known, correct?

3 MR. WHITE: Object to form.

4 A. I would think so.

5 BY MR. ROBERTS:

6 Q. All right. And do you see the comment --  
7 Dr. Vance, I'm trying to understand. When you  
8 looked at the ClinVar data, what actually did  
9 you look at? What -- you appear to -- to be  
10 surprised with the information that I'm handing  
11 you here.

12 You hadn't seen that prior to your  
13 deposition today, had you?

14 MR. WHITE: Object to form.

15 A. I saw -- I would correct you. I saw it, but I  
16 didn't take much significance in it because I  
17 believe the laboratory is unable to make a  
18 conclusion. They are waffling and they are  
19 saying there has been some evidence of a  
20 deleterious effect, but we can't conclude that,  
21 as you can see by saying uncertain significance  
22 or likely benign.

23 So I think that they're covering their  
24 bases and showing you the evidence that they do  
25 have, but they can't make a conclusion.

1 BY MR. ROBERTS:

2 Q. How would you go about making a conclusion as  
3 to whether or not this missense variant has a  
4 deleterious effect on protein structure and  
5 function? How would you -- how would you  
6 investigate that further?

7 A. Well, there are functional studies. And as I  
8 was saying, functional studies, you put them  
9 in, like, a zebra fish or something -- some  
10 other model. And what you see is if that --  
11 that missense mutation or that gene itself  
12 causes a deleterious effect to either the  
13 structure of the organ or the development of  
14 the model.

15 Q. So you're saying on animal studies it would --

16 A. It could be animals. In silico is -- in silico  
17 means that they tested different theories on a  
18 computer.

19 Q. Okay. Right.

20 So one way to determine whether this  
21 missense mutation in PSM2 (sic) has a  
22 deleterious effect would be to do animal  
23 studies. Do you agree with that?

24 A. Yes.

25 Q. Okay. Did you see any animal studies that were

1           done in this case on the PMS2 variant that  
2           Mrs. Tukes had?

3       A.    No.

4       Q.    Did you see Dr. Allen's rebuttal report --

5       A.    Yes.

6       Q.    -- about the animal studies?

7       A.    Yes.

8       Q.    Okay.  And what were your opinions about the  
9           animal studies that Dr. Allen relied on?

10      A.    I did not know if his studies were in general  
11           or if they were specific for this variant.

12      Q.    Do you know now?

13      A.    No.

14      Q.    What if they were specific to this variant?

15      A.    I'd say that that was one level of evidence.

16      Q.    That would support Dr. Allen's opinions  
17           regarding the effect of this variant, true?

18                   MR. WHITE:  Object to form.

19      A.    I can't say that it would support what he  
20           thinks, but I could say that it would support  
21           that the variant may have a deleterious effect,  
22           as stated also in ClinVar, but it's not  
23           conclusive.

24                   BY MR. ROBERTS:

25      Q.    So we've got GeneDx, we've got Genetic Services



1 Laboratory, University of Chicago, and we've  
2 got Color Diagnostics that apparently noted  
3 that this variant in PMS2 has a potential  
4 deleterious effect, fair?

5 A. That's fair, yes.

6 Q. And we also saw in the algorithm that was in  
7 the Invitae report found that the mutation is  
8 likely to result in a loss of function. Do you  
9 recall us looking at that?

10 A. Yes.

11 Q. Okay.

12 A. But I would correct you and say that Invitae,  
13 and despite that comment, has determined that  
14 this missense mutation or this missense change  
15 is likely benign, meaning not associated with  
16 disease.

17 Q. Let me -- let me ask you this: When you say  
18 it's likely benign, you would agree with me  
19 that ClinVar doesn't take into account the  
20 effect of that missense change when you have a  
21 carcinogen -- carcinogenic exposure, such as  
22 what we've got in this case, correct?

23 MR. WHITE: Object to form.

24 A. ClinVar, I don't know what they take into  
25 consideration in the sense that usually ClinVar

1 reports with the laboratory reports. And then  
2 additionally there is ClinGen, which are expert  
3 panels that make decisions about specific  
4 changes in genes.

5 BY MR. ROBERTS:

6 Q. All right. But ClinVar did not offer any  
7 evidence or opinions, did they, about whether  
8 or not this missense variant in the PMS2 could  
9 have an impact if that person was later exposed  
10 to a carcinogen, fair?

11 MR. WHITE: Object to form.

12 A. That's fair. They did not offer an opinion  
13 about that.

14 BY MR. ROBERTS:

15 Q. Okay. And ClinVar, that's not something that  
16 ClinVar does, right?

17 A. That is correct.

18 Q. All right. Okay. Now, if the mutation on the  
19 PMS2 gene, that Mrs. Tukes had, occurred in a  
20 region that was critical for forming  
21 heterodimers with the MLH1 protein, would you  
22 expect that to impact mechanisms associated  
23 with DNA repair?

24 MR. WHITE: Object to form.

25 A. I can't speculate because the data that I have

1 states that this most likely does not impair  
2 the function of PMS2; therefore, MLH1 and PMS2  
3 should go about in forming normal heterodimers.

4 BY MR. ROBERTS:

5 Q. Well, do you know that Mrs. Tukes is  
6 heterozygous for this mutation?

7 A. She -- it's not a mutation. It's a variant.  
8 It's called likely benign variant, and it is in  
9 one of her PMS2 genes and not the other, that  
10 is correct.

11 Q. That means she has one normal copy of the gene  
12 and one copy of the missense variant, fair?

13 A. That's fair.

14 Q. And I believe you indicated that to conduct a  
15 functional study to determine if being  
16 heterozygous for this gene or gene variant, you  
17 would do animal studies, fair?

18 A. That's one component.

19 Q. All right. And have you ever looked at animal  
20 studies and determined them to be an  
21 appropriate approach to determine toxicity or  
22 carcinog- -- carcinogenicity?

23 MR. WHITE: Object to form.

24 A. No.

25 BY MR. ROBERTS:

1 Q. Never done that before?

2 A. I have not.

3 Q. Did you see Dr. Allen's animal study on PMS2  
4 that found that heterozygous mice were more  
5 susceptible to carcinogen exposure than  
6 compared to controls?

7 A. I'm -- I did not. And I don't know what he's  
8 calling heterozygous mouse -- mice.

9 Q. So you're not here to criticize Dr. Allen and  
10 his opinions regarding the study of the PMS2  
11 variant and its potential impact on Mrs. Tukes,  
12 correct?

13 MR. WHITE: Object to form.

14 A. I'm not here to criticize Dr. Allen. He has  
15 his own opinion --

16 BY MR. ROBERTS:

17 Q. Okay.

18 A. -- as I do mine.

19 Q. Right. I'm trying to understand what you're  
20 saying. You're not saying Dr. Allen is wrong,  
21 are you?

22 MR. WHITE: Object to form.

23 A. No, I'm not saying Dr. Allen is wrong. And I'm  
24 just saying this is what he's interpreted from  
25 the literature.

1 BY MR. ROBERTS:

2 Q. All right. Let's take a look at SMARCA4, if we  
3 could.

4 A. All right.

5 Q. What is the function of the SMARCA4 gene?

6 A. It's a protein that works in, like, rhabdoid  
7 cells. I'm not that familiar with SMARC or  
8 SMARCA4. I know the disease it's associated  
9 with.

