Exhibit 584

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

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

VIDEOTAPED DEPOSITION

OF

THOMAS LONGO, M.D.

Monday, June 16, 2025

Raleigh, North Carolina

Reported by: Christine A. Taylor, RPR

Job No.: 7410689

On June 16, 2025, commencing at 9:08 a.m., the videotaped deposition of THOMAS LONGO, M.D., was taken pursuant to notice and pursuant to the Federal Rules of Civil Procedure, on behalf of the Defendant, at Ward and Smith, P.A., 751 Corporate Center Drive, Suite 300, Raleigh, North Carolina.

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APPEARANCES:

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Also Present:

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JT Malone (Zoom)
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Zina Bash (Zoom)
Charles Ellis (Zoom)

C O N T E N T S

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E X H I B I T S

(Exhibit 16 retained by Counsel.)

P R O C E E D I N G S

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THE VIDEOGRAPHER: On record at 9:08 a.m. Today's date is June 16, 2025. This is the deposition of Dr. Thomas Longo in the matter of Camp Lejeune Water Litigation. Case number 7:23-CV-00897.

Counsel please introduce yourselves, after which our court reporter will swear in the witness.

MR. WALLACE: Good morning. This is Pat Wallace, Milberg, on behalf of plaintiffs.

MS. BUTLER: I'm Jenna Butler with Ward and Smith on behalf of the plaintiffs.

MS. GADDY: Megan Gaddy for the United States.

* * *

THOMAS LONGO, M.D.,

having first been duly sworn, was examined and testified as follows:

* * *

EXAMINATION

BY MS. GADDY:

Q. Thank you. Good morning.
A. Good morning.
Q. Doctor, could you please state your full name for the record.
A. My name is Thomas Andrew Longo.
Q. And could you please state your current address. And your business address is fine.
A. My current address is 2805 Rothgeb Drive, Raleigh, North Carolina.
Q. Okay. And my name is Megan Gaddy. I'm an attorney with the Department of Justice. I represent the United States in the Camp Lejeune Water Litigation, which is currently pending in the Eastern District of North Carolina.
I'm going to go through just a few ground rules before we get started to ensure that we're all on the same page. I'm going to ask you some questions today. And all I ask is that you answer them to the best of your ability.
Do you understand?
A. Yes.
Q. If you do not understand a question, please let me know and I will rephrase the question. But if you answer the question, I will

assume you understood it.

Does that make sense?

A. Yes.

Q. And in a normal conversation, it's typical that you may understand what I'm asking before I complete the question. But for the record and the court reporter, I ask that you please let me know finish the question completely before answering, and I will do the same. Okay?

A. Yes.

Q. When answering the question, please say your answers out loud so that the court reporter can accurately transcribe them. So if the answer is a yes or no, please say yes or no. They can't transcribe an uh-huh or a head nod.

Does that make sense?

A. Yes.

Q. And please try to talk at a reasonable pace so the court reporter can report everything.

And do you understand that a few moments ago you took an oath to tell the truth?

A. Yes.

Q. And do you understand that this is the same oath that you would take in court

subject to the same penalties for perjury?

A. Yes.

Q. During the deposition you may hear your attorney say "objection." But unless your attorney instructs you not to answer the question, please answer the question after the objection has been made. Okay?

A. Yes.

Q. Is there any reason why you are unable to give your most truthful testimony today?

A. No.

Q. And at any point you can ask for a break. We will be taking breaks periodically today. All I ask is that you please finish answering the question before we take the break. Okay?

A. Yes.

Q. And at any point today you can also correct your testimony while you are here. Okay?

A. Yes.

Q. Okay. Doctor, when did you begin working as an expert witness in this case?

A. I first began conversations with counsel in December 2022, January 2023.

Q. And is that when you first became properly an expert witness in December of 2022?

MR. WALLACE: Objection. Form.

THE WITNESS: Correct.

BY MS. GADDY:

Q. Okay. And you are being compensated at a rate of $750 an hour for your work in this case; right?

A. Correct.

Q. And are you being compensated at that same rate for your deposition today?

A. Correct.

Q. Okay. I want to show you what will be marked as Exhibit 1.

(Longo Exhibit 1 marked for identification.)

BY MS. GADDY:

Q. Can you see this, Doctor?

A. Yes, I can.

Q. Do you recognize this?

A. Yes.

Q. These are the invoices associated with your work in this case that you produced to us; correct?

A. That is correct.

Q. And based on the invoices, you've been paid about $46,000 to date for your work in this case?
A. Correct.
Q. Does your payment depend on the outcome of this case?
A. No, it does not.
Q. And what percentage of your annual income is earned from serving as an expert witness?
A. Less than 10 percent.
Q. And other than this case, have you ever served as an expert witness for a plaintiff?
A. I -- no, I have not.
Q. Okay. Have you ever served as an expert witness for a defendant?
A. No, I have not.
Q. Have you testified at a deposition before?
A. Yes, I have.
Q. And how many times have you testified at a deposition?
A. Twice.
Q. And what were the nature of your those two cases?

A. One case was a medical malpractice case. The second case was as a treating physician for one of the Camp Lejeune patients.

Q. And was that Camp Lejeune patient Terry Dyer?

A. No.

Q. What was the name of that plaintiff?

A. Ciotti.

Q. And in the medical malpractice case, what -- in what capacity were you testifying?

A. I was named as one of the residents in the case and after my deposition was dropped from the case.

Q. And what were the parties of that case?

A. I don't understand the question.

Q. Who was the plaintiff in that case?

A. A patient named Wohlers.

Q. How do you spell that?

A. W-O-H-L-E-R-S.

Q. Okay. And a moment ago you said you were deposed in the Ciotti case in your role as a treating physician; right?

A. That is correct.

Q. And in that deposition do you recall

mentioning having previously testified in a medical malpractice case?

A. If I asked, I would have said yes. I don't remember if I was asked.

Q. And is that the same medical malpractice case that you just described?

A. Correct.

Q. Okay. I'm going to show you what will be marked as Exhibit 2.

(Longo Exhibit 2 marked for identification.)

BY MS. GADDY:

Q. Doctor, do you recognize this?

A. Yes, I do.

Q. And this is your expert report for Mr. Criswell in this case; correct?

A. It appears to be the cover sheet, yes.

Q. And I can scroll just to show. And this is the full report for Mr. Criswell; right?

A. Yes, it looks like it is.

Q. And turning to the last three pages of this document, this is your CV; correct?

A. That is correct.

Q. And is this CV a complete

representation of your education and employment background?

MR. WALLACE: Objection.

THE WITNESS: It is -- yes, it is a summary of my education and employment background.

BY MS. GADDY:

Q. Okay. Does this CV contain all of your publications to date?

A. Yes, it does.

Q. And is this version of your CV the most current version?

A. Yes.

Q. I'm next going to show you what will be marked Exhibit 3.

(Longo Exhibit 3 marked for identification.)

BY MS. GADDY:

Q. And I can scroll through.

Doctor, do you recognize this exhibit?

A. Yes, I do.

Q. This is the report for Terry Dyer in this case; correct?

A. Correct.

Q. And turning to the last three pages, is this the same CV we spoke about just a bit ago?

A. Yes, it is.

Q. Next I'll show you what will be marked Exhibit 4.

(Longo Exhibit 4 marked for identification.)

BY MS. GADDY:

Q. Do you recognize this document?

A. Yes.

Q. And this is your rebuttal expert report in this litigation; correct?

A. That is correct.

Q. Do these three reports, Exhibits 2, 3, and 4 contain all of the opinions you have formed to date in this case?

MR. WALLACE: Objection form.

THE WITNESS: That is correct they do.

BY MS. GADDY:

Q. Okay. Doctor you aren't an attorney; correct?

A. Correct.

Q. You aren't an economist?

A. Correct.
Q. You aren't an accountant?
A. Correct.
Q. And you aren't an epidemiologist; right?
A. Correct.
Q. You don't have any certification in epidemiology?
A. Correct.
Q. And you've never been a principal investigator for an epidemiological study; right?
A. That is correct.
Q. You've never published peer-reviewed literature on epidemiology; right?
A. Correct.
Q. And you haven't taught any courses on epidemiology?
A. Correct.
Q. You aren't a geneticist; right?
A. Correct.
Q. And you aren't a toxicologist; correct?
A. Correct.
Q. So you don't have a certification in toxicology?

A. Correct.
Q. And you've never been a principal investigator for a toxicological study; correct?
A. Correct.
Q. You've never published peer-reviewed literature on toxicology?
A. Correct.
MR. WALLACE: Objection.
BY MS. GADDY:
Q. You haven't taught any courses on toxicology; right?
A. Correct.
Q. You aren't an exposure expert; right?
MR. WALLACE: Objection.
THE WITNESS: Correct.
BY MS. GADDY:
Q. In other words, you're not an expert in using models to estimate exposure to chemicals; right?
MR. WALLACE: Objection.
THE WITNESS: Correct.
BY MS. GADDY:
Q. And you're not a risk assessment expert; right?
A. Correct.

Q. So you're not an expert in evaluating the level of increased risk for an individual from exposure to a chemical; right?

MR. WALLACE: Objection. Form. Foundation.

THE WITNESS: Correct.

BY MS. GADDY:

Q. And you're not a regulatory expert; right?

A. Correct.

Q. You don't have any degrees in biochemistry?

A. Correct.

Q. Or environmental health?

A. Correct.

Q. Or psychology?

A. Correct.

Q. You've never published peer-reviewed literature regarding the effects of TCE on bladder cancer; right?

A. Correct.

Q. And same goes for PCE?

A. Correct.

Q. Same for vinyl chloride?

A. Correct.

Q. And same for benzene?
A. Correct.
Q. You've never published peer-reviewed literature regarding the effects of Camp Lejeune water on bladder cancer; right?
A. Correct.
Q. Have you ever physically examined Mr. Criswell?
A. No, I have not.
Q. Have you ever physically examined Ms. Dyer?
A. No, I have not.
Q. And you are a practicing urologic oncologist; right?
A. That is correct.
Q. Meaning you perform surgeries to treat urologic cancers?
A. Yes.
Q. What type of urologic cancers do you treat?
A. I treat all malignancies of the genitourinary tract. So that would begin with the kidneys, the ureters, the bladder, the prostate, the seminal vesicles, the testes, and the penis with a primary focus on bladder.

Q. And bladder cancer or urothelial carcinoma is one of the urologic cancers that you treat; right?

A. That is correct.

Q. How do you typically treat this type of cancer?

A. The treatment of urothelial cell carcinoma is dependent upon the grade and the stage of the carcinoma. If you'd like me to expand, I could.

Q. Sure. Briefly if you could.

A. There are many little varieties of urothelial cell carcinoma, but it breaks down into two large categories. It's either low grade or high grade. In an older staging system, it was 1, 2, and 3, but current staging it's low grade and high grade.

The -- for most low grade cancers, they simply need a transurethral resection of bladder tumor and surveillance with office cystoscopy for recurrences. If they have multiple recurrences, we may start adding intravesical therapy, which I can explain further when I go into the next stage.

For high grade bladder cancers, the

next big decision point is a nonmuscle invasive or muscle invasive. If you're to look at the picture of the bladder under a microscope, you'd see that there's multiple layers to the bladder, the last layer of which is the detrusor muscle or the muscularis propria. That's the last layer of defense before the bladder cancer escapes the bladder. Once it's outside of the bladder, we no longer think it's curable.

If it's high grade non-muscle invasive bladder cancer, we would give patients the following options. One option is to simply do simply the transurethral resection of the bladder tumor which I mentioned a moment ago. That's where a camera is inserted through the patient's urethra into their bladder under anesthesia. There's a little wire that can get hot to various degrees. One level will cut. The other will burn or cauterize so that the tissue stops bleeding, so you can remove the tumor that way.

The second option would be transurethral resection bladder -- of the bladder tumor plus intravesical therapy. Intravesical therapy means that at sometimes immediately

post-operatively, but also at a later date several weeks later, you would put a chemical inside the bladder.

There are multiple chemicals that are available to be put inside the bladder. The chemical with the best evidence is a drug called BCG. It's actually a live attenuated tuberculosis vaccine. BCG has been proven to reduce the likelihood of the tumor coming back. And it's the only thing that shows that we will keep a nonmuscle invasive blader cancer from becoming a muscle invasive bladder cancer. So it reduces the likelihood of recurrence and it also reduces the likelihood of progression.

There are several chemotherapies we can put inside the bladder that will reduce the likelihood of recurrence. But none of those have been shown to reduce the likelihood of progression.

So option one is TRBT. Option two is TRBT plus intravesical therapy. A third option would be clinical trials. Those vary at times. And there are so many that I couldn't describe all of them.

Then the fourth option for a high

grade nonmuscle invasive bladder cancer would be a radical cystectomy, which is where we'd remove the entire bladder.

In a man, we'd remove the bladder, the prostate, the seminal vesicles and the lymph nodes from down in the pelvis. We then have detached their kidneys and the ureters from the bladder and it has to be brought to the outside world. Those are commonly done with urinary diversions which almost always involve a piece of bowel.

In a woman, it would be the bladder, the uterus, the ovaries, a strip of the vagina where the bladder sits on top of the vagina, all the pelvic lymph nodes, and again ureters from the kidneys have been detached on the bladder. We, again, have to do a urinary diversion to bring it to the outside world. So that's high grade nonmuscle invasive bladder cancer.

If you have high grade muscle invasive bladder cancer, the options would again be a transurethral resection of the bladder tumor, but that would be palliative and not curative. So you'd have to tell the patient that that wouldn't cure them of their disease. Their

disease would recur, progress, and ultimately to their death.

You could do something called chemotherapy plus radiation. Again, that's thought to be palliative, although there is a select population of patients who it could be curative in. That's where you begin giving the patient chemotherapy. While they're receiving chemotherapy, they get radiated, then they get more chemotherapy on the other side. It does allow them to preserve their bladder, but the risk is that it would not have cured them. It will recur, spread, and lead to their death.

And then the gold standard, the absolute best cancer control would be, again, the radical cystectomy which I described a moment ago.

Q. Thank you. That was very helpful.

I'm just going back. When you were describing the intravesical therapy that's given to patients with nonmuscle invasive bladder cancer --

A. Yes.

Q. -- you mentioned BCG; right?

A. Correct.

Q. And you said that's -- that's not a form of chemotherapy; right?

A. Correct. It's immunotherapy.

Q. Okay. In your practice, how many patients per year would you estimate that you diagnose with bladder cancer?

A. In my practice, if you look, there's a split point. For a while I was at Duke University. There, I would -- I had a much larger proportion of my patients that had bladder cancer. In fact, almost my entire day was filled with patients with bladder cancer. And I would remove roughly one to two bladders a week in that radical operation that we were talking about.

Having since left Duke and joined the different practice, I'm now down to maybe one bladder every other week. But that's still a very high volume urologic oncology practice for bladder cancer. So it's more in the neighborhood of probably 30 bladders removed. Again, a large portion of my day, though, does involve seeing patients with bladder cancer. I probably see one or two new bladder cancers a day and then follow-up visits to patients that have already been established with me. It's probably in the

neighborhood between five to ten a day.

Q. And when you say you used to work at Duke, about how long were you at Duke versus your private practice?

A. I was at Duke starting with my fellowship in 2015 up until the summer of 2023. And then I've been at my other practice for almost two years now.

Q. And when you were describing that you would mostly see bladder cancer patients and you were removing one to two bladders per week, I think, is that consistent throughout your entirety at being at Duke?

A. I would say that is a fair estimate, correct.

Q. Okay. And at your current practice, your private practice, you see maybe one bladder cancer patient a week, is that what you said? Or one removal a week?

MR. WALLACE: Objection.

THE WITNESS: Yeah. In my current practice, I probably remove one bladder a week. That's fair.

BY MS. GADDY:

Q. About how many patients would you say

you diagnose per week?

A. Diagnosis is probably one new diagnosis a week. Most of the patients seen by me have been referred by other urologists.

Q. Okay. And what do you tell your patients about the risk factors for bladder cancer?

MR. WALLACE: Objection.

THE WITNESS: When I first see the patients, I'll run through a list of risk factors to see which of those factors they've been exposed to. Because I believe that bladder cancer is almost always a disease of toxic exposure. And if we can ask enough questions, we typically can find an exposure that could contribute to their bladder cancer.

BY MS. GADDY:

Q. When you say toxic exposure, does that include exposure to cigarettes?

A. Correct.

Q. And would you agree that smoking is the most significant risk factor for bladder cancer?

MR. WALLACE: Objection. Form.

Foundation.

THE WITNESS: I think smoking is well established as the most common exposure in bladder cancer.

BY MS. GADDY:

Q. Would you say that it's a risk factor with the most evidence of increasing your risk of bladder cancer?

MR. WALLACE: Objection. Form. Foundation.

THE WITNESS: Yes.

BY MS. GADDY:

Q. What are other well-known risk factors for bladder cancer other than smoking?

A. So we always begin with smoking. There are occupations that we always look for. In the past, it would be unusual things like aniline dye factors that are very uncommon.

But now there are certain industries that are notorious for having had risk factors, such as the laundry industry. There's certain manufacturing plants, industrial degreasers often involved risk for bladder cancer.

I'm particularly sensitive to well water because I came from an agricultural

background and many of the herbicides, pesticides have a link to bladder cancer.

There is some unusual parasitic infections that we don't see in the United States but are endemic to other parts of the world. There's radiation. There's chemotherapies in their past. There's unusual herbal supplements that have been tied to bladder cancer as well.

Q. Okay. And in your practice or in your expert reports, you describe bladder cancer as a disease of toxic exposure; right?

A. That is correct.

Q. And in your practice do you always identify a toxic exposure as a cause of the patient's bladder cancer?

A. Almost always. Nothing is 100 percent.

Q. And, again, that's including cigarette smoke as well?

A. That is correct.

Q. In what percentage of your patients diagnosed with bladder cancer are you able to identify toxic exposure as a cause separate from cigarette smoke?

MR. WALLACE: Objection. Form.

Foundation.

THE WITNESS: I'd say it would be maybe one-third to one-half of the patients have additional exposures that are easy to identify.

BY MS. GADDY:

Q. And those exposures are separate from tobacco?

A. Correct.

Q. And what types of exposures are those?

A. They might be, as I said earlier, occupational exposures or drinking water exposures if they worked in an agricultural environment. Increasing -- well, not increasing. There are still radiation exposures from people who are radiated as a pediatric cancer.

Q. Okay. So when you say in your reports that it's typically a disease of toxic exposure, you're not speaking specifically about Camp Lejeune; right?

A. That is correct.

Q. And in your practice, you focus on treating patients; right?

A. That is correct.

Q. And in your practice, identifying the cause of the patient's bladder cancer is less important than actually treating the patient; right?

MR. WALLACE: Objection. Form. Foundation.

THE WITNESS: I think that the purpose of the visit for the patient is to be treated for their malignancy. But it's my duty as a physician to look for risk factors, especially because in bladder cancer most of them are modifiable meaning the patient often can avoid them. And you point them out, the possible etiology for patient, so they can know to avoid it. Their family can know to avoid it, perhaps their co-workers or their friends, to benefit their total health.

BY MS. GADDY:

Q. Would you say that treating the patient is more important than identifying the risk factors for a patient in your practice?

MR. WALLACE: Objection. Form. Foundation.

THE WITNESS: Again, I think treating

the patient is the reason they came to my office. But I would say that pointing out a risk is part of the treatment for the patient.

BY MS. GADDY:

Q. Do you perform a differential diagnosis or etiology to determine the cause in each of your patients that you diagnosed with bladder cancer?

MR. WALLACE: Objection. Form.

THE WITNESS: Yes, I do.

BY MS. GADDY:

Q. What does performing a differential diagnosis or etiology mean to you?

MR. WALLACE: Objection. Form.

THE WITNESS: It means that I'll go through with the patient their history and ask them questions about exposures.

BY MS. GADDY:

Q. Would you agree that performing a reliable differential etiology requires ruling in all potential causes and then ruling out potential causes?

A. I do think that it should be as exhaustive as possible, yes.

Q. In both ruling in and ruling out; correct?

A. Correct.

Q. And how do you decide what risk factors or potential causes to rule in?

A. I start going through the list in my mind with the patient.

Q. And the list is potential risk factors for the patient?

A. Correct. It's the ones we just spoke about.

Q. Okay. And how do you decide risk factors or potential causes to rule out?

A. Based upon their answers to my questions.

Q. And so if a patient gives you an answer to -- as to a specific risk factor, you base it off of their answer whether to rule in or rule out their risk factor?

MR. WALLACE: Objection.

THE WITNESS: Correct. So if the patient answers a question in a particular way, I might provide -- ask them a follow-up question.

For instance, if I ask them if they

drank well water growing up and they gave me affirmative, I would then press them further upon, well, where was this well. For instance, if it was on an industrial farm, I would take more interest. If it was an artisan well that's had purity tests, I'd put that one to the side.