10 Q. Is it involved in chromatin remodeling?

11 A. It can be.

12 Q. Okay. Well, what is the importance of  
13 chromatin remodeling in cancer?

14 MR. WHITE: Object to form.

15 A. Well, chromatin remodeling needs to occur for  
16 the DNA and proteins, which are chromatin, to  
17 function properly.

18 BY MR. ROBERTS:

19 Q. And what is the importance of SWI/SFN complex  
20 in cancer?

21 A. That works on chromosome segregation. Those  
22 are the proteins associated with kinetochore on  
23 chromosome -- chromosomes. And for replication,  
24 normal replication and division to occur, those  
25 proteins are important.

1 Q. And, you know, I want to back up just a moment.

2 You said that -- when somebody says a  
3 variant is likely benign, correct, would you  
4 agree with me that that determination is made  
5 in the absence of the possibility that the  
6 variant could make a person more susceptible to  
7 cancer when exposed to a carcinogen?

8 MR. WHITE: Object to form.

9 A. I don't believe that's what they're saying.  
10 "Likely benign" means from the laboratory that  
11 they do not have conclusive evidence that this  
12 variant is associated with disease, and it's  
13 not as specific as carcinogens.

14 BY MR. ROBERTS:

15 Q. Right. So you would agree with me that saying  
16 something is likely benign would not rule out a  
17 subsequent study that shows that the variant  
18 could make a person more susceptible when  
19 exposed to carcinogens, is that fair?

20 MR. WHITE: Object to form.

21 A. So a subsequent, you're assuming that whenever  
22 these were revised, that would be after that --  
23 the call for likely benign?

24 BY MR. ROBERTS:

25 Q. As I understood -- and, again, Dr. Vance,

1 I'm -- if I misunderstand you, I apologize.  
2 I'm just trying to figure out what your  
3 opinions are in this case.

4 The -- when you say a variant is likely  
5 benign, right, that does not mean that that  
6 variant could not predispose a person to cancer  
7 if that person is exposed to carcinogens, is  
8 that fair?

9 MR. WHITE: Object to form.

10 A. No, that is not fair. Likely benign means at  
11 this point in time there is no association with  
12 this variant as a cause for cancer, whatever  
13 that cause may be.

14 Likely benign is merely saying we don't  
15 have evidence at this point in time to call  
16 this pathogenetic, or associated with disease.  
17 BY MR. ROBERTS:

18 Q. But I thought you said that that designation  
19 would not take into account specific facts,  
20 such as exposure to carcinogens, is that fair?

21 A. That -- that is correct.

22 Q. Okay. Would a loss of function mutation --  
23 or strike that.

24 Would a loss of function variant in  
25 SMARCA4 impact cancer development?

1 MR. WHITE: Object to form.

2 A. It could potentially.

3 BY MR. ROBERTS:

4 Q. Okay.

5 A. We have no evidence for that.

6 Q. Okay. Again, you didn't -- did you look at  
7 Dr. Allen's animal study on the SMARCA4?

8 A. No.

9 Q. Okay. Are you even qualified to say whether  
10 he's right or wrong, Dr. Vance?

11 A. No.

12 MR. WHITE: Object to form.

13 BY MR. ROBERTS:

14 Q. Ma'am?

15 A. No.

16 Q. Okay. And if you don't have an opinion on  
17 this, please let me know. Would a loss of  
18 function mutation and -- or strike that.

19 Would a loss of function variant in  
20 SMARCA4 be expected to result in an increase in  
21 cancer development following exposure to agents  
22 that impact cell death, such as carcinogens?

23 MR. WHITE: Object to form.

24 A. I don't know.

25 BY MR. ROBERTS:



1 Q. Do you know that Ms. Tukes has a missense  
2 mutation in the SMARCA4 gene?

3 A. Yes.

4 Q. And do you know where this mutation occurs in  
5 the gene and the protein?

6 A. Yes.

7 Q. Where?

8 A. Exon 30.

9 Q. Okay. Would this missense variant be expected  
10 to change the structure of the protein by  
11 substituting one amino acid for another?

12 A. Yes.

13 Q. And what is the amino acid change and what  
14 impact would this have on the biochemistry of  
15 the protein?

16 A. This amino acid change appears to be neutral,  
17 so none.

18 Q. Okay. In the absence of exposure to a  
19 carcinogen?

20 MR. WHITE: Object to form.

21 A. I can't say that specifically.

22 BY MR. ROBERTS:

23 Q. Okay. You don't have an opinion on that,  
24 right?

25 A. No.

1 Q. If the mutation occurred in the region of the  
2 SMARCA4 protein critical for ATPAs, would that  
3 likely impact protein function?

4 MR. WHITE: Object to form.

5 A. I have no opinion.

6 BY MR. ROBERTS:

7 Q. And, again, you know that Mrs. Jacqueline Tukes  
8 is heterozygous for this mutation, correct,  
9 SMARCA4?

10 A. I understand she's heterozygote for a missense  
11 variant that's been classified as likely  
12 benign, not a mutation.

13 Q. Would an animal study be an appropriate  
14 approach to determine the function of the  
15 SMARCA4 variant and its potential impact when a  
16 person is exposed to a carcinogen?

17 A. It could be a line of evidence. It would be --  
18 you'd have to set it up with a particular  
19 animal and case control. It could be.

20 Q. And you have no opinions -- well, strike that.

21 MR. ROBERTS: Let's take a quick break,  
22 if we could.

23 MR. WHITE: Sure.

24 THE VIDEOGRAPHER: We're going off the  
25 record at 11:04 a.m.

1 (WHEREUPON, at this time a brief recess  
2 was taken.)

3 THE VIDEOGRAPHER: We are back on the  
4 record at 11:26 a.m.

5 BY MR. ROBERTS:

6 Q. Dr. Vance, we're going to go back on the  
7 record, and there's a couple of questions I'd  
8 like to ask you.

9 First of all, you have told us today all  
10 of the depositions that you read in this case;  
11 is that correct? I think there were four of  
12 them.

13 A. That is correct.

14 Q. Are there any other depositions you've read?

15 A. No.

16 Q. Okay. You did read a draft of -- a rough draft  
17 of Dr. Allen's, is that correct?

18 A. Yes, I did, probably not to completion. It was  
19 very difficult to read.

20 Q. Okay. Now, in Dr. Allen's report, he makes the  
21 following statement, and I'd like to ask you if  
22 you agree or disagree. Is that --

23 A. Is this a report or the deposition?

24 Q. This is the report.

25 A. Okay.

1 Q. Okay. "Thus, while it is not likely that the  
2 PMS2 mutation observed in the patient directly  
3 contributes to renal cell carcinoma and is  
4 likely benign in this context, there is  
5 compelling evidence that indicates dosage  
6 pathogenicity."

7 Do you agree with that?

8 MR. WHITE: Object to form.

9 A. I have read that. I agree that I have read  
10 that. I don't agree with the conclusion.

11 BY MR. ROBERTS:

12 Q. The concl- -- what conclusion?

13 A. That dosage pathogenicity would be deleterious  
14 in this situation because I don't believe that  
15 dosage pathogenicity relates to this variant.