BY MS. GADDY:

Q. Do you consult any other sources of evidence, whether that's medical records, to decide whether to rule out or rule in a risk factor, or do you just base it off of the patient's self-reporting?

MR. WALLACE: Objection. Form.

THE WITNESS: No. If it's in the medical record, then I'll absolutely ask them about it to confirm or deny whatever is there.

BY MS. GADDY:

Q. And are you always able to determine the cause of a patient's bladder cancer?

A. Not always, no.

Q. And what percentage of your patients are you able to determine the cause of their bladder cancer?

MR. WALLACE: Objection. Form. Foundation.

THE WITNESS: I would conservatively say that about 80 percent of my patients have an easily identifiable cause -- easy identifiable potential cause of their bladder cancer.

BY MS. GADDY:

Q. And that's after going through the differential etiology and determining that cause can't be ruled out?

A. That is correct.

Q. And so would you say 20 percent of your patients, you're unable to determine the cause of their bladder cancer?

MR. WALLACE: Objection.

THE WITNESS: I think that would be reasonable overestimate.

BY MS. GADDY:

Q. For the patients that you are unable to identify the cause, do you consider their bladder cancer to be idiopathic?

MR. WALLACE: Objection.

THE WITNESS: I will label it as cause unknown.

BY MS. GADDY:

Q. Do you consider idiopathic to mean an unknown cause?

A. I think that's a fair definition.

Q. How many patients throughout your career have you seen or treated that you know spent time at Camp Lejeune?

A. I think -- I've been going through my mind thinking the number of patients. In my own capabilities as a treating physician, it's been less than five patients.

Q. And that's over the scope of your entire career?

A. That is correct.

Q. And how many of those five patients do you know were at Camp Lejeune between 1953 and 1987?

A. All five of those patients.

Q. And do you know that because they told you that?

A. Correct.

Q. And how many of those patients of those five that you know spent time at Camp Lejeune did you actually diagnose with bladder cancer?

MR. WALLACE: Objection. Form.

THE WITNESS: Yes, it's under five patients. And they all came with the diagnosis of bladder cancer. I did not de novo diagnose them with bladder cancer.

BY MS. GADDY:

Q. But they had bladder cancer as opposed to something like kidney cancer?

A. Yes, that part is correct.

Q. Okay. And for those five patients that spent time at Camp Lejeune and that were diagnosed with bladder cancer, how many did you determine the cause to be Camp Lejeune water?

A. In all situations I felt that the Camp Lejeune water exposure was as likely as not a contributing factor to their bladder cancer.

Q. And how did you make that determination?

A. In looking through the risk factors with the differential etiology.

Q. Did any of these five patients have other risk factors other than Camp Lejeune water?

A. Yes. I recall some, but not all, of them had a smoking history.

Q. And did you tell them that you

believe their cause of their bladder cancer was the Camp Lejeune water?

MR. WALLACE: Objection.

THE WITNESS: I told them that I think the Camp Lejeune water contributed to their bladder cancer.

BY MS. GADDY:

Q. And your practice doesn't require familiarity with TCE; correct?

MR. WALLACE: Objection.

THE WITNESS: No. I think a urologic oncologist has to have some familiarity with TCE.

BY MS. GADDY:

Q. Do you think it's required to be a good urologist to be familiar with TCE?

MR. WALLACE: Objection. Form.

THE WITNESS: I think that it depends on what time you're speaking of. I think currently, yes, a good urologic oncologist should have some familiarity with TCE and its links to bladder cancer.

BY MS. GADDY:

Q. And that's your opinion that they should be familiar, but it's not required; right?

MR. WALLACE: Objection.
THE WITNESS: Correct. Correct.
It's an opinion.
BY MS. GADDY:
Q. And would your opinion be the same for PCE?
A. Yes.
MR. WALLACE: Same objection.
BY MS. GADDY:
Q. What about vinyl chloride?
MR. WALLACE: Same objection.
THE WITNESS: Yes.
BY MS. GADDY:
Q. And it's your opinion that a urologist should be familiar with benzene; right?
A. Yes.
Q. But it's not required; correct?
MR. WALLACE: Objection.
THE WITNESS: Correct.
BY MS. GADDY:
Q. And you talked a little bit ago about the cystectomy as a removal of the bladder and some other portions; correct?
A. That is correct.
Q. And about how many cystectomies do

you perform in a year?

A. As I stated earlier, during my times at Duke, I was probably in the range of 50 to 60 cystectomies a year. Now I'm probably in the range of 30 to 40 cystectomies a year.

Q. And is it correct that a conduit urinary diversion is a type of cystectomy?

A. No. That is incorrect.

Q. Can you clarify?

A. A conduit is the urinary diversion. So that -- the cystectomy is the part of the operation where you're removing the diseased organ. The conduit is the part of the operation where you're rebuilding some sort of -- well, in this case, literally a conduit to get the urine from inside the body to outside the body.

Q. Okay. So a conduit urinary diversion is involved when performing a cystectomy?

A. Yes. It's the reconstructive portion of the operation.

Q. And is it true that neobladders and ostomy pouches are involved in performing a urinary diversion?

A. Yes. Those are two types of urinary diversions.

Q. And of those cystectomies that you perform in a year, how many neobladders or ostomy pouches do you perform in a year?

A. Of that set amount of -- it's a very, very small portion of patients that choose a neobladder, and the vast majority have chosen an ileal conduit.

Q. And is a -- how does an ileal conduit compare to an ostomy pouch?

MR. WALLACE: Objection. Form.

THE WITNESS: I'll just go through all the things. So an ileal conduit is where you take a piece of the small bowel called the ileum, and that's why it's called the ileal conduit, not the colon conduit or the stomach conduit. You need roughly 15 centimeters of length, but in your mind what you're trying to do is reach from inside their abdomen to outside their abdomen.

So you have all the small bowel there. You take out the small segment, put the other two pieces back together again. Now, you're left with a tube that's attached to its blood supply. You

sew the ureters from the kidney to one end, and you bring the other end out to somewhere alongside their belly button over here because that's through their rectus muscle. I think the ostomy pouch you're referring to is the actual bag that they put on their stomach wall to collect the urine.

A neobladder, on the other hand, is again using a piece of your small bowel, but instead of just taking a few centimeters, you take about 60. So you need a good length. You cut the tube open and you sew it more or less back into a ball. And you put that where the bladder used to be sewing the ureters to one part of it and then sewing that to the urethra on the other end. So there's nothing external after you've had a neobladder.

BY MS. GADDY:

Q. Okay. Thank you. That helps.

Doctor, have you ever been subject to any disciplinary action or censure by any licensing body?

A. No.

MR. WALLACE: Objection.
BY MS. GADDY:
Q. Have you ever been subject to any disciplinary action by any court or tribunal?
MR. WALLACE: Objection.
THE WITNESS: No.
BY MS. GADDY:
Q. And, Doctor, would you agree that medicine is not an exact science?
MR. WALLACE: Objection.
THE WITNESS: Yes. I would agree.
BY MS. GADDY:
Q. And you'd agree that cause of bladder cancer is multifactorial; correct?
MR. WALLACE: Objection.
THE WITNESS: Yes.
MR. WALLACE: Form. Foundation.
THE WITNESS: Yes I would.
BY MS. GADDY:
Q. And would you agree that every patient is different with idiosyncratic risk factors?
MR. WALLACE: Objection. Form. Foundation.
THE WITNESS: Yes, I would.

BY MS. GADDY:

Q. Would you agree that cancer is caused by genetic mutations?

MR. WALLACE: Objection. Form. Foundation.

THE WITNESS: I believe that genetic mutations are involved in cancer, yes.

BY MS. GADDY:

Q. And those mutations can occur randomly; correct?

MR. WALLACE: Objection. Form. Foundation.

THE WITNESS: I don't think -- I do not think that they occur randomly, but it does depend on what kind of -- what type of cancer you're speaking of.

BY MS. GADDY:

Q. Okay. So for bladder cancer, would you agree that genetic mutations can occur randomly to cause bladder cancer?

A. I do not know of any genetic syndrome that causes bladder cancer.

Q. Would you agree that the precise cause of bladder cancer is generally unknown?

MR. WALLACE: Objection.

THE WITNESS: No, I would disagree with that statement.

BY MS. GADDY:

Q. Okay. What is the precise cause of bladder cancer?

A. The -- there is usually a toxic exposure. That toxic exposure somehow ingested into the patient that's processed through the liver and the kidneys. That is then dumped into the bladder. The bladder as a storage vessel has more toxic exposure than any portion of the body, which because you're storing your urine for whatever period of time after the exposure.

The cells that line the bladder, the urothelial cells, because of the exposure, their mutations may begin and then that incites the cancer in what's called a field effect. So there's one tumor in one portion of the bladder. There are other changes going on throughout the other cells and other parts of the bladder.

Q. And earlier you stated that there are patients that did not have a toxic exposure but still developed bladder cancer in your practice; right?

MR. WALLACE: Objection. Form.

Foundation.

THE WITNESS: What I stated or meant to state was that there was no identified toxic exposure, but I'm still suspicious that there is an exposure that we just don't know about.

BY MS. GADDY:

Q. Okay. So, in your opinion, all bladder cancers are caused by some form of toxic exposure, whether we know it or not?

MR. WALLACE: Objection.

THE WITNESS: Yes.

BY MS. GADDY:

Q. Bladder cancer is one of the most common cancers in the United States; right?

A. Correct.

Q. And you state in your report that you employ a differential etiology in your practice as a treating physician to assist in the treatment options for your patients; correct?

A. I perform a differential etiology to assist them in identifying potential causes so that if it's an ongoing exposure, they can avoid that exposure. But it doesn't help their treatment going forward.

Q. Okay. So it doesn't assist in the treatment options for a patient?

MR. WALLACE: Objection.

THE WITNESS: No. The treatment options are based off of the particularities of each individual's cancer. The part where we're going through low grade or high grade or nonmuscle invasive, muscle invasive, that's how we guide their treatment choices.

BY MS. GADDY:

Q. Okay. And you performed a differential etiology in this case for both Mr. Criswell and Ms. Dyer; correct?

A. That is correct.

Q. And why did you employ this methodology?

A. I did a full differential on each of the patients because I wanted to see what other risk factors they had and -- as opposed to just attributing it to Camp Lejeune drinking water.

Q. Okay. And in order to rule in a potential risk factor, did you review relevant sources to determine if they sufficiently

established a causal relationship?

MR. WALLACE: Objection. Form. Foundation.

THE WITNESS: Yes, I did.

BY MS. GADDY:

Q. Okay. And you identify smoking as a known risk factor for bladder cancer; correct?

A. That is correct.

Q. And specifically in your reports you state that some estimates attribute 50 percent of all bladder cancers to smoking; right?

A. Yes, I do.

Q. And in your reports you talk about this concept of someone's history of smoking being, quote, medically insignificant; right?

MR. WALLACE: Objection. Form. Foundation.

THE WITNESS: Yes, I think the amount of exposure to smoking they have is -- either is insignificant or significant to their development of bladder cancer; correct.

BY MS. GADDY:

Q. And specifically you used the term "medically insignificant"; right?

A. Correct.
Q. You also used the phrase "nonsmoker for medical purposes"; correct?
A. Correct.
MR. WALLACE: Objection. Form. Foundation.
BY MS. GADDY:
Q. And specifically for Mr. Criswell, you note there's some inconsistencies in the medical records about exactly how much he used to smoke; right?
A. Yes. There were inconsistencies.
Q. You note in your report that one of Mr. Criswell's medical records states that he smoked less than half a pack of cigarettes per day between 1972 and 1974; right?
MR. WALLACE: Objection.
THE WITNESS: Yes.
BY MS. GADDY:
Q. And you cite to a specific record when you make that statement; correct?
A. Yes, I do.
Q. I'd like to show you that record. And I will mark it as Exhibit 5.
(Longo Exhibit 5 marked for

identification.)
BY MS. GADDY:
Q. For the record, this is Bates stamped 01482_Criswell_VBA_286 through 291. Doctor, I'll just scroll through this.
Doctor, do you recognize this exhibit?
A. I'm sorry, it's too small for me to see. Can you zoom in, please.
Q. Sure. Is this better?
A. Can you go even more?
Q. Yeah. How's that?
A. Okay. I can do that now. Entry date, March 11, 2020, yeah.
Q. And this is the treatment record that you cited in your report or this statement; correct?
MR. WALLACE: Objection.
THE WITNESS: Is that the VA records I'm looking at?
BY MS. GADDY:
Q. Yes. This is the -- let's see here.
A. Okay. Yes, I recognize this.
Q. This is the treatment record from the VA dated March 11, 2020; right?

A. Yes.

Q. And this encompasses the record that you cited in your report regarding Mr. Criswell previously reporting that he smoked less than half a pack per day between 1972 and 1974; right?

MR. WALLACE: Just -- I'm sorry. Before you continue Megan, I just want to note for the record that Dr. Longo doesn't have a copy of his reports that you're citing from in front of him. Instead, he's just been handed a laptop by the videographer that can -- that shows Exhibit 5, the same one that's on the Zoom screen right now.

BY MS. GADDY:

Q. Okay. If we go back to your report, Doctor, so we can be on same page here. Exhibit 2. We'll go to page 18.

And under tobacco use, you state, quote, it is noted in one of Mr. Criswell's medical records that he is a former smoker smoking less than half a pack of cigarettes per day between 1972 and 1974.

Did I read that right?

A. Yes, you did.

Q. And you cite to the record we were just looking at, 288; correct?
A. Yes.
Q. And going back to Exhibit 5, which is Bates stamped 288, if we turn to Bates 290, do you see near the middle of the page where it says "tobacco use screening"?
A. Yes.
Q. And it says the patient has never used tobacco; correct?
A. It says that on that page, correct.
Q. And we know that to be false; right?
MR. WALLACE: Objection. Form. Foundation.
THE WITNESS: As I said in my report, there's conflicting -- conflicting records in different spots, and I think that it's a 2020 medical record referring back to a date in 1974. And we don't know who actually took that piece of information down. It could have been a survey. It could have been the patient himself. I just -- the point of that -- my paragraph there was that the number differs throughout the medical record. And it

still does seem to be a very low number.

BY MS. GADDY:

Q. And we know that Mr. Criswell has testified to smoking cigarettes at some point in his life; right?

A. Yes.

Q. And, in fact, you note in your report that Mr. Criswell testified in his deposition that he smoked socially on a handful of occasions as a teenager due to peer pressure in approximately 1973 and 1974; right?

A. Yes.

Q. And that was his testimony in this litigation where it was claimed centers around the cause of his bladder cancer; correct?

MR. WALLACE: Objection.

THE WITNESS: Correct.

BY MS. GADDY:

Q. You also note in your report that there are other records suggesting far more minimal smoking for Mr. Criswell; right?

A. Yes.

Q. And you cite two records in making that statement; right?

MR. WALLACE: Objection.

THE WITNESS: Yes.
BY MS. GADDY:
Q. I'd like to show you one of those records that you cited in your report which will be marked Exhibit 6.
(Longo Exhibit 6 marked for identification.)
BY MS. GADDY:
Q. I'll scroll for the record. This is Bates stamped 01482_Criswell_95.
Doctor, do you recognize this exhibit?
A. Yes, I do.
Q. And, although, the physician's name is not on this record, this is the treatment record for Mr. Criswell's visit with his first urologist Dr. Lostine; right?
MR. WALLACE: Objection. Form. Foundation.
THE WITNESS: Yes.
BY MS. GADDY:
Q. And these summaries are from October of 1997; correct?
A. Correct. I see the date.
Q. Okay. And in the second paragraph

under the date October 15, 1997, do you see where it says "does not smoke or drink"?

A. Yes, I do.

Q. And this is what you were referencing when stating in your report that there are other records that suggest far more minimal smoking; right?

A. That is correct.

Q. But this just states that Mr. Criswell denied smoking or drinking at the time of that visit in 1987; right?

MR. WALLACE: Objection.

THE WITNESS: I actually don't know what question was asked. It could have been that moment, the past year, historically, but it's not clear through that phrase "does not smoke or drink."

BY MS. GADDY:

Q. So it doesn't describe Mr. Criswell's history of smoking; correct?

MR. WALLACE: Objection.

THE WITNESS: It just says that he does not smoke.

BY MS. GADDY:

Q. And would you interpret that to mean

he does not smoke at that time?

MR. WALLACE: Objection.

THE WITNESS: I don't know how he asked the question. I would assume it's he does not smoke.

BY MS. GADDY:

Q. But not necessarily never -- have never smoked?

MR. WALLACE: Objection. Form. Foundation.

THE WITNESS: Yes. Not necessarily he never smoked.

BY MS. GADDY:

Q. Now turning to the other record that you cite in your report, which will be marked Exhibit 7 and is Bates stamped 01482_Criswell_4928 through 4929. Scroll through this.

(Longo Exhibit 7 marked for identification.)

BY MS. GADDY:

Q. Doctor, do you recognize this exhibit?

A. Yes, I do.

Q. And on the first page at the bottom,

the treatment note begins and is noted -- or dated February 24, 2014; right?

A. I see that.

Q. And turning to the second page, do you see where it says "smoking" under past medical history?

A. Correct.

Q. And it says "denies smoking"; correct?

A. Correct.

Q. And we know that Mr. Criswell smoked at some point in his life according to his testimony in this case; right?

MR. WALLACE: Objection.

THE WITNESS: Yes.

BY MS. GADDY:

Q. At most, this record just establishes that he denied smoking as of February of 2014; right?

MR. WALLACE: Objection. Form. Foundation.

THE WITNESS: Yes.

BY MS. GADDY:

Q. And there are a lot of medical records in this case; right?

A. That is correct.
Q. And there are many records referencing Mr. Criswell's smoking history that were not cited in your report; right?
A. Correct.
Q. I'd like to show you just a couple of those starting with what will be marked Exhibit 8.
(Longo Exhibit 8 marked for identification.)
BY MS. GADDY:
Q. Which, for the record, is Bates stamped 01482_Criswell_20 through 21. I'll scroll through.
Doctor, do you recognize this exhibit?
A. Yes, I do.
Q. And this is a treatment summary for Mr. Criswell dated June of 2015 from his current urologist Dr. Shelfo; correct?
A. Yes, it is.
Q. On this first page towards the bottom, do you see where it says "tobacco use"?
A. Yes, I do.
Q. And it says former smoker,

cigarettes, smokes less than half a pack per day; correct?

A. Correct.

Q. And then continuing on to the next page towards the top, it says "length of tobacco use, years of tobacco use, 2"?

A. Yes.

Q. And date -- and date tobacco last used teenager; correct?

A. Yes.

Q. And so this record from his current urologist suggests that Mr. Criswell smoked less than half a pack per day for two years as a teenager; right?

MR. WALLACE: Objection.

THE WITNESS: Yes.

BY MS. GADDY:

Q. And there are usually 20 cigarettes per pack; correct?

MR. WALLACE: Objection.

THE WITNESS: I actually don't know. I think so, yes.

BY MS. GADDY:

Q. So assuming there's 20 per pack of cigarettes, less than half a pack would be less

than 10; correct?
A. Yes.
Q. That could mean nine cigarettes?
A. Yes.
Q. That could mean five cigarettes?
A. Yes.
Q. Next I'm going to show you what we will mark Exhibit 9. For the record, this exhibit is Bates stamped 01482_Criswell_1023 through 1029.
(Longo Exhibit 9 marked for identification.)
BY MS. GADDY:
Q. Scroll through.
Do you recognize this exhibit?
A. Yes.
Q. This exhibit contains the treatment notes for Mr. Criswell's visit to a VA clinic on December 12, 2013; right?
A. Yes, it does. There. I didn't see the date. Yeah.
Q. Okay. Turning to the third page, which is Bates stamped 1025, do you see where it says "social history"?
A. I do.

Q. And under it, it says "tobacco quit in 1974, restarted in 1977 and quit in 1978. Smoked two to three cigs per day when he did smoke."

Did I read that right?

A. Yes, you did.

Q. This is the most detailed account of Mr. Criswell's smoking history in his medical records; right?

MR. WALLACE: Objection.

THE WITNESS: Yeah, I believe so.

BY MS. GADDY:

Q. And it suggests that he quit smoking twice in the 1970s, once in 1974 and 1978; right?

MR. WALLACE: Objection.

THE WITNESS: Yes. There are two sets of dates there.

BY MS. GADDY:

Q. And it says he smoked two to three cigarettes per day during that time frame; right?

A. When he did smoke, he smoked two to three cigarettes per day, correct.

Q. This differs substantially from his testimony that he only smoked socially on a handful of occasions as a teenager; right?

MR. WALLACE: Objection.

THE WITNESS: I think it depends on how you define social smoking, and what number of cigarettes you would say is a social situation.

BY MS. GADDY:

Q. Would you say two to three cigarettes per day is more substantial than one every few days?

MR. WALLACE: Objection.