16 Q. Okay. What about his statement that "Based on  
17 the function of the PMS2 as a tumor suppressor,  
18 the predicted loss of function observed in the  
19 patient is sufficient evidence of dosage  
20 pathogenicity, haploinsufficiency score in the  
21 ClinVar database and the data related to  
22 carcinogen exposure in heterozygous animals, it  
23 is likely as not that this mutation results in  
24 insufficient DNA mismatch repair in the  
25 patient"?

1 A. I disagree.

2 Q. Okay. You didn't -- you didn't look at the  
3 animal studies or models, correct?

4 MR. WHITE: Object to form.

5 A. Correct.

6 BY MR. ROBERTS:

7 Q. All right. So you really don't have a basis  
8 for disagreeing with that, do you?

9 MR. WHITE: Object to form.

10 A. I disagree in the sense that I don't believe  
11 this -- there is dosage pathogenicity here.  
12 There's no evidence of loss. So it has nothing  
13 to do with animal studies done.

14 BY MR. ROBERTS:

15 Q. Well, you didn't look at the animal studies,  
16 though.

17 A. No, but I'm telling you that what Ms. Tukes  
18 carries, there is no haploinsufficiency, there  
19 is no deletion, there is no loss at all. So in  
20 that situation, there is no dosage  
21 pathogenicity for this variant.

22 And typically what ClinVar is talking  
23 about when they're talking about dosage  
24 pathogenicity is the gene itself.

25 Q. Okay. Now, we -- I don't want to cover old

1 ground, but I thought you said ClinVar does not  
2 take into account the potential effect of a  
3 variant when you're exposed to a carcinogen.  
4 Didn't you tell us that previously?

5 MR. WHITE: Object to form.

6 A. Yes.

7 BY MR. ROBERTS:

8 Q. Okay. All right. Dr. Vance, I'd like to talk  
9 to you briefly about your invoices that you've  
10 submitted in this case. And according to my  
11 notes, you've submitted seven. Is that a fair  
12 statement?

13 A. I believe that's correct.

14 Q. And you've billed, what, approximately  
15 50 hours? Is that a fair statement?

16 A. I believe so. I don't have them in front of  
17 me.

18 (WHEREUPON, Deposition Exhibit 7 was  
19 marked for identification.)

20 BY MR. ROBERTS:

21 Q. Okay. Let me hand you what we're going to  
22 mark, I think, as Exhibit 7.

23 A. Yeah. Thank you.

24 Q. And I don't want to spend a whole lot of time  
25 on these invoices, but if you could confirm for

1 me that you've spent a total of about 50 hours,  
2 correct?

3 MR. WHITE: Object to form.

4 BY MR. ROBERTS:

5 Q. Through the end of -- through the end of May of  
6 this year. I think your last invoice was  
7 through the end of May.

8 A. That's correct.

9 Q. How much additional time have you put in since  
10 the end of May?

11 A. I'm not absolutely sure, but it's about --  
12 probably ten hours.

13 Q. Okay. Was that preparing for your deposition?

14 A. Yes.

15 Q. Okay. All right. Have you spoken with any of  
16 the other experts that have been retained by  
17 the United States in this case?

18 MR. WHITE: Objection.

19 MR. ROBERTS: I'm not asking what she  
20 said.

21 MR. WHITE: Okay.

22 BY MR. ROBERTS:

23 Q. Just have you spoken to any of the other  
24 experts?

25 MR. WHITE: Yeah, can I -- just so I can

1 make that clear.

2 If you've spoken to experts, you can  
3 testify that you've spoken to other experts,  
4 but any communications would be -- would be  
5 privileged, and you shouldn't divulge contents  
6 of any communications.

7 THE WITNESS: Okay.

8 MR. WHITE: If -- if there were any to  
9 begin with, but I just wanted to make that  
10 clear.

11 THE WITNESS: Okay. I appreciate that.

12 They're -- on one call, and I don't  
13 recall if it was April or March, a nephrologist  
14 was on one of the calls. I don't recall his  
15 name.

16 BY MR. ROBERTS:

17 Q. I'm not asking you to divulge to me what you  
18 talked about, but did anything that this  
19 nephrologist said affect your opinions one way  
20 or the other?

21 A. No.

22 Q. Okay. All right. Have you seen a document  
23 that we were provided that is called a  
24 "Materials Considered List"?

25 A. I don't believe so.



1 Q. Okay. I'm trying to understand exactly what  
2 you have looked at in reaching your opinions in  
3 this case. And as I understand it -- you know,  
4 I don't want to go back over the four  
5 depositions, but there was -- there was  
6 information that was provided to us that you  
7 looked at documents, such as the experts in the  
8 other cases. You haven't read any of those  
9 depositions, have you?

10 A. Other than the four that I've talked to you  
11 about, I have not.

12 (WHEREUPON, Deposition Exhibit 8 was  
13 marked for identification.)

14 BY MR. ROBERTS:

15 Q. All right. Just so the record is clear on  
16 this, I'm going to hand you what was produced  
17 to us. I'm handing you what we're going to  
18 mark as Exhibit 8. Is there another copy under  
19 there?

20 A. Yes.

21 Q. Okay. Thank you.

22 MR. WHITE: Thank you.

23 MR. ROBERTS: Yep.

24 BY MR. ROBERTS:

25 Q. Have you seen this document before?

1 A. No.

2 Q. Do you see it's got your name, Gail Vance,  
3 M.D., in the left-hand corner of the page?

4 A. Yes.

5 Q. And it says, "Attachments (Facts and Data  
6 Considered)." Do you see that?

7 A. Yes.

8 Q. Then over on page 2, it's got expert reports,  
9 beginning with Steven Bird. There's six  
10 Phase 2 reports. Have you -- you haven't read  
11 any of those depositions, have you?

12 A. No.

13 Q. So you haven't considered any of those expert  
14 reports in rendering your opinions in this  
15 case, have you?

16 A. No.

17 MR. WHITE: Object to form.

18 BY MR. ROBERTS:

19 Q. Let's go to Phase 3. You see the report of  
20 Dr. Allen. I believe you've stated that you  
21 have looked at that report. But what about  
22 Matthew Cooper, Michael Fryar, David Josephson,  
23 Timothy Mallon, Chad Staller, Armine Smith?  
24 You didn't consider any of those reports in  
25 rendering your opinions, did you?

1 MR. WHITE: Object to form.

2 A. No.

3 BY MR. ROBERTS:

4 Q. Let's go under DOJ Experts, Phase 2. Do you  
5 see the reference reports for Julie Goodman,  
6 John Lipscomb, Michael McCabe, Peter Shields?  
7 Would it be fair to say you didn't read those  
8 reports?

9 MR. WHITE: Object to form.

10 A. I don't know who the nephrologist was. I don't  
11 recall the name.

12 BY MR. ROBERTS:

13 Q. Other than the nephrologist.

14 A. Yeah. No.

15 Q. Do you see Lisa Bailey, Duncan Johnstone, Judy  
16 LaKind, Michael Shahnasarian, Walter Stadler?  
17 Didn't -- didn't -- other than the potential  
18 nephrologist, you didn't read any of those  
19 reports, did you?

20 A. No.

21 Q. Over on the -- on page 3 of the document,  
22 Depositions, do you know who FJ Bove is,  
23 Dr. Frank Bove?

24 A. No.

25 Q. Never heard of him?

1 A. No.

2 Q. How about David Savitz, Dr. David Savitz, ever  
3 heard of him?

4 A. No.

5 Q. Under "Tukes," you said you -- I'm moving down  
6 on page 3, down from the top.

7 A. Uh-huh.

8 Q. Are you with me there, under "Tukes"?

9 A. Yes.

10 Q. You indicated you read Jacqueline Tukes's  
11 deposition, correct?

12 A. Yes.

13 Q. You didn't read Dr. -- Willie Tukes, her  
14 husband's deposition, did you?

15 A. No.

16 Q. You did read Mary Garbarini's deposition?

17 A. Yes.

18 Q. We talked about Dr. Jayaram, the oncologist.  
19 He's listed on your materials considered. You  
20 didn't read his deposition, did you?

21 A. No.

22 Q. Heather Jones, do you know who Heather Jones  
23 is?

24 A. No.

25 Q. Didn't read her deposition, did you?

1 A. No.

2 Q. Roc McCarthy, you read Dr. McCarthy's  
3 deposition, correct?

4 A. Correct.

5 Q. Thomas -- K.V.J. (sic) Thomas, Dr. KV George  
6 Thomas, M.D., do you know what he testified  
7 about?

8 A. No.

9 Q. Turning over to the other -- the next page,  
10 page 4 of 7, "Other articles and literature,"  
11 can you tell us of those ten items that are  
12 listed there which ones you considered in  
13 reaching your opinions, if any?

14 A. None.

15 Q. Okay. And then there's documents produced in  
16 this litigation that are Bates stamped. Do you  
17 see that?

18 A. I see "Other documents produced." I don't see  
19 a Bates stamp with them.

20 Q. See the "Bates begins" and "Bates ends"?

21 A. Oh, I see it, yes.

22 Q. Okay. So other than Mrs. Tukes's medical  
23 records, as I understood your testimony, you  
24 have not looked at any other documents other  
25 than literature, Dr. Allen's reports. Anything

1           else other than her medical records and the  
2           items I just mentioned?

3                   MR. WHITE: Object to form.

4    A.    So I reference the materials I used for my  
5           report. I have told you what I have reviewed.  
6           And then there were two other textbooks that I  
7           utilize just for content in thinking about when  
8           I was producing my report. You apparently  
9           received those, too.

10           BY MR. ROBERTS:

11   Q.    Yeah. Okay. We're going to mark those next.

12   A.    Okay.

13   Q.    If I can see this -- so the -- as far as the  
14           materials that were Bates numbered, the only  
15           ones you recall would have been Mrs. Tukes's  
16           medical records, is that fair?

17                   MR. WHITE: Object to form.

18   A.    That's fair. There was about 289 pages of  
19           records.

20                   (WHEREUPON, Deposition Exhibit 9 was  
21           marked for identification.)

22           BY MR. ROBERTS:

23   Q.    I'm going to hand you what we're going to mark  
24           as Exhibit 9 --

25   A.    Okay.

1 Q. -- to your deposition, Dr. Vance.

2 MR. WHITE: Thank you.

3 BY MR. ROBERTS:

4 Q. Are these the supplemental materials that you  
5 just alluded to a moment ago?

6 A. Yes.

7 Q. And you've got the reports of -- Dr. Allen's  
8 reports, his rough draft deposition. What  
9 about the "WHO Classification of Tumours of the  
10 Urinary System in Male Genital Organs," tell us  
11 about that. To what extent did you rely upon  
12 that in reaching your opinions in this case?

13 A. Well, that's my textbook. The WHO comes out  
14 with what they call the Blue Books. And what I  
15 looked at under there was the renal cell  
16 carcinomas and the different types, such as  
17 clear cell, papillary, papillary clear,  
18 et cetera, just to reacquaint myself with  
19 primarily papillary clear, the mixture of those  
20 two.

21 Q. Okay. To what extent did that information  
22 influence your opinions in this case?

23 MR. WHITE: Object to form.

24 A. It didn't. I mean, my opinions weren't -- I  
25 was just using it as information.

1 BY MR. ROBERTS:

2 Q. Okay.

3 A. Just for clarification.

4 Q. So nothing specific you can point to that you  
5 relied upon?

6 A. No.

7 Q. Okay. How about Nussbaum?

8 A. Nussbaum.

9 Q. Again, it's -- yeah. And Willard, "Thompson  
10 and Thompson Genetics in Medicine," is there  
11 anything in there that was pertinent to the  
12 opinions that you have rendered in this case?

13 A. The materials in there are -- this is a general  
14 genetics textbook, and I was using those for  
15 some of the glossary that was provided in my  
16 report. I was looking at that for definition  
17 of terms.

18 Q. And you're not holding yourself out today as an  
19 expert in toxicology or epidemiology, are you,  
20 ma'am?

21 A. No.

22 Q. Now, Dr. Vance, I'd like to talk to you briefly  
23 about your prior experience as an expert. And  
24 I believe you've told me earlier this morning,  
25 and I could be wrong, but I thought you said



1           you've never testified at trial. Is that  
2           correct?

3                   MR. WHITE: Object to form.

4       A. No, that's incorrect.

5                   BY MR. ROBERTS:

6       Q. Okay. I mis- -- I misunderstood you. Okay.  
7           Tell me about when you've testified at trial.

8       A. I testified a case -- I was a witness for the  
9           defense, and it was a cytogenetic -- unbalanced  
10          cytogenetic translocation.

11      Q. Okay. Who was the -- who was your client in  
12          that matter?

13      A. Dartmouth.

14      Q. Okay. And where did you actually testify?

15      A. I testified that --

16      Q. Where? Where?

17      A. Oh, where?

18      Q. Yes, ma'am.

19      A. Was it Connecticut?

20      Q. Was it in federal court or state court?

21      A. Oh, state.

22      Q. Okay. What was the issue that you opined on in  
23          that case?

24      A. The issue was defense of the cytogeneticist and  
25          his report of the cytogenetic report for an

1 infant.

2 Q. So he was being sued for malpractice?

3 A. Correct.

4 Q. All right. What was the result of that case?

5 A. He was dismissed from the malpractice.

6 Q. Okay. So that was -- did that testimony have  
7 any relevance to what we've been talking about  
8 today?

9 A. Other than chromosomes, no, it has no  
10 relevance.

11 Q. All right. So that's your first time you've  
12 testified in court.

13 A. Uh-huh.

14 Q. Any other occasions?

15 A. Not in court, no.

16 Q. Okay. All right. So that covers all of your  
17 court testimony, right?

18 A. Correct.

19 Q. All right. Let's talk about depositions.  
20 Other than the case that brings us here today,  
21 what other occasions have you had to testify?

22 A. I was deposed in that case.

23 Q. Okay.

24 A. And then the second one was, again, for the  
25 defense in the understanding of what's called

1 Li-Fraumeni syndrome.

2 Q. Okay. LFT?

3 A. LFS.

4 Q. LFS, okay.

5 A. And it is a genetic predisposition syndrome.

6 Q. And you testified for the plaintiff or the  
7 defense?

8 A. Defense.

9 Q. Okay. What was the result of that case?

10 A. I think they settled out of court.

11 Q. Okay. All right. And that's the -- any other  
12 depositions we need to talk about? That's it?

13 A. No. I've had conversations, but  
14 not depositions.

15 Q. Okay. Have you ever been retained by a  
16 plaintiff as an expert?

17 A. Not to my knowledge, no.

18 Q. Okay. I'd like to circle back, but before I do  
19 that, you're being paid \$350 an hour, is that  
20 correct?

21 A. That is correct.

22 Q. And I saw in one of the items that the  
23 government gave us that you're anticipating  
24 making, what, about \$100,000 on this  
25 engagement?