THE WITNESS: I cannot tell from two to three cigarettes per day when he did smoke, if that's a daily occurrence or if that is an occasional occurrence.

BY MS. GADDY:

Q. So as a treating physician if a patient told you he smoked occasionally, would you put something like two to three cigarettes per day?

MR. WALLACE: Objection.

THE WITNESS: I think I would probably drill down on that and try to figure out exactly what they meant by it. But I wasn't the treating physician.

BY MS. GADDY:

Q. And is it fair to say that there's inconsistencies in the medical records regarding Mr. Criswell's smoking history because Mr. Criswell himself is inconclusive in recounting how often he smoked?

MR. WALLACE: Objection. Form. Foundation.

THE WITNESS: I think I tried to allude to that in my sentence about his smoking history where I said it does differ throughout the medical record. But all of the instances where smoking was mentioned, it does seem low.

BY MS. GADDY:

Q. And that's based on his reporting to his treating physicians; right?

MR. WALLACE: Objection.

THE WITNESS: Correct. It was all taken from medical records.

BY MS. GADDY:

Q. And specifically for Ms. Dyer, you note that there are also some inconsistencies in the medical records about exactly how much she used to smoke; right?

A. Yes.

Q. And you note that in Ms. Dyer's deposition in this case she testifies having maybe a cigarette at a nightclub when she was dating her husband; right?

MR. WALLACE: Objection. Foundation.

THE WITNESS: Yes.

BY MS. GADDY:

Q. And that is her testimony in this case where the cause of her bladder cancer is at issue; right?

MR. WALLACE: Objection. Foundation.

THE WITNESS: Yes.

BY MS. GADDY:

Q. In contrast, you also note in your report that Ms. Dyer's medical records note that she previously smoked two cigarettes per day for two years; right?

A. Yes, I did.

Q. And in other medical records it says she smoked half a pack per day for two years; right?

MR. WALLACE: Objection. Foundation.

THE WITNESS: Yes.

BY MS. GADDY:

Q. And in others it said a fourth a pack

per day for one year; right?
MR. WALLACE: Objection. Foundation.
THE WITNESS: Yes.
BY MS. GADDY:
Q. Physicians note a patient's smoking history based on the patient's own self-reporting; correct?
MR. WALLACE: Objection. Form. Foundation.
THE WITNESS: That is correct. It's self-reported.
BY MS. GADDY:
Q. And all of these medical records noting her smoking history do not support Ms. Dyer's testimony about smoking maybe one cigarette at a nightclub on occasion; right?
MR. WALLACE: Objection. Form. Foundation.
THE WITNESS: Yes.
BY MS. GADDY:
Q. You later refer to Ms. Dyer as previously being a less than one pack a day smoker for approximately two years; correct?
MR. WALLACE: Objection.
THE WITNESS: Correct. I think

that's fair.

BY MS. GADDY:

Q. And that could mean five cigarettes per day; right?

MR. WALLACE: Objection. Form.

THE WITNESS: Yes.

BY MS. GADDY:

Q. Or 19 cigarettes per day?

MR. WALLACE: Objection. Form.

THE WITNESS: Yes.

BY MS. GADDY:

Q. And even if we assumed Ms. Dyer only smoked one cigarette per day for two years, that would be approximately 730 cigarettes; right?

MR. WALLACE: Objection.

THE WITNESS: Correct.

BY MS. GADDY:

Q. Going back to the phrase you used in your report "medically insignificant," is there a source in your field that defines what constitutes medically insignificant smoking?

A. The American Cancer Society.

Q. And what is the limit according to the American Cancer Society for what is considered medically insignificant?

MR. WALLACE: Objection. Foundation.
THE WITNESS: I don't have it in front of me right now. I believe I put it in my report.
BY MS. GADDY:
Q. Okay. Do you recall stating that the Center for Disease Control defines nonsmokers as an adult who has never smoked or who has smoked less than 100 cigarettes in their lifetime?
MR. WALLACE: Objection. Foundation.
THE WITNESS: Yes, that's -- I think I was referring to that, not the American Cancer Society. Apologies.
BY MS. GADDY:
Q. No worries. And so you go on in your report to state that Mr. Criswell's smoking history characterized him as a nonsmoker for medical purposes under this definition; right?
A. Correct.
Q. Mr. Criswell's medical records suggests he smoked two to three cigarettes per day for approximately two years; right?
MR. WALLACE: Objection. Foundation. Form.
THE WITNESS: In places that's what

it suggests, yes.

BY MS. GADDY:

Q. And based on those medical records, two cigarettes per day for two years would equal 1,460 cigarettes; right?

A. Yes.

Q. Three cigarettes per day for two years would equal 2,190 cigarettes; right?

A. That is correct.

Q. And even if we assume Mr. Criswell only smoked one cigarette per day for one year, that would put him well above the 100 cigarettes threshold; right?

A. Yes.

Q. And for Ms. Dyer you state in your report that her medical records would place for outside of this definition of 100 cigarettes or less; correct?

A. Yes.

Q. So based on Ms. Dyer's medical records that were created prior to this litigation, Ms. Dyer cannot be classified as a nonsmoker; correct?

MR. WALLACE: Objection. Form. Foundation.

THE WITNESS: Again, it says different things in different places in her medical records.

BY MS. GADDY:

Q. So depending on what medical records you rely on, she's either a nonsmoker or she's a previous smoker; right?

A. Yes.

Q. How do you determine which medical records to rely on and which to ignore?

MR. WALLACE: Objection.

THE WITNESS: You would look at the date it was obtained. So is it in closer proximity to when she smoked. You may look at the source. And you also look at what the patient still says. The patient was the original source even if it -- so you'd look to -- you'd trust the patient to tell you the truth.

BY MS. GADDY:

Q. Is that the same even if it's her deposition testimony in this case?

MR. WALLACE: Objection.

THE WITNESS: Well, yeah, because I believe she took the same oath I did to

tell the truth.

BY MS. GADDY:

Q. You also state in your reports that those who have quit smoking for 25 years or more have the same risk as those who never smoked; right?

A. Correct. It diminishes with time.

Q. But even those with a long latency period are still at an increased risk for developing bladder cancer compared to the general population; right?

MR. WALLACE: Objection. Foundation.

THE WITNESS: Yes, to a degree.

BY MS. GADDY:

Q. And based on the medical records we looked at, at least one of the medical records indicated that Mr. Criswell stopped smoking in 1978; right?

MR. WALLACE: Objection. Foundation.

THE WITNESS: Yes.

BY MS. GADDY:

Q. And with his diagnosis of bladder cancer in 1997, that would put his latency period at 19 years; correct?

A. Yes.

Q. In order for Mr. Criswell to have a latency of 25 years or more, he would have had to quit smoking in 1972; right?

A. Yes.

Q. And even the most minimal account of Mr. Criswell's smoking history places his date -- his quit date at 1974; right?

A. Correct.

Q. Would you agree that the age of onset of smoking is highly associated with bladder cancer risk?

A. Bladder cancer develops in older people, but I do not think that the age is the risk. I think it's the time from exposure that's the -- that you're alluding to. So I don't think that age is a risk factor, but I think older people get bladder cancer, yes, absolutely.

Q. Let me try to clarify the question.

Would you agree that if a person smokes at the age of 13, they're at an increased risk compared to someone who started smoking at the age of, say, 40?

A. In -- so they are at an increased risk at a younger age, but I believe the risk is the same no matter what age you start smoking.

It's just what period of time from when you started smoking to when your risk is -- or when the latency period would hit and your cancer would develop.

Q. So you aren't aware of any literature that states that smoking at an early age, such as the age of 13, increases your risk of bladder cancer compared to smoking at a later age?

A. I think it gives you more exposure because presumably if you start that young, you would continue smoking. But I don't think it's a one for one. I think a cigarette at 13 has the same as a cigarette at 40. It's just -- if you start at 13, you'll have more accumulative exposure.

Q. So regardless of whether -- assuming they smoke for two years at age 13 versus age 40, your testimony is that the risk is the same?

A. For smoking, yes. There are chemicals that have been proven to have higher risk if you're exposed at a younger age.

Q. But for smoking your testimony is it doesn't matter at what age you smoke?

A. Yes, it's a one to one.

Q. And Mr. Criswell reported beginning

smoking around the age of 13 or 14; right?

A. I trust your math that that's correct, yes.

Q. And Ms. Dyer's testimony suggests that she smoked between 1975 and 1977; right?

MR. WALLACE: Objection.

THE WITNESS: Yes.

BY MS. GADDY:

Q. You state in your report that her quit date was likely 1977 around the time that she became pregnant with her first child; right?

MR. WALLACE: Objection.

THE WITNESS: Correct.

BY MS. GADDY:

Q. And this would suggest that Ms. Dyer smoked between the age of 18 to 20 years old; right?

A. Yes.

Q. Did you factor in both Mr. Criswell and Ms. Dyer's age that they began smoking into your differential?

A. I factored in their start -- pardon me, the start and stop dates to the time to develop bladder cancer, but I did not consider their age as an independent risk factor for them

developing bladder cancer.

Q. Okay. You also state in your report for Mr. Criswell that conventional wisdom would suggest that secondhand exposure to cigarette smoking could also contribute to bladder cancer; right?

A. That is correct.

Q. And you go on to say in your report that secondhand smoke exposure should be analogous to direct smoking albeit to a lesser degree; right?

A. Yes, I did.

Q. But you conclude that there is insufficient evidence to support this association; right?

MR. WALLACE: Objection.

THE WITNESS: Yes. When they look at the epidemiologic studies for secondhand smoking, there is not clear data showing that the secondhand smoke -- secondhand smoking leads to bladder cancer. But because it's an analogous thing meaning whether or not you're the one puffing the cigarette or you're the one breathing the air, we assume it to be true. It's just a

much harder study to produce.

BY MS. GADDY:

Q. Did you perform any literature review for the relationship between secondhand smoke exposure and bladder cancer for this report?

A. Yes, I did look at the literature.

Q. And do you recall what search terms you used?

A. Secondhand smoking and bladder cancer.

Q. Did you find any studies that showed a positive association between secondhand smoke and bladder cancer?

A. I don't recall any particular studies that I -- by specific studies. I looked at the literature as a whole.

Q. And just generally did you see any that showed a positive association?

A. Generally, there are positives and negatives.

Q. Why did a positive association in those studies not support ruling this risk factor in?

A. Because there wasn't clear -- there wasn't a preponderance of data looking at

epidemiologic studies in other sources to clearly indicate. But, again, in our world, we assume it to be true, we definitely encourage our patients' families to stop smoking even if they've stopped.

Q. And you note in your report that the studies that you have reviewed report inconsistent results; right?

A. Yes.

Q. And your conclusion that the literature was inconsistent on this type of exposure, that means to not rule in secondhand smoke as a risk factor for Mr. Criswell; right?

MR. WALLACE: Objection.

THE WITNESS: Yes, I considered it, but I did not -- did not consider it -- I considered it in my differential, but did not attribute a great portion to secondhand smoke.

BY MS. GADDY:

Q. Did you rule out secondhand smoke as a risk factor for Mr. Criswell?

A. No, I did not.

Q. So you considered that Mr. Criswell was exposed to secondhand smoke when forming your opinion?

A. Yes, I did.
Q. And you note in your report that Mr. Criswell was exposed to secondhand smoke from his parents whom he lived with until he was 17; right?
A. Yes.
Q. But you didn't think that was a cause of his bladder cancer?
MR. WALLACE: Objection.
THE WITNESS: I thought it to be an unlikely cause, but it was considered.
BY MS. GADDY:
Q. Why was it an unlikely cause?
A. Again, because secondhand smoke is hard to determine the level of exposure they might not -- even though they live in the same home, perhaps his parents stepped outside every time they went to smoke or they didn't smoke at the house at all. Too many other confounding factors that I cannot rule in or out regarding his exposure.
Q. So if Mr. Criswell testified at his deposition that his parents smoke inside of the home, would that change your opinion?
A. No. Because, again, I did consider

it and it could contribute.

Q. But you didn't determine it was a likely cause of his bladder cancer?

A. I didn't -- I didn't determine it was a likely cause or an unlikely cause. I noted it and carried on with the differential etiology.

Q. So if Mr. Criswell's parents smoked in the home with him since he was a child up until the age of 17, would you rule that in as a likely cause of his bladder cancer?

MR. WALLACE: Objection.

THE WITNESS: I would. But, again, I don't think any of the causes are exclusive meaning if you have one, you can't have the other. So I considered it and I put it on my list. But I didn't rule it in or out entirely. My answer remains.

BY MS. GADDY:

Q. So if you don't rule -- excuse me.

So if you don't rule in a risk factor or rule out a risk factor, how does that play into your differential diagnosis?

A. Well, if I can rule something out entirely, then so be it. If I cannot rule out

entirely, I would name that as a risk factor to the patient and tell them to avoid it. So, again, if they're a smoker and they had exposure to contaminated well water and they're getting radiated, I would say, well, you're mostly a smoker so you can do the other two things. No, I tell them avoid all the things. I considered them all in -- don't necessarily have to have a ranking.

Q. Okay.

MR. WALLACE: Megan --

BY MS. GADDY:

Q. Is it true that --

MR. WALLACE: I'm sorry, Megan, we've been going for a little bit over an hour. I don't want to interrupt kind of your topics. But when you reach a good stopping point, can we take a break?

BY MS. GADDY:

Q. Sure. I'm almost at a stopping point.

Doctor, so you said -- would you agree that in your report you concluded that Mr. Criswell only had one risk factor for bladder cancer?

MR. WALLACE: Objection. Foundation.

THE WITNESS: No, I don't think so. I think I addressed that he had remote smoking history and he was exposed to secondhand smoke and that he was exposed to Camp Lejeune water.

BY MS. GADDY:

Q. Let's take a look at your report. For the record, this is Exhibit 2.

Do you see in this third paragraph towards the bottom you state "In Mr. Criswell's case, as I discussed later in this report, he only had one recognized risk factor, exposure to the chemicals in the water at Camp Lejeune."

Did I read that right?

A. Yes, you did.

Q. So you only determined that Mr. Criswell had one risk factor for bladder cancer?

MR. WALLACE: Objection.

THE WITNESS: Yes. So I addressed his smoking history and his secondhand smoking and I thought it was Camp Lejeune drinking water, yes.

BY MS. GADDY:

Q. But is it your testimony now that you do consider his smoking including secondhand smoke to be a risk factor for his bladder cancer?

MR. WALLACE: Objection. Form.

THE WITNESS: I think perhaps I'm just misspeaking in that when I say I considered, that means that I went through it, said yes he had this history of smoking, of secondhand smoke exposure. And when I look at his history in a totality, I think that it's the Camp Lejeune drinking water that is his risk factor. So I identified other risk factors, but I think the risk factor in Mr. Criswell's situation is the Camp Lejeune drinking water. Sorry if I was unclear. Sorry.

BY MS. GADDY:

Q. That's okay. Just to clarify, so does that mean that you ruled out secondhand smoke or smoking cigarettes as a risk factor or you considered it, but you just didn't consider it a risk factor?

MR. WALLACE: Objection.

THE WITNESS: I considered it, but I

did not consider it a major risk factor in Mr. Criswell's situation.

BY MS. GADDY:

Q. Why did you not consider it a major risk factor?

MR. WALLACE: Objection. Asked and answered.

THE WITNESS: Again, as I said, if you look through the medical record, I thought it was a small amount of smoking exposure, and I used the definitions that we had sent out earlier from the CDC.

And then in looking at the epidemiologic research, so looking at what peer-reviewed literature there was for secondhand smoke, again, there's no good evidence that I can pin for secondhand smoke and it being a risk factor for his cancer.

BY MS. GADDY:

Q. So you didn't consider it a risk factor because in part his CDC definition of a nonsmoker being less than 100 cigarettes applied to Mr. Criswell?

MR. WALLACE: Objection.

Mischaracterizes earlier testimony and form.

THE WITNESS: Again, I looked at his medical record in totality. And, again, there's various places where the smoking history changes. I think in all situations it's below a certain amount that I do not consider it to be a major risk factor for Mr. Criswell's bladder cancer. However, I do not think that causes of bladder cancer exposures, I don't think they're exclusive. Meaning I don't think just because you have one that the other cannot contribute and vice versa. I'm not claiming synergistic effect or anything like that. I just know that there are multiple sources that can all contribute.

BY MS. GADDY:

Q. Understood. But in this case for Mr. Criswell, your report only identifies one major risk factor for bladder cancer; correct?

MR. WALLACE: Objection.

THE WITNESS: Yes.

MS. GADDY: I think this is a good

stopping point if we want to take a quick 15-minute break. Does that work for everyone?

MR. WALLACE: That sounds good. Thanks.

MS. GADDY: We can go off the record.

THE WITNESS: Thank you.

THE VIDEOGRAPHER: Off record at 10:25 a.m.

(Recess taken from 10:25 a.m. until 10:49 a.m.)

THE VIDEOGRAPHER: On record at 10:49 a.m.

MR. WALLACE: I just want to note one more -- one thing for record before we begin. We've printed out copies of Dr. Longo's reports for Criswell, Dyer, and his supplemental report, which has been identified as Exhibits 2, 3, 4. So he has that in front of him. All right. Megan, go ahead.

MS. GADDY: Thank you, Counsel.

BY MS. GADDY:

Q. So, Doctor, I next want to turn to your discussion of chewing tobacco. You state in your report for Mr. Criswell that chewing tobacco

is suspected of having a causal relationship with bladder cancer; right?

A. Can you tell me which page that is so I can look at it?

Q. Sure. I believe that's page 17.

A. Yes.

Q. And if you look towards the bottom paragraph, it starts similarly.

A. Yes, that is correct. I did state that.

Q. Okay. And similar to secondhand smoke, you found that evidence is sparse regarding chewing tobacco and bladder cancer; right?

A. Yes, that is correct. When you look at the peer-reviewed literature on chewing tobacco, it is hard to find strong evidence for a causal relationship.

Q. Did you perform a literature review to assess this relationship between chewing tobacco and bladder cancer for your report in this case?

A. Yes, I did.

Q. Do you recall what your search terms were?

A. Smokeless tobacco and bladder cancer.

Q. And in your literature review, did you find any studies demonstrating a positive association between chewing tobacco and bladder cancer?

A. Yes. There were studies that showed both positive and negative results regarding smokeless tobacco and bladder cancer.

Q. And why did these studies that showed a positive association not support ruling in this risk factor for Mr. Criswell?

MR. WALLACE: Objection.

THE WITNESS: In looking at the literature in totality and considering many different factors, there was not enough evidence to either support or deny that chewing tobacco causes bladder cancer. So, again, it was considered, but does not appear to be a major risk factor in his development.

BY MS. GADDY:

Q. And that's because the literature was sparse on this type of association?

A. The evidence was sparse. There are many papers on it, but the evidence in the papers

did not come to definitive conclusions.

Q. Okay. So in order for a risk factor to be ruled in, the literature has to show consistent results?

MR. WALLACE: Objection.

THE WITNESS: The literature in the totality and there's criteria that are used by epidemiologists and statisticians to come up with that answer. But, yes, the literature should tend to have more evidence in favor of than against if you're going to consider it as a risk factor.

BY MS. GADDY:

Q. And the evidence in those studies that support a positive association, the study itself has to be methodologically sound; right?

A. Yes. In order for it to be considered true, it has to have proper methodology, yes.

Q. And should those studies account for confounding variables as well?

A. All the studies will make an attempt to account for confounding variables. Whether or not they're capable of doing that depends upon

the study and the data that was available to them.

Q. And, again, you're not an epidemiologist; right?

A. I am not an epidemiologist, no.

Q. And Mr. Criswell testified at his deposition to using chewing tobacco for four years between 1986 and 1990; right?

A. Yes, that is what he said.

Q. Okay. And this was only about seven years prior to his bladder cancer diagnosis in 1997; right?

A. Correct.

Q. But you found that the literature was insufficient for chewing tobacco in order to rule in that risk factor for Mr. Criswell; right?

MR. WALLACE: Objection. Form. Foundation.

THE WITNESS: Again, it was considered, but thought to be unlikely to be a major contributor to his development of bladder cancer.

BY MS. GADDY:

Q. So you considered it, but you ruled it out as a potential risk factor for

Mr. Criswell; right?

MR. WALLACE: Objection. Form. Foundation.

THE WITNESS: Again, as I just answered the last question, I did consider it. I never rule -- I don't deal in absolutes. So I wouldn't say I ruled it out, but I do not consider it as a major risk factor for his development of bladder cancer.

BY MS. GADDY:

Q. And just to clarify, what constitutes a major risk factor as opposed to just the risk factor?

A. So there's no strict definition, but we do weigh how great an exposure was. And in this case, you would look at what was the period from the exposure to the time of development. Figure out if you think it's a big enough exposure or to a severe enough degree with an appropriate amount of time from exposure to development of disease to consider it a major risk factor. But I would never say it's impossible that it could be related or rule -- I don't rule anything 100 percent out. No

absolutes in my world.