1 MR. WHITE: Object to form.

2 A. No.

3 BY MR. ROBERTS:

4 Q. No. You didn't recall seeing a document  
5 that -- where you were --

6 A. I saw the contract, and it had a top limit, but  
7 that wasn't the anticipated amount.

8 Q. Okay. Well, let's just -- let's clarify that.

9 MR. ROBERTS: What exhibit are we up to  
10 now?

11 THE WITNESS: We're on 10.

12 (WHEREUPON, Deposition Exhibit 10 was  
13 marked for identification.)

14 BY MR. ROBERTS:

15 Q. I'll hand you, Dr. Vance, what we've marked as  
16 Exhibit 10. Can you identify what this  
17 document is?

18 A. Yes. It's a contract with the U.S. Department  
19 of Justice.

20 Q. Okay. And do you see the block 14.k., Total  
21 Estimated Expenses?

22 A. I do.

23 Q. Okay. What is that? If you could read into  
24 the record that that says.

25 A. Well, I work in academia, so what we do is we

1           get purchase orders and we put a top limit  
2           amount for whatever the expense would be. And  
3           that was my understanding is that the top limit  
4           for this contract would be \$98,000.

5       Q.    So is that a -- is that an amount that you came  
6           up with or is it an amount that the government  
7           came up with?

8       A.    That is an amount the government came up with.

9       Q.    Okay.

10                   (WHEREUPON, Deposition Exhibit 11 was  
11           marked for identification.)

12       BY MR. ROBERTS:

13       Q.    For the record I'd like to introduce  
14           Exhibit 11 --

15       A.    Okay.

16       Q.    -- and ask you if this is your current CV?

17       A.    No. This is from April and I've updated for  
18           July.

19       Q.    Okay. What do we need to add to that?

20       A.    Just publications.

21       Q.    All right. Will you provide that to your  
22           attorney?

23       A.    I have.

24       Q.    You have? Okay.

25       A.    Uh-huh.

1 MR. WHITE: That may have been in the  
2 stuff that was recently produced, but I can run  
3 that down for you.

4 MR. ROBERTS: Yeah, that's no problem.

5 BY MR. ROBERTS:

6 Q. Are there any publications that you have  
7 authored that you think have particular  
8 pertinence --

9 A. Yes.

10 Q. -- to the Jacqueline Tukes case?

11 A. Well, I have a lot of publications. 98 is  
12 establishing a hereditary renal syndrome  
13 clinic. One is -- this was a presentation. I  
14 should go to the --

15 MR. WHITE: If you could tell me the page  
16 numbers.

17 THE WITNESS: Okay, yeah. Let me go to  
18 the articles. That was -- hold on.

19 BY MR. ROBERTS:

20 Q. We've got them -- why don't we go numerically.

21 A. Yeah, yeah.

22 Q. The first one are journals, I think.

23 A. Yeah, peer-reviewed. Hold on.

24 MR. WHITE: I think that would be, what,  
25 page 14?

1 MR. ROBERTS: Yeah.

2 MR. WHITE: Or that's when the journals  
3 begins.

4 THE WITNESS: Yes, but that's -- I don't  
5 know. I mean, pertinent to Jacqueline Tukes  
6 would be anything with hereditary cancer, but  
7 more pertinent would be specifically renal cell  
8 carcinoma.

9 BY MR. ROBERTS:

10 Q. All right. What publication? If you give me  
11 the --

12 A. Yep. Hold on. Let me go through these.

13 The biomarkers in some of the cancers,  
14 but they're not specifically renal cell cancer  
15 in some of these that I have.

16 Q. If you would just -- as you go through,  
17 ma'am --

18 A. Okay.

19 Q. -- if you could identify them for me.

20 A. Sure, sure, sure.

21 Q. Because I need to understand, you know, what  
22 your testimony is about --

23 A. Okay.

24 Q. -- what has relevance to this case.

25 A. So peer-reviewed, reference 32, "Validation of

1       scales to measure: benefits of and barriers to  
2       colorectal cancer screening."

3       Q.     That's 32?

4       A.     Uh-huh.

5       Q.     Okay.

6       A.     For hematological cancer, 33, is "Role of  
7       potential hematopoietic stem cell  
8       transportation -- transplantation in children  
9       with secondary acute lymphocytic leukemia."

10            Then there's the biomarker HER-2, which  
11       is number 34.

12       Q.     Okay.

13       A.     That's typically in breast, but it's also seen  
14       in prostate, colon, and endometrial.

15            Again, 36, "HER-2 expression in germ cell  
16       tumors."

17            37, "HER-2 amplification."

18            Let's see. Number 40, "late relapse of  
19       germ cell tumor. "

20            44, "Secondary leukemias in refractory  
21       germ cell tumor patients undergoing autologous  
22       stem cell transportation -- transplantation."

23            Number 47, "Acute Panmyelosis and  
24       Myelofibrosis: An entity distinct from acute  
25       from megakaryoblastic leukemia."



1           The next one is "Chronic lymphocytic  
2           leukemia/small lymphocytic leukemia with  
3           trisomy 12."

4           49, "AML-FOG2 Fusion Protein in  
5           Myelodysplasia."

6           Number 50, "Large cell -- large cell lung  
7           carcinoma mimicking a germ cell tumor."

8           Number 54, "A 37-year-old man with  
9           pleural mass."

10       Q.    It appears that you're talking about a number  
11           of things that don't have anything to do with  
12           renal cell carcinoma.

13       A.    Right. I get -- there are cancer and cancer  
14           biomarkers and also hereditary disease. That's  
15           why I'm producing these. There's a lot of --  
16           in here. But specific to renal cell carcinoma  
17           is our clinic. And let me try and find that  
18           here for you.

19           Here we are. 120, JD McFadden, "Referral  
20           patterns and genetic testing outcomes in a  
21           contemporary hereditary renal cancer clinic,"  
22           Urological Oncology, 2024.

23           So that's -- what that is is 142 patients  
24           that came through our renal -- hereditary renal  
25           clinic, and we did genetic testing and we

1           determined that most likely gene mutation in  
2           that group of patients was the fumarate  
3           hydratase mutation associated with HLRCC, which  
4           is here in your NCCN.

5       Q.    So were all of those patients that were -- that  
6           came through the clinic, that you just  
7           described, they underwent genetic testing?

8       A.    Most of them did.

9       Q.    And were most of them positive?

10      A.    No, the majority were not.

11      Q.    Okay.

12      A.    But none of them had the clinical phenotype as  
13           extensive as Ms. Tukes.

14      Q.    Okay.

15      A.    I forget the percentage of those that had --  
16           I'd have to look at the article.

17      Q.    Okay. Are you through?

18      A.    I'm done.

19      Q.    Okay. Dr. Vance, when -- have you ever had a  
20           patient come into your office that has a  
21           clinical picture that would suggest renal cell  
22           carcinoma but yet you dug deeper to try to  
23           figure out if something other than a hereditary  
24           component was involved in the cancer?

25                   MR. WHITE: Object to form.

1 A. Yes.

2 BY MR. ROBERTS:

3 Q. All right. Tell me about that.

4 A. Well, it's not a patient. Typically, as I've  
5 previously said, when a patient comes to us,  
6 particularly in the renal cell carcinoma  
7 clinic, they usually have renal cell carcinoma.  
8 We look at what their medical history is, what  
9 their cancer history is, what their family  
10 history is, and if there's any rationale for  
11 why they developed cancer, i.e., exposures,  
12 again family history, anything of that nature.

13 Q. Okay. What type -- when you say "exposures," I  
14 mean, if somebody walks in and presents with  
15 sequelae that would be -- lead you to believe  
16 that perhaps there's hereditary renal cell  
17 carcinoma, okay, what other factors do you look  
18 at, or do you automatically say it's renal cell  
19 carcinoma if they -- if the clinical picture  
20 presents in the way that we've been discussing  
21 today?

22 MR. WHITE: Object to form.

23 A. Again, I look at their personal history, their  
24 medical history, their family history, any kind  
25 of history that might indicate that there was a

1 reason other than a gene mutation or to support  
2 a gene mutation. It's a complete medical  
3 history.

4 BY MR. ROBERTS:

5 Q. Okay. All right. Well, so again, I thought  
6 you asked this -- answered this question  
7 earlier in your deposition, but I could be  
8 mistaken.

9 Have you ever had someone that presented  
10 with multi -- multifocal bilateral kidney  
11 cancer that was of the age of Ms. Tukes, and  
12 looked at it and said, well, you know, it looks  
13 like it might be hereditary -- hereditary renal  
14 cell carcinoma, but yet there's another factor  
15 out here that could also be at play, such as  
16 exposure? Has that ever happened in your  
17 clinical practice?

18 MR. WHITE: Object to form.

19 A. Has it ever happened?

20 BY MR. ROBERTS:

21 Q. Yes, ma'am.

22 A. Most likely, yes.

23 Q. Can you tell me about that?

24 A. Well, I don't remember the exact case, but  
25 there are many people -- I mean, we live in

1 rural Indiana. Many people have been exposed  
2 to farming pesticides.

3 Q. Right.

4 A. Things of that nature.

5 Q. Right.

6 A. So that's what I'll ask about.

7 Q. Okay. And if somebody -- let's take a farmer  
8 that's been --

9 A. Excuse me for interrupting.

10 Q. I'm sorry.

11 A. But like smoking history.

12 Q. Yeah.

13 A. That -- we get that, because that's predisposed  
14 to renal cancer. Smoking, obesity,  
15 hypertension, et cetera.

16 Q. Of course, Mrs. Tukes wasn't a smoker, was she?

17 MR. WHITE: Object to form.

18 A. Not to my knowledge. She did have  
19 hypertension, and I don't know what her BMI  
20 was.

21 BY MR. ROBERTS:

22 Q. All right. So, again, getting back to my  
23 question, when these farmers, you say, that  
24 would come into your office that have been  
25 around pesticides, did you attempt to determine

1           whether those pesticides were known  
2           carcinogens?

3                       MR. WHITE: Object to form.

4       A.    No, that was not my role.

5                       BY MR. ROBERTS:

6       Q.    Okay. Did you attempt to determine whether or  
7           not, as opposed to some hereditary component,  
8           that the cancer could be related to carcinogen  
9           exposure?

10      A.    No. My role was to document things and then to  
11           perform the genetic testing and interpret the  
12           genetic testing.

13      Q.    Well, as we sit here today, in Jacqueline  
14           Tukes's case, you've got a lady that you say  
15           fits the diagnostic criteria that you say makes  
16           her -- her cancer is hereditary, correct?

17      A.    Correct.

18      Q.    And on the other side of the table, we've got a  
19           known exposure to carcinogens, correct?

20                       MR. WHITE: Objection.

21      A.    I don't know about that exposure.

22                       BY MR. ROBERTS:

23      Q.    Okay. That's what I'm trying to delve into,  
24           Dr. Vance. I mean, if you don't know about the  
25           exposure and whether the exposure can result in

1 multi- -- you know, bilateral, multifocal  
2 cancer, that it can manifest at an early age,  
3 right, how can you rule that out in rendering  
4 your opinions? Aren't you ignoring the other  
5 side of the equation?

6 MR. WHITE: Object to form.

7 A. No, I'm not ignoring the other side. I'm  
8 telling you that she has credible evidence,  
9 clinical phenotype, extraordinary phenotype,  
10 that could be compatible with a hereditary  
11 disposition.

12 BY MR. ROBERTS:

13 Q. Could be?

14 A. Uh-huh.

15 Q. But don't you think, in making a differential  
16 diagnosis, in this case it would have been  
17 appropriate for you to dig into: Well, what  
18 are the carcinogens that Jacqueline Tukes was  
19 exposed to? What were the levels? How long  
20 was she exposed? Was it dermal? Was it  
21 inhalation? I mean, isn't that something that  
22 you would need to do to really make a  
23 differential diagnosis as to the cause of her  
24 renal cell carcinoma?

25 MR. WHITE: Object to form.

1 A. No, that was not my role. That is not my  
2 expertise. My expertise is in genetics. I was  
3 asked: Does she fit a criteria for hereditary  
4 cancer? And the answer is yes and should be  
5 treated as such.

6 BY MR. ROBERTS:

7 Q. Well, were you -- well, I'm trying to  
8 understand what you're saying.

9 You weren't told to ignore her exposure  
10 to these carcinogens, were you? I'm trying to  
11 understand how that fits into your opinions  
12 here.

13 MR. WHITE: Object to form.

14 A. It doesn't fit into my opinion. My opinion is  
15 exclusive of that. There are experts to  
16 testify in this case about that. My role is to  
17 testify about the credibility of a possible  
18 underlying genetic predisposition. In my  
19 opinion, she should be treated as she has one,  
20 even though we cannot, at this point in time,  
21 identify an underlying mutation.

22 BY MR. ROBERTS:

23 Q. Well, what if Ms. Tukes brings forward a  
24 credible toxicologist and people that study the  
25 effect of cancer as it relates to exposure to



1       carcinogens and they say, look, her clinical  
2       features that you rely upon are consistent with  
3       exposure to carcinogens, wouldn't you be  
4       willing to reexamine your opinion in light of  
5       that evidence?

6               MR. WHITE: Object to form.

7       A.    No. I would consider it, but you cannot still,  
8       at this point in time, rule out that she  
9       doesn't have an underlying predisposition.

10       BY MR. ROBERTS:

11       Q.   Well, under the scenario that I just outlined  
12       for you, would you agree that it's equally  
13       likely as not that her cancer could be  
14       resulting from exposure to carcinogens as  
15       opposed to renal cell carcinoma if those  
16       experts say that her exposure was sufficient to  
17       cause her disease?

18               MR. WHITE: Object to form.

19       A.    I would say -- I would not say it was as likely  
20       as the hereditary, but I would say it would be  
21       a consideration.

22       BY MR. ROBERTS:

23       Q.    All right. A consideration that you haven't --  
24       you haven't given?

25       A.    It would be a consideration in this case.

1 Q. All right. Is it information that you would  
2 like to have?

3 MR. WHITE: Object to form.

4 A. Not necessarily.

5 BY MR. ROBERTS:

6 Q. All right. Okay. Now, we've talked about the  
7 genetic testing that UNC Health did in this  
8 case, right? And we've talked about Katie  
9 Gabarini, right?