Q. Okay. So outside of the literature for chewing tobacco, would you consider four years of exposure to chewing tobacco to be a major risk factor for a patient?

A. Not a major risk factor, no. I would consider it a risk factor.

Q. That -- sorry. Continue.

A. I'm sorry. Yes, I would consider it a risk factor, but I would not consider it a major risk factor.

Q. And what did you mean when you said chewing tobacco is suspected of having a causal relationship. What did you mean by "suspected of"?

A. Similar to secondhand smoke, we again think that it's analogous to smoking in that there's some sort of similar relationship, even though it's by a different route or means, but we cannot prove -- we don't have a good body of evidence that proves that.

Q. So based on your expertise as a treating physician in bladder cancer, it's common sense to you that chewing tobacco would increase your risk of bladder cancer?

MR. WALLACE: Objection.

THE WITNESS: Yes. And that's why I consider it as a risk factor.

BY MS. GADDY:

Q. But, ultimately, you didn't consider a major risk factor because the literature wasn't sufficient; right?

A. I did not consider it a major risk factor in Mr. Criswell's case for a combination of minimal evidence in the body of literature we have and a small exposure in close proximity to his diagnosis of bladder cancer. So I used the evidence in medical literature and applied it to his specific case.

Q. And so is it your testimony that Mr. Criswell -- chewing tobacco for four years is not sufficient to rule it in as a major risk factor?

MR. WALLACE: Objection. Form.

THE WITNESS: I do not think that chewing tobacco in Mr. Criswell's case is a major contributor to his development of bladder cancer, correct.

BY MS. GADDY:

Q. And that's in part because you

determined that his exposure was minimal to chewing tobacco?

MR. WALLACE: Objection. Asked and answered.

THE WITNESS: Once again, I would answer it the same way I did previous to you where it's a body of evidence in peer-reviewed literature that does not support causation. Plus a small exposure plus that exposure was in close proximity, meaning there's a short interval from he was exposed to the time that he developed the disease to consider it a major risk factor. But I would consider it a risk factor.

BY MS. GADDY:

Q. So is it your testimony that Mr. Criswell's latency with respect to chewing tobacco and his bladder cancer was too small or too short?

MR. WALLACE: Objection.

THE WITNESS: Again, I wouldn't say anything is too short. I think that its short latency period makes it a less likely on the differential etiology to be

the major risk factor. But I don't have -- there's no threshold that I hold.

BY MS. GADDY:

Q. And is the latency period, does that depend on the risk factor we're talking about in terms of whether something is too short or too long?

MR. WALLACE: Objection.

THE WITNESS: We -- we do think that there's probably different latency periods for different exposures. We don't have data on latency periods for all the different exposures though.

BY MS. GADDY:

Q. And is that the case for chewing tobacco?

A. Correct. Because we don't have evidence -- good evidence that chewing tobacco causes bladder cancer.

Q. You state in your report for Mr. Criswell that according to some studies there is an association between alcohol consumption and the development of bladder cancer; right?

A. Again, can you tell me which page to flip to before I confirm that?

Q. Sure.
A. Thank you.
Q. I believe it's the next page on page 18.
A. Yes. Yes, I agree.
Q. But you go on in your report to note that recent meta-analyses of cohort studies did not observe a significant association between alcohol intake and bladder cancer; right?
A. That is correct.
Q. So is it your opinion that when there are recent studies that do not find a significant association for a risk factor that that risk factor is less likely a cause of their bladder cancer?
MR. WALLACE: Objection.
THE WITNESS: No, I don't think that the most recent piece of literature as a standalone can ever refute what we've had before. Certain types of literature might give more credence to things than others, in particular, a meta-analysis because a meta-analysis does evaluate multiple studies that have gone before it in order to develop a larger body of evidence to

put forth a conclusion. But I don't consider the most recent piece of evidence to be a trump card. It has to be considered in the totality of medical literature.

BY MS. GADDY:

Q. So when you describe that there are recent meta-analyses of studies that didn't observe a significant association between alcohol and bladder cancer, are you speaking specifically about recent studies or are you also referring to just the totality of the literature?

MR. WALLACE: Objection.

THE WITNESS: Well, in -- as I was referring to just a moment before, a meta-analysis takes existing literature and pools it together in order to develop a hypothesis.

So, generally speaking, a more recent meta-analysis will have looked at some of the studies that preceded it to come together with a more significant conclusion.

BY MS. GADDY:

Q. Okay. And when you say that a study

does not find a significant association, what do you constitute a significant association?

MR. WALLACE: Objection.

THE WITNESS: Well, I'll preface it by saying I'm neither a statistician nor an epidemiologist. But when they develop the study, they'll set out a priori, so even before the study begins, they'll determine what constitutes significance and they'll define it before they begin. And -- so it's a -- significance is a definition that you can find in whichever paper that you're reading. And it will be typically in the methodology statistics section.

BY MS. GADDY:

Q. Okay. And understanding that we're in agreement, you're not an epidemiologist, is there a general definition of significant association in the epidemiological literature or is it dependent on the author of the study?

A. It's dependent on the author of the study.

Q. Okay. You note in your report for Mr. Criswell that prior to his diagnosis of

bladder cancer he drank approximately two to four times per month having one to two drinks per occasion; right?

A. That is correct.

Q. And you cite to a record Bates stamped 288; right?

A. Yes, I do.

Q. And that's the same record we looked at earlier, which I believe is Exhibit 5. So I will pull that up again. Do you see Exhibit 5, Dr. Longo?

A. Yes, I do. It's the VA records again dated March 11, 2020.

Q. Correct. So if we look at Exhibit 5 on this page, we'll turn to Bates Stamp 288. Do you see where it says "alcohol use screen"?

A. Yes, I do.

Q. And it asks how often did you drink -- did you have a drink containing alcohol in the past year; right?

A. Yes, that's what it states.

Q. And the response is two to four times a month?

A. Correct.

Q. And then it asks "How many drinks

containing alcohol did you have on a typical day when you were drinking in the past year?"

And the response is one or two; right?

A. Yes.

Q. So this record shows that Mr. Criswell reported in 2020 that in the past year that was his alcohol use; right?

A. Yes, that's what it states.

Q. And Mr. Criswell was diagnosed with bladder cancer in 1997; right?

A. Yes.

Q. Are you aware of any medical records for Mr. Criswell that discussed his alcohol consumption prior to 1997?

A. I do not recall any medical records that discuss his alcohol consumption prior to 1997.

Q. And that's because there are none; right?

MR. WALLACE: Objection.

THE WITNESS: There are none that I recall. But I don't know if they exist.

BY MS. GADDY:

Q. You don't discuss BMI or obesity in

your initial reports for either Mr. Criswell or Ms. Dyer; right?

A. That is correct.

Q. But you do address it in your rebuttal report; right?

A. Yes, I do.

Q. And turning to your rebuttal report, which is Exhibit 4 starting on page 3, you state that the literature has reported inconsistent associations between BMI and bladder cancer risk; right?

A. Yes, I do.

Q. You also state in your rebuttal report that higher levels of BMI tend to be associated with other unhealthy behaviors; right?

A. Correct. They have many confounding factors.

Q. What other unhealthy behaviors that are associated with BMI that also contribute to bladder cancer risks?

A. BMI refers to body mass index. It is associated with low levels of activity which is an ongoing area of research regarding bladder cancer. It's associated with higher levels of alcohol consumption. There are certain chemicals

that are determined lipophilic, and that means that they're stored in body fat. So it could be that a person's heavy and they had an exposure and they're more likely to have a prolonged exposure because whatever chemical that is is stored in their fat and is slowly released over time. It's also confusing because BMI typically refers to one point in time where we know it fluctuates, and it's hard to say when someone was heavy and that affected the downstream effects. So to what extent and how long they were heavy and to what degree.

Q. Okay. So thinking about these other unhealthy behaviors that are associated with BMI and also increased bladder cancer risk, are any of those unhealthy behaviors found in Mr. Criswell or Ms. Dyer's medical history?

MR. WALLACE: Objection.

THE WITNESS: Ms. Dwyer -- Dyer is -- has a note to have a high BMI at the time of her cystectomy. In prior medical records, it notes that she was the winner of -- well, it does not note her BMI in other areas. So, again, we're using one point in time and it's at the time of

diagnosis that she's obese.

BY MS. GADDY:

Q. And for Mr. Criswell as well, did you note his BMI history?

A. I did not note an -- a high BMI in Mr. Criswell.

Q. And in your supplemental materials list, you list two studies regarding BMI and bladder cancer; right?

A. That is correct.

Q. And the first study was by Choi, et al., from 2018 titled "Estimating Impact of Body Mass Index on Bladder Cancer Risks Stratification by Smoking Status"; right?

A. I can't recall the entire title offhand, but I will believe that that's what the title is.

Q. No worries.

A. I do --

Q. I will share my screen. This will be marked Exhibit 10.

(Longo Exhibit 10 marked for identification.)

BY MS. GADDY:

Q. Is this is the study that I just

named off, Doctor?

A. Yes, it is.

Q. And this study found -- I'm reading from page 3. Can you see my screen or read this?

A. Can you zoom in, please?

Q. Yeah. Is this better?

A. Yes.

Q. And this fourth paragraph that starts "increasing trend," it states "Increasing trend in risk of bladder cancer according to age, BMI, and smoking status," and it reads, "The hazard ratio for bladder cancer was lowest in people with BMI less than 18.5 and highest for those with BMI greater or equal to 30 in both models. A significant increasing trend in risk of bladder cancer was seen with increasing BMI in a multivariant adjusted model."

Did I read that right?

A. Yes, you read that correctly.

Q. The study also found that there was a positive association between bladder cancer and BMI when stratified by smoking status; right?

A. Yes, it did.

Q. And the study concludes that increasing BMI was a risk factor for bladder

cancer independent of confounding variables; right?

A. I'm sorry, I just couldn't catch it. Can you repeat that?

Q. Sure. The study includes that increasing BMI was a risk factor for bladder cancer independent of confounding variables?

A. Yes.

Q. So this study supports ruling in BMI as a risk factor for bladder cancer; right?

MR. WALLACE: Objection.

THE WITNESS: When I examined this study as it was brought forth to me because of Dr. Cates, I looked at the study and I noted initially that the non-obesity group had a 0.09 percent risk of bladder cancer whereas the obese group had a .1 percent. So that's a one one-hundredth of a difference between the nonobese and the obese.

Then I looked at the study in totality, which is a database from South Korea, and I found that the population was not particularly similar to the one that we're talking about in American in the

southeast of U.S., and I found that that conclusion, although statistically true, is probably of little clinical significance considering what a small difference they were able to find. And then I placed it in the context of the entire body of obesity and bladder cancer literature and did not find that it profoundly changed my opinion.

BY MS. GADDY:

Q. Okay. So is it your testimony that although this study found the positive association between BMI and bladder cancer risk, it didn't find a significant enough association for it to be notable?

MR. WALLACE: Objection.

THE WITNESS: I would state that while true, this one study did find an association, it was not of a great enough significance to overturn the entire body of literature regarding obesity and bladder cancer and is just a component of one amongst many.

BY MS. GADDY:

Q. Would you agree that a BMI greater or

equal to 30 increases one's risk of bladder cancer?

MR. WALLACE: Objection.

THE WITNESS: I would -- I do not have enough evidence to agree or disagree with the BMI being over 30 causing bladder cancer.

BY MS. GADDY:

Q. Would you counsel one of your patients to lose weight if they had a BMI greater than 30?

A. I would counsel any patient regardless of disease with a BMI of over 30 to lose weight.

Q. So you wouldn't specifically counsel one of your bladder cancer patients to lose weight to decrease their chances of having bladder cancer or having a recurrence?

A. Correct. I would encourage them to lose weight for overall health purposes but not specific to bladder cancer purposes.

Q. And turning to the other study that you listed in your materials considered, this was a study by Zhao, et al., from 2017 titled "Association of body mass index with bladder

cancer risk: a dose-response meta-analysis of prospective cohort studies"; right?

A. That is correct.

Q. And for the record, we'll mark this as Exhibit 11.

(Longo Exhibit 11 marked for identification.)

BY MS. GADDY:

Q. This was a meta-analysis that examined 14 cohort studies that export the dose response relationship between BMI and bladder cancer; right?

A. Yes, it is.

Q. And, overall, the study found -- and I'll turn to the specific page. I think it's page 5. Under discussion. In the second paragraph where it starts overall, it states "Overall, the dose-response meta-analysis random effects model across all the studies show that there was a potential nonlinear association between BMI and bladder cancer risk, and the risk increased by 3.1 percent for each 5 kilogram per meters square increase."

Did I read that right?

A. Yes. You read that sentence

correctly.

Q. This study goes on to say, "Further, our findings indicated that a positive association was found between bladder cancer and obesity compared with normal weight with little variability; correct?

A. Yes, that is what the state -- the sentence reads.

Q. So this study supports ruling in BMI as a risk factor for bladder cancer; right?

MR. WALLACE: Objection.

THE WITNESS: I think if you were to look at the data in the study and they do have a -- I don't have the study before they. But if you can scroll down, they do have the risk ratios of every -- every one of the studies they considered. If you can keep going down, I believe there's -- there, this figure. If you were to look at --

MR. WALLACE: I'm sorry, when you say this figure, can you just for the record say what.

THE WITNESS: Can you -- I can't see what figure that is. Maybe --

BY MS. GADDY:

Q. Figure 3.

A. In Figure 3 of their meta-analysis, they've plotted out the risks of every one of the studies each individual study they've looked at and you can see that the studies fall almost evenly if you're to count them up. In fact, I think it might be 2, 3, 4, 5 -- 1, 2, 3, 4, 5, 6, 7, 8, they fall pretty evenly on either side of the line where -- that represents the relative risk of 1 which there is no effect. So I think this meta-analysis supports that there's still a lot of work to be done in the risk of obesity causing bladder cancer.

Q. So is it your opinion that if the cohort of studies kind of teeters closely around 1.0 for a risk ratio -- risk ratio, that that isn't a significant association?

MR. WALLACE: Objection. Form. Foundation.

THE WITNESS: Are you referring to significance as clinically significant or as statistically significant?

BY MS. GADDY:

Q. Statistically significant.

MR. WALLACE: Same objection.

THE WITNESS: It would -- it would also -- well, so it can be -- if it's around one, it may or may not be statistically significant depending upon how they powered the studies and set the study up to begin with. But, again, I'm not a statistician. I'd have to defer to an epidemiologist for that answer.

BY MS. GADDY:

Q. In your review of this study regarding BMI and bladder cancer, it's your opinion that this study did not demonstrate a significant association for BMI bladder cancer based on them all sort of teetering on this 1.0 risk ratio?

MR. WALLACE: Objection.

THE WITNESS: I think that this one study alone cannot overturn all of the other evidence that we have for or against bladder cancer being caused by obesity. There's not enough evidence here for me to say yes or no.

BY MS. GADDY:

Q. And there's not enough evidence in

here because the studies it looks at teeter around 1.0 for risk ratio; right?

MR. WALLACE: Objection. Form. Foundation.

THE WITNESS: Again, I'm not an epidemiologist or a statistician, but this data looks very evenly split to me.

BY MS. GADDY:

Q. You'd agree that bladder cancer is more common in men than women; right?

A. Yes, it is.

Q. And one possible explanation for that is that smoking is more common in men than women; right?

MR. WALLACE: Objection.

THE WITNESS: That is one of the common explanations.

BY MS. GADDY:

Q. Would you agree that bladder cancer is most common among white Americans compared to black or Hispanic Americans?

A. Yes, it is.

Q. And you state in your reports that approximately 80 percent of all bladder cancers are diagnosed in individuals 65 or older; right?

A. Correct.

Q. Would you agree then that bladder cancer can be described as a disease of aging?

A. No. As I answered earlier today, I think it's a disease that occurs in older people, but it's not a consequence of aging itself. I think that you're exposed and there has to be a certain period of time before you can develop bladder cancer, but it's not -- there's no mechanism related to aging itself that causes bladder cancer.

Q. Would you agree that just because someone is diagnosed earlier in their life, that does not indicate that their bladder cancer was caused by chemical exposure; right?

MR. WALLACE: Objection.

THE WITNESS: No. I think all bladder cancer is caused by an exposure regardless of age.

BY MS. GADDY:

Q. And based on your testimony earlier, that could be smoking exposure?

A. Yes, it could be smoking exposure.

Q. And it could also be unknown exposures that we don't have clear evidence of;

right?

A. Yes, there can be unknown exposures.

Q. And, in your practice, how many bladder cancer patients do you see that are under 65 years old?

MR. WALLACE: Objection.

THE WITNESS: In my practice, I think I probably see 10 to 20 percent of patients under 65 with bladder cancer. So I'm in line with the current literature. I don't think there's any unique about my practice experience.

BY MS. GADDY:

Q. And how many would you say are under 50?

A. Under 50 is probably closer to that 10 percent range that would be under 50. Very -- very uncommon.

Q. You state in your report for Ms. Dyer that for Ms. Dyer to be diagnosed at 52 with bladder cancer and that she is the less common gender together indicate that she received a significant toxic exposure related to her age a diagnosis the duration of time between her last exposure, approximately 1975, and diagnosis,

2009, is well in line with the latency I expect from toxic exposure induced bladder cancer; right?

A. If you could tell me what page, but I do believe that's correct.

Q. Yes. My apologies. So going back to Exhibit 3, I believe it's page 22.

MR. WALLACE: I'm sorry, Megan. Where at on page 22?

MS. GADDY: I think I -- actually it might be -- my apologies. It's 23. Page 23 at the very last paragraph. And towards the end of that paragraph that states for Ms. Dyer to be diagnosed.

THE WITNESS: Yes, I see that now.

BY MS. GADDY:

Q. Okay. And as we discussed earlier, Ms. Dyer also quit smoking around 1975; right?

A. Yes.

Q. And as we discussed earlier, smoking cigarettes is a form of toxic exposure; correct?

A. That is correct.

Q. And so Ms. Dyer's latency with respect to smoking is what you would expect from a toxic exposure induced bladder cancer; right?

MR. WALLACE: Objection.
THE WITNESS: Yes. That's well within the latency period for smoking.
BY MS. GADDY:
Q. And is it fair to say that some cancers have an unknown cause?
A. Yes, it is.
MR. WALLACE: Objection.
BY MS. GADDY:
Q. And do physicians in your field typically refer to those cancers as idiopathic?
MR. WALLACE: Objection.
THE WITNESS: Yes, they do.
BY MS. GADDY:
Q. And no known cause is not the same thing as no cause; correct?
A. Correct. No known cause is not the same as no cause.
Q. So an idiopathic cancer is still caused by something; right?
MR. WALLACE: Objection.
THE WITNESS: Yes, it is.
BY MS. GADDY:
Q. It's just that we can't identify that something?

A. Yes.
Q. And the fact the majority of bladder cancer cases have no known cause; right?
MR. WALLACE: Objection.
THE WITNESS: No, I believe that is false. I think the majority of bladder cancers have an identifiable known exposure.
BY MS. GADDY:
Q. But some of these bladder cancer cases do not have a known cause of their cancer; right?
MR. WALLACE: Objection. Form. Foundation.
THE WITNESS: Yes. As I've said repeatedly, I think there's a small group of bladder cancers that we have not found the cause for.
BY MS. GADDY:
Q. Would you agree that we don't fully understand all the causes of bladder cancer?
MR. WALLACE: Objection.
THE WITNESS: Yes, we do not fully understand all the causes of bladder cancer.

BY MS. GADDY:

Q. And science is continuing to identify new potential causes of bladder cancer; right?

MR. WALLACE: Objection.

THE WITNESS: Yes.

BY MS. GADDY:

Q. And there are instances of bladder cancer that we cannot explain; correct?

MR. WALLACE: Objection.

THE WITNESS: Yes. There's a minority of instances we cannot explain.

BY MS. GADDY:

Q. Would you agree that having a risk factor or even many risk factors for bladder cancer doesn't necessarily mean that you will ultimately get bladder cancer; right?

A. Yes, that's correct.

Q. And the fact that a person has a risk factor does not automatically mean that that risk factor is the cause of their bladder cancer; right?

A. Yes. That, too, is also correct.

Q. And, particularly, if a patient has one or two weak risk factors for bladder cancer, that doesn't mean that unknown causes could --

could not have caused their bladder cancer; right?

MR. WALLACE: Objection. Form. Foundation.

THE WITNESS: Yes. There can always be a mystery cause.

BY MS. GADDY:

Q. So, for example, if a patient comes into your practice and says my aunt's first cousin has bladder cancer, would you therefore conclude in performing a differential etiology that that risk factor is as likely as not the cause of their bladder cancer?

MR. WALLACE: Objection.