10 A. Yes.

11 Q. And I believe you indicated that you read the  
12 letters that she wrote to Mrs. Tukes, right?

13 A. They were in the medical records, yes.

14 Q. And do you recall that she said, "Testing did  
15 not reveal a known pathogenic mutation in any  
16 of these genes"?

17 A. Correct.

18 Q. "Since the current test is not perfect, it is  
19 possible there may be a mutation that current  
20 testing cannot detect, but that chance is  
21 small."

22 Would you agree with what her genetic  
23 consultant over at UNC-Chapel Hill told her,  
24 Katie Gabarini? Would you agree with the  
25 statement that I just read?

1 A. I --

2 MR. WHITE: Object to form.

3 A. I would agree to everything but the last two  
4 letters, "but that chance is small," I think is  
5 what you read.

6 BY MR. ROBERTS:

7 Q. All right. I'll read it again.

8 A. Yeah. I would agree with the first part of  
9 that statement.

10 Q. You would agree that "Testing did not reveal a  
11 known pathogenic mutation in any of these  
12 genes." You agree with that, correct?

13 A. Correct.

14 Q. "Since the current test is not perfect, it is  
15 possible there may be a mutation that current  
16 testing cannot detect." You agree with that?

17 A. Yes.

18 Q. But you disagree with Katie Gabarini when she  
19 says, "that chance is small"?

20 A. Correct.

21 MR. ROBERTS: Okay. Give me about five  
22 minutes, and I think we can wrap up.

23 MR. WHITE: Sure.

24 MR. ROBERTS: Thank you.

25 THE VIDEOGRAPHER: We're going off the

1 record at 12:04 p.m.

2 (WHEREUPON, at this time a brief recess  
3 was taken.)

4 THE VIDEOGRAPHER: We are back on the  
5 record at 12:10 p.m.

6 BY MR. ROBERTS:

7 Q. Dr. Vance, I appreciate your time today, and  
8 I've just got just a couple more, hopefully  
9 brief, questions to ask you.

10 Now, before we took our break, you talked  
11 about, you know, making a differential  
12 diagnosis. And I think you talked about the  
13 farmers that were exposed to pesticides, and  
14 you were trying to determine whether or not  
15 there was a genetic component to the cancer or  
16 perhaps another cause. Is that a fair  
17 statement?

18 MR. WHITE: Object to form.

19 A. Yes.

20 BY MR. ROBERTS:

21 Q. All right. Now, in this particular case, would  
22 it be fair to say that you were not provided  
23 sufficient information about Jacqueline Tukes's  
24 exposure, her level of exposure, her method of  
25 exposure, whether it was inhalation, dermal,

1 ingestion? So would you agree with me that you  
2 aren't really able to make a differential  
3 diagnosis to rule out carcinogenic exposure  
4 causing Mrs. Tukes's kidney cancer?

5 MR. WHITE: Object to form.

6 A. I cannot determine whether Ms. Tukes's renal  
7 cancer was due to her exposures.

8 BY MR. ROBERTS:

9 Q. Okay.

10 A. I'm not an expert in that field.

11 Q. Right.

12 A. But I can tell you that she has extraordinary  
13 evidence, clinical phenotype, not a genotype,  
14 evident at that time to be compatible with  
15 hereditary renal cell carcinoma.

16 Q. But, again, you know, you can't rule out her  
17 exposure to the carcinogens at Camp Lejeune  
18 because you don't know what she was exposed to  
19 or any of the underlying facts that would allow  
20 you to rule out that as a potential cause of  
21 her renal cell carcinoma, is that fair?

22 MR. WHITE: Object to form.

23 A. I'm not ruling it out. I wasn't asked to look  
24 at it. I wasn't provided that information.  
25 That -- I'm not an expert in the field, so that

1 is not my determination.

2 BY MR. ROBERTS:

3 Q. But in these cases where the farmers were  
4 exposed to pesticides and so forth, as I  
5 understood your previous testimony, you were  
6 able to dig down and get that information that  
7 would allow you to make a differential  
8 diagnosis, fair?

9 MR. WHITE: Object to form.

10 A. That's incorrect. What we do is we take the  
11 medical history to say, were there exposures?  
12 Was there smoking? Was there -- is there  
13 hypertension? Is there obesity, et cetera,  
14 that might have predisposed? I put that in the  
15 medical record along with my counseling.

16 BY MR. ROBERTS:

17 Q. All right. But as I understood what you told  
18 me previously -- and, again, I don't want to --  
19 I don't want to misstate anything, but I  
20 thought you said to make a differential  
21 diagnosis you need to look at other potential  
22 causes other than hereditary, correct?

23 A. That is correct.

24 Q. And so in able to -- for you to make that  
25 differential diagnosis, you're not able to do

1           that, are you, without having the underlying  
2           facts and data that would support a cause other  
3           than renal cell -- hereditary renal cell  
4           carcinoma, correct?

5                     MR. WHITE: Object to form.

6       A.    I was not asked to make a differential  
7           diagnosis. I was asked to look at the case  
8           and -- asked to look at the case and see if it  
9           was compatible with an underlying genetic  
10          predisposition.

11                    BY MR. ROBERTS:

12       Q.   Did you raise the question with anyone about,  
13            "Whoa, time-out. I need to -- I need to  
14            consider whether or not exposure could be an  
15            explanation for this bilateral multifocal  
16            cancer presented at a young age," all the  
17            factors that you relied on in the clinical  
18            presentation, did you ever say you'd like to do  
19            that to anybody?

20                    MR. WHITE: Object to form. I'm also  
21           going to direct the witness not to discuss any  
22           conversations or communications that she's had  
23           with counsel.

24                    But with that caveat, to the extent that  
25           you can answer the question, please feel free.

1 A. No. My understanding was others were doing  
2 that.

3 BY MR. ROBERTS:

4 Q. Okay. So, again, you didn't do a differential  
5 diagnosis in this case, did you?

6 A. A differential diagnosis in the sense that I  
7 didn't have all the information. But, again, I  
8 was asked to say was her presentation  
9 compatible with hereditary renal cell  
10 carcinoma, and my conclusion was yes.

11 Q. All right. But, again -- and, again, I don't  
12 want to repeat the same question, but you did  
13 not, did you, ma'am, have sufficient evidence  
14 to even do a differential diagnosis in this  
15 case, correct?

16 MR. WHITE: Object to form.

17 A. I only looked at the genetics, her medical  
18 history, and from my experience -- and the  
19 genetic testing reports, and from my experience  
20 what I would conclude, in a patient such as  
21 this, if she were in my clinic.

22 BY MR. ROBERTS:

23 Q. But, again, my question is -- and I don't think  
24 you answered it. You did not have enough  
25 information to actually do a differential



1 diagnosis, correct?

2 MR. WHITE: Object to form.

3 A. I think I've repeated this. I did not have the  
4 toxicology information. I am not an expert in  
5 the field. I could not conclude with certainty  
6 whether that exposure was sufficient to cause  
7 cancer. I don't have that expertise.

8 BY MR. ROBERTS:

9 Q. Okay. Well, how did you do it in your -- in  
10 your farmers that were exposed to pesticide  
11 cases?

12 MR. WHITE: Object to form.

13 A. I -- I put that -- because it's very hard to  
14 quantitate any kind of exposure for pesticides,  
15 et cetera. So what I do is I put that in the  
16 report, that this man was a smoker or how many  
17 smoking years or was exposed to pesticides,  
18 et cetera. So it's just documented there, but  
19 I can't make a conclusion as to that.

20 BY MR. ROBERTS:

21 Q. Okay. But in your reports -- let's just stay  
22 with the pesticides as an example.

23 A. Uh-huh.

24 Q. Have you ever looked at the exposure of, you  
25 know, persons that sprayed pesticides for 30 or

1           40 years and comes in with a cancer and said,  
2           "I can't determine whether it's hereditary as  
3           opposed to exposure to carcinogens"? Has that  
4           ever happened in your career?

5                     MR. WHITE: Object to form.

6       A.   Not exactly that way. What I would do is say  
7           this -- this person has had exposures, we've  
8           tested them, and they're negative at this  
9           point, yet their disease is such that their  
10          follow-up needs to be intensive whether --  
11          irrespective of the cause.

12                    BY MR. ROBERTS:

13      Q.   Okay. So but -- okay. Maybe that answered my  
14          question.

15                    So there are circumstances in cases that  
16          you've had, like the farmers using pesticides,  
17          where, you know, you look at it, you look at  
18          the exposure to the pesticides, you look at the  
19          criteria that would suggest a hereditary  
20          component, and you say, "I just -- I can't tell  
21          based on what I've got now whether it's  
22          hereditary or exposure to carcinogens." Is  
23          that fair?

24      A.   That's fair. I think sometimes it's very  
25          difficult to determine with certainty the cause

1 of cancer --

2 Q. All right.

3 A. -- in any situation.

4 MR. ROBERTS: I think that's all I've  
5 got. Thank you.

6 MR. WHITE: Okay.

7 CROSS-EXAMINATION,

8 QUESTIONS BY MR. WHITE:

9 Q. Thank you, Doctor. I just have a few questions  
10 for you real quick.

11 A. Okay.

12 Q. What was the -- what was your assignment in  
13 this case?

14 A. To review the case of Jacqueline Tukes and  
15 determine if I thought it was credible that she  
16 had an underlying genetic predisposition.

17 Q. Okay. Was there -- did that assignment include  
18 any toxicological analysis?

19 A. No, it did not.

20 Q. Did it include any exposure analysis?

21 A. No, it did not.

22 Q. Did it include any factual category beyond the  
23 genetics?

24 A. No.

25 Q. Okay. Did it include a differential diagnosis

1           between genetic versus other non-genetic  
2           causes?

3       A.     No.

4       Q.     Okay.  Mr. Roberts went through a list of  
5           materials that you said you did not read, like  
6           Dr. Bird's report or a couple of the Phase --  
7           or some of the Phase 2 depositions.  I won't go  
8           through each of them one by one, but are you  
9           aware of any information in those materials or,  
10          in fact, anywhere -- elsewhere in the case that  
11          has information related to these genetic  
12          questions that you have not seen or were not  
13          provided?

14      A.     No.

15      Q.     Okay.

16                 MR. WHITE:  I will pass the witness back  
17           if that's spurred a whole new line of  
18           questioning or not.

19                 MR. ROBERTS:  No, no, no.  I'm going to  
20           be brief.

21           REDIRECT EXAMINATION,  
22           QUESTIONS BY MR. ROBERTS:

23      Q.     You said you were not asked to do a  
24           differential diagnosis.  Did I hear that  
25           correctly?

1 A. That is correct.

2 Q. Well, would you agree with me you can't say how  
3 likely it is that Mrs. Tukes's cancer is  
4 hereditary if you haven't considered the other  
5 alternative causes, such as her exposure to  
6 carcinogens?

7 A. I can't --

8 MR. WHITE: Object to form. Sorry. If  
9 you can --

10 THE WITNESS: Yeah.

11 MR. WHITE: -- get my second in there.  
12 I'm sorry.

13 THE WITNESS: Yeah. I'm sorry. I should  
14 have paused.

15 A. But I can't conclude either that toxic  
16 exposure, even though I don't know about it,  
17 I'm not an expert in that field -- you know, I  
18 can't conclude that the toxic exposure was a  
19 cause of her cancer. I can't conclude with  
20 certainty that genetics was a cause of her  
21 cancer.

22 I'm saying, based on my experience and  
23 what I know about genetics and genetic  
24 knowledge in 2025, given this woman's  
25 presentation, that there is a very high

1       likelihood that she has an underlying genetic  
2       predisposition; we just don't know it at this  
3       day.

4               MR. ROBERTS: I think that's all I've  
5       got. Thank you.

6               MR. WHITE: I have nothing further.  
7       We'll read and sign.

8               THE VIDEOGRAPHER: This marks the  
9       conclusion of the video-recorded deposition.  
10       We're off the record at 12:21 p.m.

11              THE COURT REPORTER: Do you want a copy  
12       of the transcript, Luke?

13              MR. WHITE: Yes, please.

14  
15                       (Deposition concluded at 12:21 p.m.)  
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DEPOSITION ERRATA SHEET

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ACKNOWLEDGMENT OF DEPONENT

I, GAIL H. VANCE, M.D., do  
hereby certify that I have read the  
foregoing pages, and that the same is  
a correct transcription of the answers  
given by me to the questions therein  
propounded, except for the corrections or  
changes in form or substance, if any,  
noted in the attached Errata Sheet.

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GAIL H. VANCE, M.D.

DATE

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That I am not a relative or employee, attorney or counsel of any of the parties, nor a relative or employee of such attorney or counsel, nor am I financially interested in this action.

Valeri Tellenbaum

(Electronically signed)

My Commission Expires on: July 5, 2031

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Federal Rules of Civil Procedure

Rule 30

(e) Review By the Witness; Changes.

(1) Review; Statement of Changes. On request by the deponent or a party before the deposition is completed, the deponent must be allowed 30 days after being notified by the officer that the transcript or recording is available in which:

(A) to review the transcript or recording; and

(B) if there are changes in form or substance, to sign a statement listing the changes and the reasons for making them.

(2) Changes Indicated in the Officer's Certificate. The officer must note in the certificate prescribed by Rule 30(f)(1) whether a review was requested and, if so, must attach any changes the deponent makes during the 30-day period.

DISCLAIMER: THE FOREGOING FEDERAL PROCEDURE RULES ARE PROVIDED FOR INFORMATIONAL PURPOSES ONLY.

THE ABOVE RULES ARE CURRENT AS OF APRIL 1, 2019. PLEASE REFER TO THE APPLICABLE FEDERAL RULES OF CIVIL PROCEDURE FOR UP-TO-DATE INFORMATION.

VERITEXT LEGAL SOLUTIONS

COMPANY CERTIFICATE AND DISCLOSURE STATEMENT

Veritext Legal Solutions represents that the foregoing transcript is a true, correct and complete transcript of the colloquies, questions and answers as submitted by the court reporter. Veritext Legal Solutions further represents that the attached exhibits, if any, are true, correct and complete documents as submitted by the court reporter and/or attorneys in relation to this deposition and that the documents were processed in accordance with our litigation support and production standards.

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