THE WITNESS: I'm sorry. Can you explain that scenario to me again?

BY MS. GADDY:

Q. Sure. So if a patient comes in and says my aunt's first cousin has bladder cancer, would you conclude that that -- the fact that their aunt's first cousin has bladder cancer is as likely as not the cause of their bladder cancer as unknown causes?

MR. WALLACE: Objection.

THE WITNESS: So you're asking me the

patient has come to me and the patient's got bladder cancer, but their aunt's first cousin also has bladder cancer --

BY MS. GADDY:

Q. Correct.

A. What's the question?

Q. So in determining the cause of that patient's bladder cancer, would you conclude that the fact that their aunt's first cousin has bladder cancer is as likely as not the cause of that patient's bladder cancer?

MR. WALLACE: Objection. Form. Foundation.

THE WITNESS: No, I don't think I would reach that conclusion. I would start with the differential etiology and go through it as we discussed before risk factor by risk factor and pursue each one according to their answers.

BY MS. GADDY:

Q. And unknown causes for a disease should not be ruled out in all cases just because the risk factor is present; right?

MR. WALLACE: Objection. Form. Foundation.

THE WITNESS: Unknown causes always lays at the bottom of the list because if I started my list with unknown causes, I would also stop. You have to pursue all the other things before you say unknown.

BY MS. GADDY:

Q. But unknown causes can't be ruled out; right?

MR. WALLACE: Objection.

THE WITNESS: The unknown unknowns cannot be ruled out, no.

BY MS. GADDY:

Q. Is it fair to say that Mr. Criswell's bladder cancer might have occurred regardless of the Camp Lejeune water exposure?

MR. WALLACE: Objection.

THE WITNESS: Yes. Mr. Criswell's bladder cancer could have occurred for some other reason that we don't know about.

BY MS. GADDY:

Q. And same for Ms. Dyer, is it fair to say that Ms. Dyer's bladder cancer might have occurred regardless of the Camp Lejeune water exposure?

A. Yeah --

MR. WALLACE: Objection.

THE WITNESS: Ms. Dyer's bladder cancer may have occurred due to some unknown cause not on the list.

BY MS. GADDY:

Q. You also note in your report for Ms. Dyer, and I'm looking at page 20 at the very bottom of the -- under other chemical exposure, you note that drinking well water with high levels of arsenic has been found to increase the risk of developing bladder cancer; right?

A. That is correct.

Q. You only include this in your report for Ms. Dyer and not for your report for Mr. Criswell; right?

A. Yes.

Q. Why is that?

A. Ms. Dyer still lives in the region that we're in. And there's been a lot of the stuff in the news about arsenic. And the next paragraph is about forever -- forever compounds, the PFAS. I included it because it's part of the local news cycle in southeast North Carolina.

Q. Okay. But, ultimately, going on to

page 21, towards the top you conclude that well water and arsenic is not a risk factor for Ms. Dyer; correct?

A. Correct. I didn't -- I didn't find any evidence of that in her records.

Q. But as you stated just a moment ago, elevated levels of arsenic have been found in groundwater throughout North Carolina; correct?

MR. WALLACE: Objection. Misstates prior testimony.

THE WITNESS: I don't know if it has been found. I just know that it's in our news a lot.

BY MS. GADDY:

Q. Okay. Have you investigated that area of inquiry?

MR. WALLACE: Objection.

THE WITNESS: So I'm aware of the literature regarding arsenic in drinking water and bladder cancer. I have not conducted any, like, studies of wells in North Carolina. And I've looked for data about the amount, but I have not found anything for North Carolina specific.

BY MS. GADDY:

Q. Okay. And Ms. Dyer has lived in Wilmington, North Carolina, for decades; right?

A. That is correct.

Q. And are you aware that Ms. Dyer's treating physician, Dr. McCarthy, testified at his deposition that southeast North Carolina has about 13 percent higher cancer ratio than the rest of the state?

MR. WALLACE: Objection. Foundation. Form.

THE WITNESS: Yes. I'm aware that he said that in his deposition, but I am unaware of where he got that data from.

BY MS. GADDY:

Q. Do you have any reason to disagree with Dr. McCarthy?

A. The only reason I would or would not disagree is I've never seen any evidence of it. However, Camp Lejeune is in eastern North Carolina in that region.

Q. And so is Wilmington, North Carolina; correct?

A. Correct. That's the -- they're all in close proximity.

Q. You conclude for both Mr. Criswell

and Ms. Dyer that it is at least as likely as not that their exposure to chemicals in the water at Camp Lejeune caused their bladder cancer; correct?

A. That is correct.

Q. And this conclusion was based on your differential etiology that you performed in both cases; right?

A. Yes, it is.

Q. And your differential etiology ruled in exposure to the chemicals at Camp Lejeune in part based on Dr. Reynolds' exposure calculations; right?

MR. WALLACE: Objection.

THE WITNESS: Yes, I did.

BY MS. GADDY:

Q. And you determined that the epidemiological literature was sufficient to rule in the chemicals at Camp Lejeune despite not being an epidemiologist yourself; correct?

A. Not quite. So I did my own literature review, looked at the studies that exist both epidemiological and at the data that exists for each individual compound alone in conjunction, drew my own independent conclusions,

but then I deferred to the epidemiologists that are trained to do that to make certain that what I thought I was reading was, in fact, supported by a trained epidemiologist. And I found that my opinion was agreed with our epidemiologist. But I would defer to the epidemiologist to really go through the minutiae of each study and defend the papers.

So, yes, I'm not an epidemiologist. I'm conversant in those types of studies. I should be able to read them and understand what's going on. And had I read them and come to a different conclusion, I would have either said that that I was -- I disagree, or I'd have to educate myself in order to understand the conclusions that were being drawn by the epidemiologists.

Q. Okay. In the same way -- in the same sense that you're not an epidemiologist with respect to the chemicals at Camp Lejeune and bladder cancer, you're also not trained to look at the epidemiological studies around chewing tobacco and bladder cancer; right?

A. Well, I am trained in order to read those studies. I don't have a formal diploma at

the end. So, no, I don't consider myself an expert. But as a trained urologic oncologist, I'm expected to be able to read those papers and understand the data that's being put forth.

Q. Okay. So in your own review as the urologic oncologist of the epidemiological literature about the chemicals at Camp Lejeune and bladder cancer, you reached your own conclusion that the literature was sufficient; right?

A. I independently confirmed what our epidemiologists have said, yes.

Q. Okay. But, again, you determined that the literature was insufficient when it came to secondhand smoke as a risk factor for bladder cancer; right?

A. Correct. Again.

Q. And you determined that the literature was insufficient to rule in BMI as a risk factor for bladder cancer; right?

A. Yes. Again, I defer to the epidemiologist, but that was my conclusion.

Q. You also concluded that unknown causes could not have contributed to either Mr. Criswell or Ms. Dyer's bladder cancer; right?

A. No. I did not address unknown causes. I only addressed do I think the exposure to Camp Lejeune water could be a major risk factor for the development of bladder cancer.

Q. So you acknowledge that unknown causes could have contributed to Mr. Criswell and Ms. Dyer's bladder cancer?

A. Yes. In answering the -- so the question I was asked was do I think contaminated the groundwater at Camp Lejeune could contribute to either of those patients' bladder cancer. But I did not exclude other causes as being present.

Q. Outside of litigation, have you ever diagnosed a patient with chemically-induced bladder cancer?

A. Yes.

Q. Have you ever treated patients for bladder cancer following an exposure to TCE, PCE, vinyl chloride, or benzene?

A. Yes.

Q. Okay. In your report for Mr. Criswell, you note that his original diagnosis in 1997 was high grade 2 superficial muscle invading bladder cancer -- bladder carcinoma; right?

A. Can you tell me what the page is so I can confirm, please.

Q. Yes. It's page 5.

A. Yes.

Q. And you acknowledge in your report that a radical cystectomy of the bladder with orthotopic pouch was the standard treatment for his type of bladder cancer at that time; right?

A. That was what Dr. Moseley explained to him. And it is agreed upon option for that type of bladder cancer well within the guidelines.

Q. Okay. So is it your opinion that that is a standard treatment for this type of bladder cancer?

MR. WALLACE: Objection.

THE WITNESS: Again, in the staging system in 1997 was slightly different than it is now. I would agree that if current -- within the current guidelines for high grade muscle invasive bladder cancer a radical cystectomy is well within the standard of care for a high grade muscle invasive bladder cancer, yes.

BY MS. GADDY:

Q. I believe you testified in the beginning of the deposition that a cystectomy for this type of bladder cancer is the gold standard treatment; right?

A. Yes, it is.

Q. And, nonetheless, Mr. Criswell opted to undergo BCG treatment instead; right?

A. Yes, he did.

Q. And had Mr. Criswell underwent the standard treatment, a radical cystectomy, his chances for bladder cancer recurrence would be near zero; right?

A. Well, the radical cystectomy is offered in that situation for cancer cure, not necessarily a prevent recurrence. Although, of course, it does dramatically reduce the likelihood of recurrence. But the ultimate outcome of any cancer treatment is to preserve the patient's quality of life and their life.

So if it would have prevented recurrence in the bladder, but, again, the ultimate outcome is that he's still alive and with us.

Q. And BCG often comes with side effects; right?

A. That is correct.
Q. The most common of which are -- apologize if I mispronounce these -- cystitis?
A. Correct.
Q. Dysuria?
A. Yes.
Q. Hematuria?
A. Yes.
Q. Malaise?
A. Yes.
Q. And fatigue; right?
A. Those are very common side effects of BCG, yes.
Q. And you note in your report on the same page that it's actually very rare that a patient is able to complete the entire regimen of BCG because of BCG toxicity; right?
A. That is also correct.
Q. Typically, these side effects from BCG improve with time; right?
A. They typically improve with time away from BCG, yes.
Q. And at one point in your report on page 6 -- let's see, in the third paragraph towards the bottom the sentence starts "concern

over future BCG treatment." Do you see that?
A. Yes, I do.
Q. You say "Concern over future BCG treatment was expressed by Dr. Moseley since Mr. Criswell was considered a urological cripple since his last BCG treatment"; right?
A. Yes, that's how Dr. Moseley termed it.
Q. Okay. Is that language that you routinely use to describe bladder symptomology in your practice?
A. Common amongst urologic oncologists is the term "bladder cripple." So close to urological cripple, but bladder cripple.
Q. Would you agree that bladder cripple implies a permanently nonfunctional bladder?
MR. WALLACE: Objection.
THE WITNESS: Yes. We usually -- that term would apply when it no longer functions as a storage vessel.
BY MS. GADDY:
Q. And there's no evidence to support that Mr. Criswell has a permanently nonfunctional bladder; right?
A. No, I would disagree. If Dr. Moseley

terms it that, then that would be the evidence. He does not necessarily have to fully enumerate every single symptom that led to that conclusion. But if it's there in his medical record, he must have considered it to be true.

Q. But would you agree that Mr. Criswell's bladder is functioning currently?

MR. WALLACE: Objection.

THE WITNESS: I know that Mr. Criswell is still living with an intact bladder, yes.

BY MS. GADDY:

Q. And so he's never had a permanently nonfunctional bladder; right?

MR. WALLACE: Objection.

THE WITNESS: He -- correct. He is functioning with his bladder. Now to what degree the bladder is functional, I don't know. But he is still alive with his bladder intact.

BY MS. GADDY:

Q. And you also state on this same page, page 6 of your report, that around the time he received his BCG treatment, Mr. Criswell's symptoms made him unable to work; right?

A. Can you just show me -- or tell me which line to look at and I'll find it.

Q. Yeah. I believe it's the -- let's see. So a little bit above the sentence we were looking at before where it starts "following his BCG maintenance"?

A. Yes, I see it now.

Thank you. Yes.

Q. Okay. So you state that he was unable to work because of his BCG treatments?

A. Uh-huh. That is correct.

Q. In your capacity as an expert in this case, are you offering an opinion as to Mr. Criswell's ability to work both past and present?

A. No. I only have the medical record available to me.

Q. Okay. And what did you rely on in making that statement that Mr. Criswell was unable to work due to his symptoms?

A. It was within his medical record and the documents that I reviewed in preparation for this report that he was unable to work at that time.

Q. Are you aware that Mr. Criswell

testified in his deposition that when he was receiving BCG treatment, he took an estimate of 10 sick days from his work as a PE teacher?

A. You'd have to point that to that specific amount of time. But, yes, I believe that to be true.

Q. I'll go ahead and share my screen. This will be marked Exhibit 12. For the record, this is Mr. Criswell's deposition in this case.

(Longo Exhibit 12 marked for identification.)

BY MS. GADDY:

Q. And specifically looking at page 81 of his testimony -- can you read this okay?

A. Yes, I can.

Q. I'm going to line -- starting with line 15, the question was: "So what work were you unable to do?"

"ANSWER: Well, I -- when I went through all this, I wasn't able to work at all. I was a PE teacher. So I had to take sick leave.

"QUESTION: And this was in 1997?

"ANSWER: Yes, sir.

"QUESTION: When were you were first diagnosed?

"ANSWER: Yes, sir.

"QUESTION: And how long did you have to take leave?

"ANSWER: At different times. You know, probably, say, maybe 10 -- 10 sick leaves, 10 days."

Did I read that right?

A. Yes, you did.

Q. And going on to page 82 of his deposition starting at line 1, he was asked: "And these were sick leaves in order to see your doctor?

"ANSWER: It was to get over the treatments and the surgery. Yes, sir.

"QUESTION: Other than the sick leave, are you claiming any other time when you were unable to work due to the --

"ANSWER: No, sir."

Did I read that right?

A. Yes, you did.

Q. And so Mr. Criswell testified that other than these 10 sick leaves -- days of sick leave, he was otherwise able to work; right?

MR. WALLACE: Objection.

THE WITNESS: Yes, he did.

BY MS. GADDY:

Q. And after Mr. Criswell went through his BCG treatment, he has no evidence of disease up until 2014; right?

A. Correct.

Q. And, in fact, from late 2002 until 2014, Mr. Criswell did not return to see his urologist; right?

A. I could find any records of him seeing a urologist between those two dates.

Q. And you note this in your report on page 9. And you say Mr. Criswell had a lapse of several years of surveillance; right?

A. Yes, I do.

Q. Towards -- okay. And this was a lapse of about 12 years; right?

A. Correct.

Q. If Mr. Criswell was your patient at that time, would you have recommended against this lapse of 12 years of surveillance?

MR. WALLACE: Objection.

THE WITNESS: Well, generally what we -- so there is no absolute guideline for what we're supposed to do. There are guidelines that we generally turn to. The

most commonly used guidelines for bladder cancer and surveillance in most cancer surveillance are the national comprehensive network guidelines.

They're composed by a group of experts over a range of fields that review the literature and current trends and standard of care, and they put forth the recommendations.

If you are to look at what's recommended for high grade bladder cancer surveillance, they do have very specific recommendations for the first five years, and it become increasingly vague from five to ten. And at ten, they don't make any recommendations.

And so if it was my patient, I would have presented that data to him. I would have shown him the little chart that says what you're supposed to be followed up on. But really at five years, there's not a lot of strong recommendations.

BY MS. GADDY:

Q. But there is some recommendation; right?

A. Yes. Generally, you would go see at least your primary care physician.

Q. Would you advise your patient to still do an annual cystoscopy every year?

A. Yes. But that's delving more into the matter of opinion, so expert opinion versus there is strong evidence for it. The evidence exists for the first five years. And then five to ten, it's much more vague because the evidence starts to peter out.

Q. But as your role as a treating physician, you would recommend doing an annual cystoscopy even after five years?

MR. WALLACE: Objection.

THE WITNESS: In my patients I do try to keep a close -- close to me. I've established a relationship, and I think that's important for the human element of this disease to have an ongoing relationship, yes.

BY MS. GADDY:

Q. But not to monitor their bladder cancer specifically?

MR. WALLACE: Objection.

THE WITNESS: Oh, no. Both are

important components.

BY MS. GADDY:

Q. Okay. And it's your opinion in your report that this lapse of surveillance did not impact Mr. Criswell's recurrence or his ultimate outcome with respect to his bladder cancer; right?

A. Yes. I stand by that opinion.

Q. Would you agree that Mr. Criswell could have had this recurrence for years prior to 2014?

MR. WALLACE: Objection.

THE WITNESS: I would disagree based on the natural history of bladder cancer that that tumor would have existed that long without causing more harm. So, no, I do not think he had it present for years. It would be unusual.

BY MS. GADDY:

Q. Okay. To clarify, so he could have had this recurrence since 2012 as opposed to 2014 when he finally returned to his doctor's office; right?

MR. WALLACE: Objection. Form.

THE WITNESS: Even that much time is

probably a bit of a stretch. But, again, I don't deal in absolutes. I couldn't say it's impossible.

BY MS. GADDY:

Q. Okay. And you go on to say in your report that even following this gap in surveillance, it was several years after his diagnosis that he suffered this recurrence; right?

A. Correct. It was outside that ten-year window that we were talking about from initial diagnosis.

Q. And that recurrence was a low grade noninvasive recurrence; right?

A. Yes. According to the records, it was low grade noninvasive.

Q. And as we touched on a little earlier, low grade noninvasive bladder cancer is much less severe than his initial high grade diagnosis; right?

A. It poses far less risk to his life, but the treatments are very, very similar. And the burden of treatment and the burden of surveillance is very similar.

Q. But in terms of prognosis, a low

grade noninvasive bladder cancer is less severe than a high grade noninvasive cancer?

MR. WALLACE: Objection.

THE WITNESS: Low grade is less lethal, certainly.

BY MS. GADDY:

Q. Would you agree that Mr. Criswell's bladder cancer outcome is such that even though he went over a decade without any treatment or surveillance, he is still not at risk for cancer progression?

MR. WALLACE: Objection.

THE WITNESS: No. He will -- he still has risk for cancer progression.

BY MS. GADDY:

Q. But his risk was so low that he could go almost 12 years without seeking any treatment; right?

MR. WALLACE: Objection.

THE WITNESS: No. He always had the risk, but it was, again, the patient's choice. I would say that in any situation a physician or a scientist, we have a good answer for each particular disease but not the diseased person meaning there's a lot

of other factors that you have to put into any time you make these recommendations. And that's why there are recommendations with options, and you and I might think one option is good or bad. But it's the patient's health and they get to decide what they want to do.

BY MS. GADDY:

Q. So but in terms of just treating physician perspective, outside of the personal relationship with the patient, you would advise they still see their physician shorter in time than 12 years; right?

MR. WALLACE: Objection. Asked and answered.

THE WITNESS: Yes. As I said, I would continue to see that patient on a regular basis or at least make the recommendation to a patient that I see them on a regular basis.

BY MS. GADDY:

Q. In following this recurrence of low grade noninvasive bladder cancer in 2014, Mr. Criswell had a recurrence of, again, a low grade noninvasive bladder cancer in 2016; right?

A. Yes, he did.
Q. And he was given one dose of mitomycin C to treat this recurrence?
A. That is correct.
Q. And since that recurrence in 2016, Mr. Criswell has been no evidence of disease for bladder cancer; right?
A. I believe that is correct up until the most recent records I have. I don't think he's had a recurrence.
Q. Okay. You also discuss in your report for Mr. Criswell his claims of depression; correct?
A. Yes.
Q. And you are not a psychologist or a psychiatrist?
A. No, I am not.
Q. You did not conduct any psychological testing of any kind on Mr. Criswell; right?
A. No, I did not.
Q. Have you ever spoken with Mr. Criswell?
A. No, I have not.
Q. And, specifically, in your report on page 8 you note that Mr. Criswell's depression

was found by the VA to be at least as likely as not due to his bladder cancer; right?

A. Yes, that's what the records indicate.

Q. And you state that this rationale by the VA was based on the silence of Mr. Criswell's service records regarding complaints of depression; right?

MR. WALLACE: Objection.

THE WITNESS: So the -- I based that on -- pardon me. Could you just rephrase? Maybe I didn't catch a word or --

BY MS. GADDY:

Q. Sure. You note in your report that the VA's rationale was based on the silence of Mr. Criswell's service records of any complaints of depression; right?

A. So, yes, because prior to the diagnosis he didn't describe any symptoms of depression. It was only after his diagnosis of bladder cancer that there are records of clinical depression.

Q. You state specifically that there's silence of Mr. Criswell's service records. So we're talking about Mr. Criswell's medical -- or

military service; right?

A. Correct. Meaning before his diagnosis of bladder cancer, yes.

Q. Do you consider his service history to be just prior to 1997 or the finite time he was in the military?

MR. WALLACE: Objection.

THE WITNESS: I considered his service records to be the records of when he was serving in the military.

BY MS. GADDY:

Q. Right. So the VA's rationale that there was no complaints of depression in his service records is referring to his military history; right?

MR. WALLACE: Objection.

THE WITNESS: Yeah, unless I'm misunderstanding the question, I think I've answered it. I think that while he was a serviceman, he did not complain of depression. The diagnosis of depression only occurred later and was mentioned in the medical records subsequent to him developing bladder cancer. That's my understanding.

BY MS. GADDY:

Q. And from 2002 until 2014, Mr. Criswell was not undergoing any treatment or surveillance for bladder cancer as we discussed; right?

A. Yes. I found no records indicating that he wasn't.

Q. And this VA decision was based on complaints of depression from Mr. Criswell in 2012; right?

A. Yes, that's correct.

Q. And so that falls into that window from 2002 to 2014 where Mr. Criswell wasn't seeing his urologist; right?

MR. WALLACE: Objection.

THE WITNESS: Yes, it does.

BY MS. GADDY:

Q. And you are not qualified to say whether or not Mr. Criswell's complaint of depression in 2012 was due to his bladder cancer; right?

A. No. I just note the time. That's when he started to complain of depression.

Q. You also state that following Mr. Criswell's recurrence in 2014 his depression

worsened; correct?

A. Based upon my review of the medical records, that is correct.

Q. And you note that he reported symptoms, such as poor sleep, impaired concentration, poor attention, destructibility and unprovoked irritability; correct?

A. And a loss of pleasurable thought.

Q. Are you aware that Mr. Criswell was diagnosed with severe obstructive sleep apnea in 2011?

A. I did see it in his medical records, yes.

Q. Are you aware that Mr. Criswell has largely remained untreated for severe obstructive sleep apnea?

A. I am unaware of his sleep apnea treatments.

Q. Would you agree that these symptoms could be attributed to untreated obstructive sleep apnea?

MR. WALLACE: Objection. Foundation. Form.

THE WITNESS: I agree that some of them are certainly the same as being

overtired, but not suicidal ideations that I'm aware of which was also one of his symptoms.

BY MS. GADDY:

Q. So poor sleep would be attributed to obstructive sleep apnea?

MR. WALLACE: Objection.

THE WITNESS: Poor sleep could be sleep apnea. It could be depression.

BY MS. GADDY:

Q. And same for the other symptoms we listed except for suicidal thoughts; right?

MR. WALLACE: Objection. Form. Foundation.

THE WITNESS: Yes. I believe there's a lot of overlap between the two.

BY MS. GADDY:

Q. And in your report on page 22 which we -- you state Mr. Criswell will need lifelong cancer surveillance; right?

A. Yes, I do.

Q. And is this referring to annual cystoscopies?

A. Minimally, it refers to having an established urologist in seeking -- seeking care.

But it would include cystoscopies.

Q. What else would it include?

A. Well, again, I would refer back to the NCCN guidelines, the National Comprehensive Network Guidelines, which are very specific for the first five years. They're not as onerous for cystoscopies and the low grade recurrences. So there is a period of time where they may no longer do annual cystoscopies.

But minimally I'd want to see him and check the urine. And the truth is he's of the age where most men would have a urologist anyway that they see once a year. So it would just be common practice to see him.

Q. Okay. You also claim on this same page that shortly after Mr. Criswell was treated with BCG in 1997, he suffered a heart attack; right?

A. This is on page 22?

Q. Yes. Let me see if I can find the exact. I actually may be mistaken.

Do you recall stating that Mr. Criswell suffered a heart attack?

A. Well, I do recall, again, in his medical records that he had a heart attack. And

I do believe it was after -- or in close proximity to BCG treatment.

Q. Okay. So you recall looking at medical records that noted a heart attack for Mr. Criswell?

A. Yes, I do.

Q. Okay. I'm going to show you what will be marked as Exhibit 13.

(Longo Exhibit 13 marked for identification.)

BY MS. GADDY:

Q. For the record, this document is Bates stamped 01482_Criswell_123. Do you recognize this, Doctor?

A. Yes, I believe these are Dr. Moseley's records -- medical records for Mr. Criswell.

Q. And if you look at where it's at the bottom here the note dated April 6, 1998, it says "I saw Mike in the hospital today." And Mike is referring to Mr. Criswell; right?

A. Yes.

Q. And it continues "His father-in-law had a heart attack and is being transferred to Crawford Long for a 3 vessel bypass. At this

time I am going to postpone his cysto and bladder biopsies for Friday."

Did I read that right?

A. Yes.

Q. Is this the medical record that you reviewed regarding a heart attack?

A. Yes.

Q. And this is speaking about Mr. Criswell's father-in-law having a heart attack; right?

A. Yes. It -- in reading it, it looks like his father-in-law had a heart attack, was being transferred.

Q. Are you aware of any other medical records that discuss Mr. Criswell having a heart attack?

A. No.

MS. GADDY: Okay. Counsel, it's -- I notice that it's noon. Would this be a good time for us to take a lunch break. I'm happy to continue if you want to though.

MR. WALLACE: Yeah, I think that would be good.

MS. GADDY: Okay. So we'll go off

the record until around 1:00 p.m.

MR. WALLACE: Sounds good. Thank you.

THE VIDEOGRAPHER: Off record at 12:02 p.m.

(Recess taken from 12:02 p.m. until 1:03 p.m.)

THE VIDEOGRAPHER: On record at 1:03 p.m.

BY MS. GADDY:

Q. Hi, Doctor.

A. Hello.

Q. So Mr. Criswell's recurrence rate for bladder cancer decreases as time goes by without a recurrence; right?

A. That is correct. It's our expectation that the recurrence rate will diminish over time.

Q. Okay. And you state in your report that there is an incredible psychological burden associated with bladder cancer; right?

A. Yes, I do.

Q. In your practice, have you ever diagnosed a bladder cancer patient with depression?

A. Yes, I have.

Q. Are you a psychologist?
A. No, I am not.
Q. Are you qualified to diagnose one with depression or any other psychological disorder?
A. I think as a trained medical doctor, I'm familiar with depression. And, yes, I am capable of correctly triaging somebody with depression to the appropriate provider.
Q. And so do you refer them to a doctor that diagnoses them or do you diagnose them yourself with depression?
A. I would enter the diagnosis of depression and use that as the reason for referral to the correct provider.
Q. Okay. And when making that diagnosis, do you perform any testing of any kind?
A. I do not do formal testing, no.
Q. And are you qualified to evaluate whether a person's response to having bladder cancer reaches the clinical level of depression?
A. I am unaware of what threshold that refers to.
Q. And you later state in your report

that it is well established that the cancer diagnosis is distressing; right?

A. Correct.

Q. Would you agree that someone being distressed is not necessarily the same thing as someone experiencing major depressive -- depressive disorder?

A. I think that the distress of a cancer diagnosis has the same symptoms as depression and is treated with the same treatment algorithms in most cases.

Q. But, again, just because someone is distressed does not necessarily mean they have major depressive disorder; right?

MR. WALLACE: Objection.

THE WITNESS: Yes. There's different definitions for both.

BY MS. GADDY:

Q. Okay. And would you agree that there is a difference between distress and anxiety disorder?

A. Correct. I would agree that there's a difference between distress and anxiety.

Q. And would you agree that there's a difference between distress and post-traumatic

stress disorder?

A. I do not know that I can make the distinction between post-traumatic stress disorder and distress other than the temporality of it.

Q. Okay. And with respect to Ms. Dyer, are you offering any opinions as to whether Ms. Dyer's bladder cancer treatment was proper?

A. I think that Ms. Dyer's bladder cancer treatment can be seen to be within the established guidelines for bladder cancer and not be outside of the scope of standard of care.

Q. Are you aware that Ms. Dyer filed a medical malpractice suit against Dr. Lovett in 2011?

A. Yes, I'm aware.

Q. And Dr. Lovett was her initial urologist?

A. Yes, I'm aware.

Q. Ms. Dyer's cystectomy with an ileal conduit involves an external bag that has to be emptied and changed a few times a day; right?

A. The bag has to be emptied several times a day. It is rare that it would have to be changed several times a day. More typical is

that they last several days, the bag lasts several days.

Q. Okay. Understood. Is that, meaning emptying and changing the bag, something that the patient can do themselves?

A. Most patients, assuming normal manual dexterity, good hands, can easily empty their own bag every day. Changing the bag, though, oftentimes requires help from specialized nurses, ostomy nurses, but not always.

Q. Okay. Remind me how often does someone typically have to have their bag changed?

A. Standard for most patients, it depends on their body habitus. So what their shape and size is. And, honestly, what the weather is like. Because it's an adhesive that sticks to their skin. So, typically, the bag will last longer in the winter, shorter in the summer when they're sweating and the adhesive wears off. Anywhere from, say, three to five days during the summer, although there are patients that do require daily bag changes. And then sometimes as far as seven days in the winter.

Q. Okay. You note that Ms. Dyer

complained of severe depression as a result of her bladder cancer and treatment; right?

A. Yes.

Q. Are you aware that Ms. Dyer has a history of anxiety and depression that predated her bladder cancer?

A. I did see that in her medical records.

Q. And are you aware that Ms. Dyer has a known family history of depression?

A. You would have to refresh my memory. But if it's in the medical records, then, yes, I've seen that.

Q. Okay. Are you aware that Ms. Dyer's father expressed suicidal ideations to Ms. Dyer and sister when they were young?

MR. WALLACE: Objection. Foundation.

THE WITNESS: Again, I don't recall that specifically. But if you showed me the document, I could confirm it.

BY MS. GADDY:

Q. Do you recall looking at Ms. Dyer's deposition testimony?

A. Yes, I do recall -- remember looking at her deposition.

Q. Okay. Did you review her sister's deposition testimony as well?

A. I do not recall reviewing her sister's deposition.

Q. Okay. And are you aware that Ms. Dyer's mother struggled with depression herself?

MR. WALLACE: Objection. Foundation.

THE WITNESS: Again, if you can show me within her deposition, I could -- it will recall my memory. But I don't remember offhand --

BY MS. GADDY:

Q. Okay.

A. -- her mother's depression.

Q. Again, you're not a psychologist or a psychiatrist; right?

A. That is true. I am not a psychologist or a psychiatrist.

Q. Would you agree that Ms. Dyer is now bladder cancer free?

MR. WALLACE: Objection.

THE WITNESS: The way we would term anybody following their diagnosis of a cancer is no evidence of disease, but it

is rare in an oncology world that we'll say you've been cured or you no longer have the disease. So we would term it as no evidence of disease. And that's the reason that we have to continue doing surveillance to make certain that it does not recur.

BY MS. GADDY:

Q. And would you agree that Ms. Dyer has a near zero likelihood of any bladder cancer recurrence due to her cystectomy?

A. The likelihood of her having a current urothelial cell cancer approaches zero, but it will never reach zero. So she will never be able to be entirely assured that she does not have a chance of recurrence. So we would continue to watch her. She'll never --

Q. Sorry, go ahead.

A. She'll never have a bladder cancer recurrence, but I think we're just referring that generally as urothelial cell carcinoma.

Q. Okay. So her chances of having a bladder cancer recurrence is zero, but what would you estimate her percentage likelihood of having another type of recurrence?

MR. WALLACE: Objection. Form. Foundation.

THE WITNESS: She still has urothelial cells present within the lining of the kidneys and the ureters. So she could have a urothelial cell cancer recurrence, which we're colloquially referring to as bladder cancer because it's far easier to say. And that is a low chance of recurrence, single digit cancer recurrence, but it is not a zero chance of recurrence.

BY MS. GADDY:

Q. Okay. And Ms. Dyer doesn't require annual cystoscopies to monitor her bladder cancer; right?

A. She no longer has a bladder, so she could not have cystoscopies.

Q. So when you say -- I think it's on page 11 of your report for Ms. Dyer, which is Exhibit 3. The very last paragraph where it starts "It has been well established that bladder cancer is the most expensive malignancy over the lifetime of a patient."

So when you say in your report that

bladder cancer is an expensive disease due to the high recurrence rate, this wouldn't be applicable to Ms. Dyer given that her bladder was removed; right?

MR. WALLACE: Objection.

THE WITNESS: It would still be applicable because she'll require specialist visitations, laboratory monitoring, and surveillance with imaging, particularly CT scans or MRIs, all represent a good financial burden.

BY MS. GADDY:

Q. But not as severe of a financial burden as receiving annual cystoscopies; right?

MR. WALLACE: Objection.

THE WITNESS: She'll save on the cost of cystoscopies, but I think it's a trivial amount compared to the total scheme of ongoing surveillance every time with a specialist, imaging labs.

BY MS. GADDY:

Q. And how often would you say Ms. Dyer would be recommended to receive those CT scans and what not?

A. Initially after the cystectomy, she

would have had the scans every three to six months for several years, then every six months for years after that until she reached once a year. At around five years you may switch from cross-sectional imaging, which is the more expensive type of imaging, say a CT scan or MRI. You could begin to consider just doing an ultrasound which doesn't have as high of a cost. However, any time an ultrasound is abnormal, we then typically turn back to a more costly cross-sectional imaging study. But her surveillance with imaging would have probably also be routinely at least once a year as she's gotten beyond ten years.

Q. Okay. And you state in your report that you are hopeful Ms. Dyer has been cured of her bladder cancer; right?

A. Yes. That is our hope any time we do this operation.

Q. And that's because her treatment has made her chances of recurrence near zero as you said before; right?

MR. WALLACE: Objection.

THE WITNESS: Yes. Her treatment -- pardon me. Her likelihood of recurrence

is very small after having had her bladder removed, but not zero.

BY MS. GADDY:

Q. And you note that she will have to change her ostomy appliances several times a week; right?

A. Yes.

Q. And that she is unable to perform this function herself and is reliant on her husband?

A. Yes. She stated in her testimony that she couldn't do it herself and typically it's her husband that does it. And if he's not available, she would need some other person to assist her.

Q. And why would a patient not be able to perform this function themselves?

A. It's usually some sort of physical debilitation, perhaps they don't have -- again, the manual dexterity, so they don't have the hands that can cut the appliance and place it on properly. It may be that its location, she just can't see it properly to get it all lined up. She has to have the hole in the appliance line up with the stoma on her abdomen.

Q. Typically, as you said before, a patient would be able to do this themselves apart from any hand dexterity problems?

A. Without any handicap, most patients are able to do it themselves. Although, there are some that find it repugnant. And they won't do it simply because they don't want to take care of it, and they have somebody in their family do it for them, or a nurse.

Q. Did you review the Camp Lejeune Justice Act in reaching your opinions in this case?

A. I reviewed the Camp Lejeune Justice Act before reaching my opinions in this case, yes.

Q. And why is that?

A. Because it was provided to me by counsel as the framework for our discussion today.

Q. Were you instructed to opine on the CLJ legal causation standard?

MR. WALLACE: Objection. I'm going to instruct the witness not to disclose any communications between counsel and Mr. Longo.

BY MS. GADDY:

Q. Are you going to follow your counsel's advice?

A. Yes, I'll follow his advice.

Q. Okay. And you stated somebody provided you with a copy of the Camp Lejeune Justice Act; is that correct?

A. Correct.

Q. Did you independently research the CLJA in preparing for your report?

A. No, I did not.

Q. Do you typically consider legal standards when performing a differential etiology?

A. No.

MR. WALLACE: Objection.

THE WITNESS: No, I don't consider legal standards.

BY MS. GADDY:

Q. And have you ever previously reviewed statutory language in rendering an expert opinion?

A. No, I have not.

Q. Have you ever previously addressed the legal burden of proof in rendering an expert

opinion?

A. No, I have not.

Q. Have you ever used the CLJA legal causation standard in your nonlegal professional work?

MR. WALLACE: Objection. Form. Foundation.

THE WITNESS: Would that be the phrase as likely as not --

BY MS. GADDY:

Q. Yes.

A. -- that you're referring to?

Yes. I use the phrase "as likely as not" on almost a daily clinical basis when discussing with my patients and with my colleagues.

Q. Why do you use that specific standard?

A. It's a common expression and everyday use in our language. Patients often want to know when they -- when we present them with a list of risk factors what they think it could be. And then treating physicians are also curious. And the phrase "as likely as not" is commonly used.

Q. Do you use other standards of proof

like "more likely than not" in your practice?

MR. WALLACE: Objection.

THE WITNESS: I certainly would use that phrase at times.

BY MS. GADDY:

Q. What is your understanding of the CLJA's language requiring evidence, quote, sufficient to conclude that a causal relationship exists?

MR. WALLACE: Objection.

THE WITNESS: The way I understood it was once I've looked through all of the evidence, I've composed my list of risk factors as to possible etiologies for that patient's bladder cancer. I would use "as likely as not" if I think it could be a contributing factor to their bladder cancer. And it does not mean that I've ruled out other risk factors as contributors, but that this one particular one is as likely as not to contribute to that patient's bladder cancer.

BY MS. GADDY:

Q. And what is your understanding of the phrase "reasonable degree of medical

probability"?

A. When I use that phrase, "reasonable degree of medical probability," I primarily -- I generally thought of it as when I examine the peer-reviewed literature to establish is there evidence that there's contaminated water at Camp Lejeune? Is there evidence that possible compounds within the water at Camp Lejeune could cause bladder cancer? Is there evidence of biological probability that those compounds could cause bladder cancer?

And I put that whole argument together in totality. That's how I would use the term "medical degree of certainty."

And then I use the "as likely as not" when I was applying it to specific cases when I looked at each patient's individual risk factors, idiosyncrasies, medical history, et cetera.

Q. Okay. And so when you go through the literature to determine if there's a reasonable degree of medical probability, you'd agree with me you're not an epidemiologist; right?

A. I've answered this question before that, yes, I'm not an epidemiologist, but I'm conversant in their literature.

Q. Okay. So how do you determine whether to a reasonable degree of medical probability that the epidemiological literature is sufficient for a given risk factor?

MR. WALLACE: Objection.

THE WITNESS: Again, I'll defer to our epidemiologist for the specifics of this, but there are things that you look for in studies. So to begin with, you'd look for studies that have a similar population. So is there a group of Marines that were not based at Camp Lejeune based at another Marine base that have had either the exact same exposure and did they develop it or did they not have an exposure and they developed that cancer.

Barring that, you'd look for populations that might resemble an exposure that system. And that's where you start to look at the occupational epidemiology. You'd look for other contaminated drinking water with those exposures. And then you'll look at the studies and how they're conducted. Were

they large sample sizes with high statistical probability? Were they small almost anecdotal studies with just a few people that developed the bladder cancer that we're interested in?

And then you would combine that with other data that we have based off of usually animal data to try and put together a picture that tends to -- trying to put together a coherent picture to either support or deny the hypothesis.

BY MS. GADDY:

Q. Okay. And is it your independent opinion that the epidemiological literature around the chemicals at Camp Lejeune and bladder cancer is sufficient based on the criteria that you just described?

A. My independent review of the literature was in line with our epidemiologist's review of the literature that, yes, there does suggest causality between PCE and TCE and other compounds to developing bladder cancer.

Q. Okay. So just to clarify, did you perform an independent opinion before reading the epidemiologist experts in this case?

A. Yes. I developed an opinion before reading the experts.

Q. Okay. And you state in your reports that as early as 2015 when you began your fellowship, you were familiarizing yourself with the Camp Lejeune water contamination with the goal of being a well-informed citizen; right?

A. Yes.

Q. And, again, you're not a toxicologist or a epidemiologist; right?

A. Correct. I'm not a toxicologist nor an epidemiologist.

Q. And you've never actually determined that a patient was, in fact, exposed to contaminants at Camp Lejeune; right?

MR. WALLACE: Objection.

THE WITNESS: If you mean that have I drawn blood or established that they have a toxin, no, I have not.

BY MS. GADDY:

Q. And your goal in informing yourself about the issues at Camp Lejeune was to be a well-informed citizen, not a qualified expert in epidemiology; right?

A. My goal in 2015 was I was becoming a

urologic oncologist here in southeastern North Carolina. Reports had begun to emerge that there was some increased incidence of bladder cancer amongst those that served at Camp Lejeune which is in close proximity to where I work now. And I felt it was necessary as a urologic oncologist to be familiar with the data surrounding it so I could either look for further evidence or refute it if it was false.

Q. And do you do that for all types of risk factors for bladder cancer?

A. If there is a new risk factor that comes up or new data that comes up, I do try to familiarize myself either for or against the causality of it, so I can be a qualified urologic oncologist and I can pass that knowledge on to my patients.

Q. You also state in your reports that you are a bioethicist with a certificate in bioethics from the National Catholic Bioethics Center; right?

A. Yes.

Q. And reading directly from your report, I believe it's on page 1 of either of the reports. And it's the last paragraph of that

background section, and the sentence that starts with bioethics are intimately incorporated. Do you see that?

A. Yes, I do.

Q. You state bioethics are intimately incorporated in my practice as a clinician and in my decision to accept a role as an expert witness in cases involving malignancies from toxic exposure to Camp Lejeune water; right?

A. Yes.

Q. So is it fair to say that you accepted the role as an expert witness for the plaintiffs in this case because, in part, you felt a moral calling to do so?

MR. WALLACE: Objection.

THE WITNESS: The reason to accept the case is to look for the truth and that does have a moral dimension that's being played out in front of us. The truth should defend both sides. So, yes, I felt that it was my obligation at an ethicist to examine the data and to make certain that the justice was done regardless of a winning side.

BY MS. GADDY:

Q. Did you consult with anyone associated with the National Catholic Bioethics Center about your role in this case as an expert witness?

A. No, I did not.

Q. Do you feel like if you felt morally called to serve as an expert witness for plaintiffs, that would impair your ability to form an unbiased opinion in this case?

A. No. The bioethics demands that you're -- use reason with an ontologically directed goal. That goal being the inherent value and dignity of every human being.

So the goal should remove any bias you have and that you're just there to protect the human. The way you reach that should be done by reason with a set of facts that can be understood and by any person regardless of background.

Q. I think you touch on that a little bit in your report where you later state that there's the scientific dimension of each individual case and then there's a philosophical dimension; right?

A. Yes.

Q. And you go on to state that this valuation of moral acts is linked to the legal dimension; right?

A. Yes.

Q. Did you make moral conclusions in this case?

A. I made no moral conclusions in this case.

Q. Do you have opinions on the morality of this case?

MR. WALLACE: Objection.

THE WITNESS: I was not asked to form an opinion on the morality of this case. And I have not formed an opinion on the morality of this case.

BY MS. GADDY:

Q. Okay. So were your opinions in this case based on objective science alone?

A. Correct.

Q. And you're relying on specifically Drs. Patent, Plunkett, Gilbert, Polk, and Burke for the opinions in the general causation section of your report; correct?

A. And Dr. Reynolds, yes.

Q. And Dr. Reynolds. Okay.

Did you review the reports of DOJ's experts, Drs. Goodman, Shields, and Lipscomb?

A. No.

Q. And why -- why not?

A. They weren't provided to me.

Q. And you state in your reports on page 2 -- let's see here -- under methodology in the sentence that starts "in order to." You state "In order to rule in a new risk factor as a potential cause of bladder cancer, I review all relevant resources to determine they sufficiently established a causal relationship between the risk factor and bladder cancer; right?

A. Yes.

Q. And you did this for each risk factor for bladder cancer; right?

A. Yes.

Q. And in analyzing the epidemiological and toxicological literature on an association, a literature search is a key step?

A. Correct. A literature search is a key step.

Q. Okay. And a literature search should be crafted to produce both positive and negative results; right?

A. Yes. It should be agnostic of the result.

Q. Otherwise, you risk forming an unbalanced opinion; right?

MR. WALLACE: Objection.

THE WITNESS: Balance or bias. I think the word would be a biased opinion. The balance may come from the data.

BY MS. GADDY:

Q. Okay. And did you perform a search using a research database like Google Scholar or PubMed?

MR. WALLACE: Objection.

THE WITNESS: I -- yes, I used PubMed in my search.

BY MS. GADDY:

Q. Okay. Do you recall what your search criteria was?

MR. WALLACE: Objection.

THE WITNESS: I don't -- I will probably leave some of them out. But it would have been bladder cancer, Camp Lejeune, contaminated water, TCE, PCE, vinyl chloride, benzene, dry cleaning workers. That's all I can recall at the

moment.

BY MS. GADDY:

Q. Okay. Did anyone provide you with any studies for your report?

A. No.

Q. You also state in your reports that you reviewed the plaintiffs' general causation reports as we discussed; right?

A. Yes, I did.

Q. And you also state that you incorporated and relied on those general causation reports for your opinions; right?

A. Yes, I did.

Q. How did you decide which studies to include or not include in your reports?

A. Again, I'll rely upon the epidemiologists and the toxicologists and the exposure experts. But you look for patients -- you look at the population in the report and how close it matches the question that you're asking.

So you would include anybody that had contaminated water from -- obviously, if you can get to Camp Lejeune and there was a Camp Pendleton as well that came out in the paper, those two populations match as closely we could

hope for. You then look for other populations which we mentioned, the dry cleaning workers because they have exposures to those chemicals that we're talking about and it was felt that this water contamination came from a dry cleaning worker. You would look for contaminated water populations because, again, that tends to match the population that we're speaking about.

Q. Okay. And you have an entire section in your reports entitled general causation; right?

A. Yes.

Q. And I'll direct your attention to -- we're looking at the Criswell report which is Exhibit 2. I believe your general causation section begins on page 11 and it continues until page 14.

A. Yes.

Q. I'm now going to direct your attention to what I'll mark as Exhibit 14.

(Longo Exhibit 14 marked for identification.)

BY MS. GADDY:

Q. I'll just briefly scroll here. It's a long document.

Do you recognize this, Doctor?

A. No, I do not.

Q. This is one of the specific causation reports reported by John Sfakianos; right?

MR. WALLACE: Objection. Foundation.

THE WITNESS: That's what the title says, but I've not read this document.

BY MS. GADDY:

Q. Okay. Are you aware of Dr. Sfakianos is another one of plaintiffs' urology experts in this case?

A. No, I am not.

Q. Okay. So you have not reviewed his reports in this case; right?

A. No, I have not.

Q. And turning to page 9, starting on page 9, do you see where it says "general causation"?

A. Yes, I do.

Q. And I'll just briefly scroll through here. Does this look to be the same general causation section that is in your reports?

MR. WALLACE: Objection.

THE WITNESS: It's a 49-page document. I haven't read the whole thing.

BY MS. GADDY:

Q. Would you like to take time to read this section and compare it to your report?

A. Certainly.

Q. We can go off the record while --

MR. WALLACE: No, we can stay on. You're asking him to stay on, it's okay he spend time on the record doing it.

MS. GADDY: Okay. That's fine.

THE WITNESS: Can you scroll down?

BY MS. GADDY:

Q. Sure.

A. Can you go down to the next page, please.

Q. Sure.

A. And can you continue to scroll.

And then on to the next page.

Okay.

Q. Okay. Thank you for reviewing.

Understanding that you have not reviewed Dr. Sfakianos's report until today, does this look to be the same section on general causation that is in your reports?

A. Yes, it looks the same.

Q. Okay. Were you asked to provide your

section on general causation to anyone?

A. I provided several drafts of my report to the counsel.

Q. Okay. But you haven't had any conversations with Dr. Sfakianos?

A. No, I have not.

Q. Okay. Thank you.

Would you agree that occupational exposures -- exposure levels would be magnitudes higher than chemical levels present in Camp Lejeune?

A. No. I would probably tend to disagree with that statement because occupational exposures are usually only one route of exposure, and they're limited to discrete amount of time while the person's at work versus at Camp Lejeune, these patients had exposure both through consumption, dermal when they took a shower, inhalation when they cooked, and it was also an unremitting exposure because they didn't get to go home from work. They drank it at work. They drank it at home. They bathed in it. They cooked with it. They cleaned with it. There was no escaping the exposure.

So I would tend to disagree that

there's higher magnitudes of exposure at work than versus drinking water.

Q. Okay. Apart from there being more of an opportunity for exposure potentially at Camp Lejeune, would you agree that the magnitude in the level of the chemical at issue is oftentimes higher in occupational studies than it is in the Camp Lejeune water?

MR. WALLACE: Objection. Foundation. Form.

THE WITNESS: Yeah, I would again -- I would disagree. If you look at each particular study, they'll tell you what the level of exposure was. But it's not something I would say that occupational exposures always have higher or lesser exposure concentrations than at groundwater.

BY MS. GADDY:

Q. Would you say more often than not the studies that discuss occupational exposures are higher in magnitude in terms of the chemical at issue than those at Camp Lejeune?

MR. WALLACE: Objection.

THE WITNESS: I don't know if I would

be comfortable saying that because I think there are more occupational exposures, period, than groundwater exposures.

BY MS. GADDY:

Q. Okay. Do you consider Camp Lejeune water specifically as a risk factor when evaluating your patients in your practice?

A. Within my own practice, one of my questions that I always ask a patient is did you ever serve in the military, which if they say yes, I would then drill down to try to figure out if they were ever at Camp Lejeune. But I don't ask them just de novo were you ever at Camp Lejeune.

Q. Okay. And is there a patient form of some kind that you give to your patients before you meet with them?

A. No, I don't give any patient intake forms about risk factors. I just sit down and speak with them.

Q. So your practice is the associated urologist of North Carolina; right?

A. Correct.

Q. And so if they have a patient intake form, you don't use that personally?

A. No. I don't -- I don't see it. I just sit down with the patient and begin speaking.

Q. Okay. Are you aware of that patient intake form?

A. I'm sure there's some sort of address and insurance that they fill out. But as far as medical history, it's just me talking to the patient.

Q. Okay. You're not an expert in modeling chemical exposures in individuals; right?

A. No, I am not.

Q. And you're relying on plaintiffs' experts: Dr. Reynolds, Dr. Bird, and Dr. Hatten; right?

A. Yes, I rely on them.

Q. Did you review the reports of United States' experts Dr. LaKind and Dr. Bailey?

A. No, I did not.

Q. Were you provided their reports?

A. I was not provided their reports.

Q. And, in your report, you state that Dr. Kelly Reynolds, who I understand has been retained by the plaintiffs, authored a report

that utilizes ATSDRs modeling results and then developments data showing the anticipated ingestion figures; right?

MR. WALLACE: Objection.

THE WITNESS: Yes, I did.

BY MS. GADDY:

Q. And Dr. Reynolds uses ATSDR's water models to estimate daily exposure levels in plaintiffs; right?

MR. WALLACE: Objection.

THE WITNESS: Can you show me where. I believe that is correct, but I just want to confirm it.

BY MS. GADDY:

Q. In your report?

A. Yes, please.

Q. One moment. I believe it's on -- if we're looking at the Criswell report, Exhibit 2, page 10.

A. Yes, I see it. Thank you for helping me.

Q. And do you see the sentence that begins "Dr. Kelly Reynolds who I understand"?

A. Yes.

Q. And so Dr. Reynolds uses ATSDR's

water models to estimate daily exposure levels in plaintiffs; right?

A. Yes, that is correct.

Q. Did you review ATSDR's water modeling reports yourself?

A. I read their paper. I did not review the modeling reports themselves.

Q. Okay. And were you aware that ATSDR's water modeling reports state that the available data are not specific enough to accurately estimate daily levels of contaminants in Camp Lejeune water?

MR. WALLACE: Objection. Foundation.

THE WITNESS: Yes. I am aware of that.

BY MS. GADDY:

Q. Were you aware that the ATSDR's water modeling reports state that the models cannot be used to determine whether an individual or family member suffer health effects?

MR. WALLACE: Objection. Foundation.

THE WITNESS: I am aware of that statement.

BY MS. GADDY:

Q. Okay. And your reports do not define

substantial exposure; right?

A. I do not believe I define substantial.

Q. You do not quantify substantial exposure; right?

A. Correct. I do not quantify substantial exposure.

Q. And why not?

A. Because I am neither a toxicologist nor a statistician. I defer to the -- but I would say that the EPA has established some MCLs, and these appear to be all above the thresholds of the MCLs. But I do not have a lower threshold or a definition for substantial. I defer to the experts in those fields.

Q. Why did you rely on Dr. Reynolds' report given the statements in ATSDR's reports?

MR. WALLACE: Objection. Form. Foundation.

THE WITNESS: Again, because we're trying to deal with the best available data that we have to establish the truth. And that's the best available data we have for Camp Lejeune.

BY MS. GADDY:

Q. And the best available data we have is by ATSDR's own statement not specific enough to accurately estimate daily levels of contaminants; right?

MR. WALLACE: Objection. Form. Foundation.

THE WITNESS: That's the statement that they have made.

BY MS. GADDY:

Q. Okay. And you're relying on Drs. Bird and Hatten for their opinions on what substantial exposure means; right?

A. Yes, I am.

Q. And you do not identify a threshold amount of exposure for any of the chemicals at issue where an individual is guaranteed or as likely as not to develop bladder cancer; right?

A. I do not have any independently established thresholds.

Q. You relied on in Dr. Reynolds' calculations to quantify exposure for these two plaintiffs; right?

MR. WALLACE: Objection.

THE WITNESS: Yes.

BY MS. GADDY:

Q. And you don't rely on exposure calculations other than those of Dr. Reynolds; right?

MR. WALLACE: Objection.

THE WITNESS: Yes.

BY MS. GADDY:

Q. Are you aware of whether Dr. Reynolds has used a total mass of ingested chemicals which she measured in micrograms is a standard exposure metric in risk assessment?

MR. WALLACE: Objection. Foundation.

THE WITNESS: I am unaware of what the standard metrics are used. I think those were the metrics used in the papers where she derived the data, but I'm unaware of the standard metrics.

BY MS. GADDY:

Q. And you've used Dr. Reynolds' total ingestion metric to conclude that Mr. Criswell and Ms. Dyer's exposure were significant and substantial; right?

MR. WALLACE: Objection.

THE WITNESS: Yes. And I think at face value when you think about 5,000 days on base or 800 plus days on base, that

strikes me as substantial exposure, yes. Even without the nuances of a toxicologist.

BY MS. GADDY:

Q. Okay. And that's in your opinion as a citizen or a treating physician but not an epidemiologist or a risk assessment expert; right?

MR. WALLACE: Objection. Form.

THE WITNESS: That's my opinion as a urologic oncologist.

BY MS. GADDY:

Q. Okay. In your practice, have you ever used this methodology to ascertain a patient's health outcomes?

MR. WALLACE: Objection.

THE WITNESS: No, I have not.

BY MS. GADDY:

Q. Okay. You opine in both of your reports that the chemicals at Camp Lejeune are capable of causing bladder cancer; right?

A. I opine that both TCE and PCE have evidence showing that they're capable of causing bladder cancer, yes.

Q. Okay. And is it your opinion that

TCE and PCE in Camp Lejeune water were sufficient together to cause bladder cancer?

A. I think that they were both they were sufficient together and independent of one another to cause bladder cancer.

Q. And that is based on your independent review of the epidemiological literature?

A. That's based upon my review which was confirmed by the trained epidemiologist and the toxicologist.

Q. Would you agree with the principle that a dose makes a poison?

MR. WALLACE: Objection. Form. Foundation.

THE WITNESS: I think the principle of the dose makes the poison is a little bit more nuanced than that. It really depends upon the poison you're speaking about.

BY MS. GADDY:

Q. Are you aware that this is a fundamental principle in toxicology?

MR. WALLACE: Objection. Form. Foundation.

THE WITNESS: Again, I'm not a

toxicologist, but I am aware of that term. But I do think it does matter what poison you're speaking of.

BY MS. GADDY:

Q. Okay. And we're talking about the TCE. Would you agree that the dose makes the poison?

MR. WALLACE: Objection.

THE WITNESS: One of -- well, so one of the criteria they use to help establish whether there's a causal relationship oftentimes is a dose response relationship meaning the higher the dose you give, the more likely you are to have that outcome occur.

Finding a dose response in the real world is very, very difficult because it would be unethical to perform an experiment where you gave somebody or a group of people an increasing dose of a poison until you establish that you've reached that threshold.

So, instead, they try to look at these things backwards. It's almost the reason for the field of epidemiology. As

you look at a group of people that had an exposure and you try to stratify their exposure, which is very, very hard to do retroactively. And then you try to establish in some sort of an animal model. But most animal models are limited to lower order mammals like mice or rats.

So to find a real dose response is almost to -- is very, very hard within any of the literature no matter what the compound.

BY MS. GADDY:

Q. And do you have an opinion on what the level of exposure to TCE is that is necessary to cause bladder cancer?

MR. WALLACE: Objection.

THE WITNESS: Again, not as a tox -- I'm not a trained toxicologist. But I am aware of the EPA's MCLs which suggest that anything above that level there's a risk posed. I don't know that there's a lower bound or upper bound where it occurs.

BY MS. GADDY:

Q. Are you aware of any peer-reviewed studies that have found that any dose is

sufficient?

MR. WALLACE: Objection. Form. Foundation.

THE WITNESS: I could not name that study.

BY MS. GADDY:

Q. And are you aware of what the lowest level of TCE exposure could be that has been shown in an epidemiological study to increase the risk of bladder cancer?

MR. WALLACE: Objection. Form. Foundation.

THE WITNESS: As I've said, I'm not a toxicologist, and I am unaware of any lower threshold. I just would never pin myself down to one number and I do not have good evidence for a lowest threshold.

BY MS. GADDY:

Q. Okay. And people with no exposure to the chemicals at Camp Lejeune can still get bladder cancer; correct?

A. If they've been exposed to other toxins, yes.

Q. Including smoking?

A. Yes.

Q. And did you evaluate each of the chemicals individually?

A. I looked at the literature for PCE, TCE, benzene, vinyl chloride, if that's what you're referring to, yes.

Q. Okay. Did anyone suggest that you frame your opinion based on the mixture rather than the individual chemicals?

MR. WALLACE: Objection. I'm going to instruct the witness not to -- in his answering of the DOJ's question not to disclose any communications with counsel. So to the extent -- maybe if you could rephrase that, that would be more helpful.

BY MS. GADDY:

Q. Sure.

MR. WALLACE: Thanks, Megan.

BY MS. GADDY:

Q. Sure. In reviewing the epidemiological literature and in forming your opinions, were you looking at the individual chemicals or mixture?

A. I was looking at both the individual chemicals and the mixture. And, in fact, in most epidemiologic studies, they were unable to

separate the chemicals out primarily because those are metabolites of one another. And that PCE becomes TCE becomes vinyl chloride becomes benzene. And when people have been exposed to one, in almost, but not all, in almost every case they've been exposed to multiple of those compounds.

And, in this instance, it's actually applicable because we don't change the ground water was contaminated with any one individual compound but all of the compounds together. So I consider them individually and in combination.

Q. And do you know of any scientific literature that has specifically studied the carcinogenic effects of the mixture of the chemicals at Camp Lejeune?

A. There are multiple epidemiologic studies that have looked at those mixtures of compounds. Primarily because there are occupational studies from laundromats or dry cleaning services which is similar to the contamination that we're speaking about today at Camp Lejeune.

Q. Did those specific epidemiological studies look at the carcinogenic effects of the

mixture of chemicals?

A. The epidemiologic studies were able to look at -- depending upon the study, the incidence or how often does that cancer occur, and at times the mortality of that cancer. Although, that's harder to get to because you have to wait a long time for the people to pass away. So if that's what you mean by cancer effects, they were.

Q. So the exact relationship between the interactions of the chemicals, so TCE, PCE, benzene, and vinyl chloride is not known; right?

MR. WALLACE: Objection.

THE WITNESS: Well, we know how they're metabolized in the body. That relationship is known.

BY MS. GADDY:

Q. But how they interact together is not known; right?

A. How they interact with one another is not fully understood, correct.

Q. Would you agree that synergy requires empirical scientific evidence, not just theoretical plausibility?

MR. WALLACE: Objection. Form and

foundation.

THE WITNESS: By synergy, you're referring to the fact that if the -- each individual compounds effects are greater when they're given as a combo than if they were individually added, is that what you refer to by synergy?

BY MS. GADDY:

Q. Correct.

A. It goes back to the earlier statement where it's nearly impossible to look for those effects in a pure form because it would be unethical to give a human being one of those chemicals alone or in combination to see what the outcome is. So instead everything -- instead, what's typically done is you look at the epidemiologic studies. You have the group of people that were exposed that seem to have the occurrence you're looking for, in this case bladder cancer, and you try to look backwards. But, again, they weren't ever -- with rare exceptions, were they ever given just one compound or the other versus just in combination. So it's a question that I don't know that I can answer based off of the data we have.

Q. Okay. And are there any Camp Lejeune or other contaminated water studies that show exposures to TCE, PCE, benzene, and vinyl chloride together caused higher cancer rates than exposure to each one separately?

MR. WALLACE: Objection.

THE WITNESS: Again, I would defer to our epidemiologist expertise for that question.

MS. GADDY: Okay. Counsel, do you think, if it's okay, we could take a quick 10-minute break?

MR. WALLACE: Sure.

MS. GADDY: We can go off the record.

THE WITNESS: Thank you.

THE VIDEOGRAPHER: Off record at 1:57 p.m.

(Recess taken from 1:57 p.m. until 2:17 p.m.)

THE VIDEOGRAPHER: On record at 2:17 p.m.

BY MS. GADDY:

Q. Okay, Doctor, I only have a few questions before we conclude. Apologies in advance if it seems like I'm bouncing around a lot.

Are you familiar with the Campbell Walsh Wein Urology textbook?

A. The Campbell Walsh, yeah, I'm familiar with that textbook. Yes.

Q. Would you consider it an authoritative source in your field of urology?

MR. WALLACE: Objection.

THE WITNESS: It's given to every urology resident, yes.

BY MS. GADDY:

Q. Okay. In going back to your evaluation of potential risk factors for both Mr. Criswell and Ms. Dyer, did you consider the remoteness of their smoking history when determining whether that was a major risk factor?

A. As we discussed before, I did consider the temporality of the situation. So when they smoked and when they developed bladder cancer, yes.

Q. And did the fact that they both smoked decades prior to their bladder cancer diagnosis impact your decision to rule it in or rule out?

A. Again, I did not rule smoking in or out. I was only asked to render an opinion on

the water, but I did take it into account, the amount of time between smoking and development of bladder cancer.

Q. And is it -- why did you take that into account? What is the relevance of the time between the smoking and the diagnosis?

A. In bladder cancer with any exposure they talk about something called a latency period. And there is an established amount of time between actually having the exposure and developing the disease. So it's not like I put my hand on the hot fire and I burn my hand. It's known I was exposed and then years later.

The latency period is not pinned down with an upper or lower threshold. Generally, there's an average of around 20 years for smoking before their bladder cancer develops. But you can certainly find patients that are on extreme ends of either of that by decades difference.

Q. Okay. And how does the latency of smoking in bladder cancer compare to latency of other chemical exposures in bladder cancer?

A. So for smoking versus TCE, PCE, and all the other chemicals we're talking about, I think there's data for smoking latency period. I

don't think there's specific data for those chemicals and their latency period. Although, we generally -- we use surrogates. So we would use things like smoking to say it must be a period of years, not months or days before they can develop the cancer.

Q. Okay. So it your opinion that we don't know the latency period when it comes to the chemicals like TCE and PCE and bladder cancer?

A. Yes. I do not know the latency period.

Q. Okay. And turning to your preparation for today what, if anything, did you do to prepare for your deposition today?

A. In preparation for the deposition, I reread my own reports, the other expert reports that are referenced within my report, and I met with counsel.

Q. Okay. And without telling me what you discussed, how many times did you meet with counsel?

A. We met twice prior to the deposition.

Q. And how long were each of these two meetings?

A. Once was say between 2 to 3 hours in time and once was between 1 to 2 hours in times.

Q. And were both of those meetings in person? Over the phone?

A. They were over Zoom, like everything is.

Q. Okay. And who else was in the room with you during these meetings?

A. Physically, no one was in the room. But Patrick Wallace was there. Jenna Butler --

MR. WALLACE: It's okay. I can instruct the witness. You can mention identities of the attorneys but not the substance or the communications thereof.

THE WITNESS: Okay. So Patrick Wallace was there, Jenna Butler, David Micelli, JT Malone, Charles Ellis. There might have been somebody else on the Zoom call, but you know those banners get pretty long. I don't remember everybody's name there.

BY MS. GADDY:

Q. I appreciate you recalling that. Did you review any documents with counsel during these meetings?

A. I had my reports, but I don't think we specifically reviewed any one document.

Q. Okay. And have you had any communications with anyone other than your attorneys to prepare for your deposition today?

A. No, I have not.

Q. Have you had any communications with any of the plaintiffs in the Camp Lejeune water litigation about your deposition?

A. No, I have not.

Q. Have you had any communications with any of plaintiffs, Terry Dyer, or Mr. Criswell's treating physicians?

A. No, I have not.

Q. And you mentioned previously that you first began working on this case in December of 2022; is that right?

A. I was -- first began discussions about Camp Lejeune water contamination and bladder cancer around December 2022, yes.

Q. Okay. And when would you say you became officially an expert in this case?

A. Shortly after that first contact.

Q. Okay. And what information were you provided during that initial contact?

MR. WALLACE: Objection. I'm going to instruct the witness not to disclose any communications with counsel -- with counsel for the PLG in answering that question. To the extent you can answer that question without disclosing communications, that's okay.

THE WITNESS: The first contact I had was somebody who knew I was a Duke urologic oncologist with an interest in bladder cancer, and I was asked if I would look at cases regarding Camp Lejeune water contamination and bladder cancer.

BY MS. GADDY:

Q. And how many times did you speak with plaintiff's counsel prior to being formerly retained as an expert?

MR. WALLACE: Objection.

THE WITNESS: Very few times. Maybe -- maybe three times. Two, three times.

BY MS. GADDY:

Q. Okay. And who first contacted you?

A. I was first contacted by Mike Dowling.

Q. Okay. And did you eventually execute a retainer agreement for your work in this case?

A. Yes, I did, within a few months of our initial contact.

Q. Okay. Was that in early 2023?

A. May -- March, May 2023. Yeah. Early 2023.

Q. Okay. And did you perform any work in connection with this case prior to executing that retainer agreement?

MR. WALLACE: Objection. Sorry. Go ahead.

THE WITNESS: Yeah, I had done a general literature review to look and see if there is evidence of Camp Lejeune water contamination and if there is an increased incidence of bladder cancer.

BY MS. GADDY:

Q. Okay. Was that the first time you had done a literature review on that subject?

A. No. The first time I had done a literature review on that subject was back in 2015 when I began my fellowship as a research fellow. One of the ideas proposed was given our proximity to Camp Lejeune and our awareness that

there might be an increased incidence of bladder cancer. Did we have enough patients at our medical center to study the effects?

So we had to do a literature search before we could even begin to do medical records search. But that study never led to anything further than a literature search. So I had been familiar with the literature sounding Camp Lejeune and some of the proposed toxic exposures since at least 2015.

Q. Okay. And do you recall why that 2015 study didn't make it past a literature review?

A. Yes. It was because we were unable to find enough patients within our own group of patients at Duke University to go forward with any kind of analysis.

Q. Do you know what that was based on? What sorts of patients they were looking for?

A. We were looking for patients who'd been living or stationed at Camp Lejeune who subsequently -- who subsequently developed bladder cancer. However, there was the most difficult piece of information to ascertain was whether or not somebody had been stationed at

Camp Lejeune. As you probably have learned through -- in the epidemiology itself, it's uncommon that patients would be aware of an exposure until years down the road. And so patients don't come to the office and say I was exposed to Camp Lejeune, volunteer that information when we sit down and take a history. So that was a missing piece of information.

Q. Okay. Understood. And in beginning your role as an expert witness in this case, what is your understanding of your assignment in this matter?

A. I was asked to be a specific causation expert for Camp Lejeune water exposure in the development of bladder cancer.

Q. Okay. Was it part of your assignment to evaluate all the plaintiffs in this case or just Mr. Criswell and Ms. Dyer?

A. I was not assigned to all the plaintiffs in this case. I was -- I have reviewed other medical records. But the only reports I was asked to produce were on Criswell and Dyer.

Q. Okay. I'm going to briefly pull up what will be marked as Exhibit 15, I believe.

(Longo Exhibit 15 marked for identification.)

BY MS. GADDY:

Q. Just scroll through here. For the record, this is Bates stamped CL_PLG-Expert_Longo_5 through 9 -- through 10. Excuse me.

Doctor, do you recognize this exhibit?

A. Yes, I do.

Q. And is this your retainer agreement?

A. That is correct.

Q. Is this a complete and accurate copy of your retainer agreement?

A. It was a quick scroll, but I believe it is accurate.

Q. I appreciate that. And do you have any staff supporting your work in this case?

A. Pardon me. Do I have any staff, did you say?

Q. Any staff that support you in your work in this case?

A. No, I do not.

Q. Okay. All right. Doctor, are there any answers to my questions that you wish to

change before we wrap up this deposition?
A. No, thank you.
Q. Okay. And is there any information I asked about that you did not remember then but you remember now that you wish to clarify?
MR. WALLACE: Objection.
THE WITNESS: Nothing has come to memory.
MS. GADDY: Okay. Thank you for your patience doctor in answering my questions today. I have no further questions.
MR. WALLACE: Megan, I have some questions, but I need a few minutes just to kind of gather my thoughts, if that's all right. So we can take a break for about ten minutes.
MS. GADDY: Okay. Want to go off the record for ten minutes.
MR. WALLACE: Yeah. That works.
THE VIDEOGRAPHER: Off record at 2:30 p.m.
(Recess taken from 2:30 p.m. until 2:46 p.m.)
THE VIDEOGRAPHER: On record at 2:46 p.m.
EXAMINATION

BY MR. WALLACE:

Q. Dr. Longo, we are back after a brief break, and I just have a handful of questions to ask you.

First, you were asked earlier today some questions about Mr. Criswell opting to keep his bladder. Do you recall that testimony?

A. Yes, I recall.

Q. Do you have any experience in counseling patients in deciding between various treatment options, which would include intravesical treatments versus removing their bladder?

A. Yes. It's a conversation that I have frequently with every consultation with high grade muscle invasive bladder cancer.

Q. In those times where counseling your patients, do you hear feedback from patients as to why they would want to choose intravesical treatments versus removing their bladder?

A. I think that if a patient has an opportunity to preserve their bladder, so keep them in place without having it removed, they are searching for that opportunity and it's one of the ongoing areas of research within urologic

oncology. They will do whatever they can to preserve their bladder.

Q. What are some of the reasons that patients in your experience give for wanting to keep their bladder?

A. They all touch upon the quality of life after your bladder has been removed. And if you are to think about what a taken for granted organ it is, if it will make sense to you, even throughout this deposition today we've stopped about every hour to all use the bathroom, and there's almost no function that you wouldn't postpone if you had to use the toilet first.

So, although, it gets it placed in the back of mind, it's actually one of the most important things that we do every day. These men and women are trying to preserve that because preserves normal life versus walking around with a bag of urine literally hanging on their side and the subsequent risks and downstream effects that you get from having that.

For instance, they know that they'll have to undergo -- or they'll have a higher likelihood of having infections as time goes by. There's the potential that there's scar tissue

with the internal reanastomosis where you put things back together again. And the scarring can destroy kidney function.

There is a psychological repugnance to having that bag on their side. There are sexual side effects from removing those organs, particularly with erectile dysfunction in men. But as I mentioned at the very beginning of the deposition, there's also a hole in the vagina that has to be surgically repaired.

So there are a multitude of reasons why a patient would not want to lose their bladder.

Q. What is the role of a treating physician in counseling the patient trying to decide between two equally valid treatment options of intravesical treatments or bladder removal?

A. Again, when you sit down with the patient, as physicians we always seem to know the right answer for the particular disease but not the diseased person. And so that's when we use that phrase, the risks alternatives and benefits. And so you do list out all of those things. You say, well, here are those options. And as I did

at the beginning, some of those options have greater risks in that it might not cure you of cancer, but the benefit of choosing that one might be a more normal quality of life, and that's why they might choose one versus the other.

Q. Thank you, Dr. Longo.

I'd like to switch gears to a different topic regarding smoking. Do you recall being asked about the smoking histories of Ms. Dyer and Mr. Criswell?

A. Yes, I do.

Q. All right. Would it be accurate to say that you considered their smoking history as part of the differential etiology that you employed in each of their cases?

A. Yes. In each case, I went through the medical record. I saw there's differences as to what was listed in different parts, but I did consider the medical record as a whole and I considered it as a risk factor in each of their cases.

Q. Okay. There's been some, I think, maybe confusion with regard to terminology. When we say -- when I'm saying if you consider their

smoking history, would that also be fair to say that you ruled in their smoking history as a potential cause of bladder cancer?

A. Yes. I did consider it as a potential cause of the bladder cancer.

Q. Okay. Do you -- are you able to know exactly how many cigarettes Ms. Dyer or Mr. Criswell smoked in their lives prior to the bladder cancer diagnosis?

A. I rely entirely upon what they've said previous in their medical record. And I cannot tell you the number of cigarettes they've had.

Q. Did you, in your report, account for the possibility that Ms. Dyer and Mr. Criswell's smoking history could have been greater or less than what was listed in their medical records?

A. Yes. I believe within the report I did explain that there are disparities in the accounts that, while I might place the most credence on one value, I did try to consider the smoking history at its utmost value and at its lowest value.

Q. When you considered the smoking history of Ms. Dyer and Mr. Criswell at the

higher value, did that provide smoking as a overwhelming factor that would cause their bladder cancer?

A. When considered -- when their smoking history was considered at its highest level in either instance, Dyer or Criswell, there was not a great enough smoking history to make it an overwhelming risk factor to eliminate other risk factors as a potential cause for bladder cancer. Or another way to say it is that I still consider the contaminated water as likely as not to contribute as a cause for the bladder cancer.

Q. When looking at two different risk factors, such as smoking and exposure to contaminated water, are you able to effectively separate those two out as risk factors from each other and view them independently from one another?

MS. GADDY: Objection. Form.

THE WITNESS: When I consider risk factors for bladder cancer, I consider their presence and the degree of exposure, but I cannot say that one is the cause and eliminates the other as a potential cause.

BY MR. WALLACE:

Q. Did you review Dr. Cates' report that was submitted on behalf of the DOJ in this case?
A. Yes.
Q. Do you recall a section where he talked about Ms. Dyer's smoking history?
A. Yes, I do.
Q. On page 19 -- actually, tell you what --
MS. BUTLER: I'm sorry, can I interject? I understand that there may be some feedback on the Zoom. Ms. Gaddy, are you hearing some people talk on the Zoom?
MS. GADDY: I am not, but I can go on mute in case it's feedback from my end.
MS. BUTLER: I don't -- I don't know. I just got a text that there's somebody talking on the Zoom, but if you're not hearing it -- and you can hear the deponent okay?
MS. GADDY: Yeah, I can hear perfectly fine. I don't hear any talking.
MS. BUTLER: You're not getting interference. Then it might just be the Zoom participants on our end. So I think we're okay. I'm sorry, I got a text about

that. I wanted to make sure you could hear okay.

MS. GADDY: That's okay. Thank you.

BY MR. WALLACE:

Q. Okay. In Dr. Cates' report, he describes Ms. Dyer as, quote, a former smoker with a short duration and low intensity. Do you agree with that assessment?

A. I do agree with that assessment.

Q. In Dr. Cates' report of -- regarding Mr. Criswell, just to make sure, you reviewed that report as well?

A. I did review that report.

Q. In that report, he identified the possibility that Mr. Criswell could have smoked two to three cigarettes per day for two years. Would this conclusion change your opinion that the chemicals at Camp Lejeune were at least as likely to cause Mr. Criswell bladder cancer?

A. Even if I do assume that higher level of smoking, it does not change my opinion that the chemicals at Camp Lejeune's groundwater could have been a potential cause of the bladder cancer.

Q. In addition to reviewing Dr. Cates'

report, you also reviewed the deposition testimony of Mr. Criswell's. One of his treating physicians, Dr. Shelfo. Do you recall that?

A. Yes, I do.

Q. And in his deposition, do you recall what his opinion was on Mr. Criswell's smoking? And if not, it's okay. We can direct you to it.

A. I do not recall the specific terms he used, but he considered him a former smoker.

Q. Okay. Bear with me here. I am going to share his deposition transcript.

MR. WALLACE: Megan, correct me if I'm wrong, but are we at Exhibit 16?

MS. GADDY: That's correct, 16.

(Longo Exhibit 16 marked for identification.)

BY MR. WALLACE:

Q. Dr. Longo, if you could open up the document on Zoom, Number 16. Does that show?

A. I don't know -- can I -- thank you for opening it.

Q. Okay. So just to confirm, Dr. Longo, you have what I've just designated as Exhibit 16 the deposition of Dr. Scott Shelfo up?

A. Yes, I do.

Q. If you could go to page 104 of that deposition transcript for me. Just let me know when you're there.

A. Just take a minute. Okay. I'm on page 104 now.

Q. I'm going to start reading from line 5 that starts "I guess generally speaking." Do you see that?

A. I do see that.

Q. I'll read it here. "I guess, generally speaking, was it your testimony in Mr. Criswell's case his smoking was not a risk factor because he was not a heavy smoker and a long-term smoker?

"ANSWER: Yes. That was the gist of it. Yes. It was a very short period of time and he was considered a very young age and not continued. So the risk -- personally, I think the risk isn't there.

"QUESTION: So is that within any reasonable degree of medical probability?

"ANSWER: It might be, yes."

Do you agree with Dr. Shelfo's opinion that, quote, the risk isn't there, regarding Mr. Criswell's smoking history and as a

causation factor for bladder cancer?

MS. GADDY: Objection. Form.

THE WITNESS: I would agree that it is a low risk probability that it's a causation of his bladder cancer.

BY MR. WALLACE:

Q. Thank you. You can go ahead and close that Exhibit 16. I want to switch to a different topic.

You were asked earlier today about if the prospect of mis -- sorry -- unknown causes of bladder cancer. Do you recall that testimony?

A. Yes, I do.

Q. Okay. And there was a term that sometimes gets used with regards to unknown causes. Is that idiopathic?

A. Idiopathic is a term used.

Q. And what is your understanding of that term?

A. My understanding of the term "idiopathic" is that it -- there is a list of known causes. And if you're unable to determine the cause, that cause could be determined to be idiopathic. So there is a cause, but it is an unknown cause.

Q. And what role do unknown causes or idiopathic causes have within a differential etiology of bladder cancer?

A. Generally, it is considered a diagnosis of exclusion meaning that you've gone through all of the well-established risk factors. If you're unable to determine what -- if you're unable to discover a known risk factor for a particular patient, you might term their cause as idiopathic.

Q. Why not -- or take a step back. When you are performing the differential etiology, do you recognize that there's the potential for unknown causes after you apply the differential etiology?

A. Yes. Once you've applied a differential etiology, there's always the possibility that there's some cause you have not looked for or discovered.

Q. You used a phrase in answering a question for Ms. Gaddy that I'm going to mess up a little bit. I believe it was something to the effect of if you start out with an unknown cause, you're going to end with an unknown cause. Do you recall that testimony?

A. Yes. I remember saying that.

Q. Can you explain what you meant by saying if you start out with an unknown cause as part of your differential etiology, you'll end with an unknown cause?

A. What I meant by that statement was that if you think anytime there's an unknown cause that it is as likely as not the cause of that person's disease, you could begin your list and end your list with that one thing saying that I found it, it was idiopathic. Whereas, I would argue that you should start with all of the unknown causes and work your way through before you rest upon idiopathic. If you start with idiopathic, then idiopathic would be your cause 100 percent of the time.

Q. Okay. And I think I heard you maybe incorrectly. Did you say you start -- you should start with all the known causes. I believe you said start with all the unknown causes.

A. I meant to say you would start with known causes of any particular disease, in this case bladder cancer, before stopping and saying idiopathic must be the cause.

Q. Is there any limit to the possibility

of unknown causes that you could include as part of your differential etiology?

A. I don't think there's a limit to the unknown.

Q. Okay. When you reviewed the medical records for Ms. Dyer and Mr. Criswell, are you aware of any evidence to support the existence of a mysterious or unknown cause or causes that could have contributed to their diagnosis of bladder cancer?

A. In both cases I was able to find known risk factors for bladder cancer within their medical history which does include smoking histories in both of those patients, but it also includes exposure to Camp Lejeune drinking water.

Q. Okay. Dr. Longo, I don't have any further questions for you, although, I do reserve the right to ask any further questions after Ms. Gaddy has questions for you.

MR. WALLACE: So, Ms. Gaddy, I'll turn it back over to you?

MS. GADDY: I don't have any further questions. Thank you, Counsel. Thank you, Dr. Longo.

MR. WALLACE: Thank you, Dr. Longo.

THE WITNESS: Thank you very much.

MS. GADDY: Thank you to the court reporter and the videographer.

THE VIDEOGRAPHER: This concludes the deposition. The time is 3:03 p.m. We're now off the record.

- - -

(Read and sign reserved.)

- - -

(Deposition concluded at 3:03 p.m.)

- - -

SIGNATURE OF DEPONENT

I, the undersigned, THOMAS LONGO, M.D., do hereby certify that I have read the foregoing deposition transcript and find it to be a true and accurate transcription of my testimony, with the following corrections, if any:

PAGE	LINE	CHANGE/REASON
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THOMAS LONGO, M.D.

CERTIFICATE OF REPORTER

I, Christine A. Taylor, Registered Professional Reporter and Notary Public for the State of North Carolina at Large, do hereby certify:

That the foregoing deposition was taken before me on the date and at the time and location stated in this transcript; that the deponent was duly sworn to testify to the truth, the whole truth and nothing but the truth; that the testimony of the deponent and all objections made at the time of the examination were recorded stenographically by me and were thereafter transcribed; that the foregoing deposition as typed is a true, accurate and complete record of the testimony of the deponent and of all objections made at the time of the examination to the best of my ability.

I further certify that I am neither related to nor counsel for any party to the cause pending or interested in the events thereof. Witness my hand, this 29th of June, 2025.

_____

Christine A. Taylor,
Registered Professional Reporter
Notary Public 19960530077
State of North Carolina

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Federal Rules of Civil Procedure

Rule 30

(e) Review By the Witness; Changes.

(1) Review; Statement of Changes. On request by the deponent or a party before the deposition is completed, the deponent must be allowed 30 days after being notified by the officer that the transcript or recording is available in which:

(A) to review the transcript or recording; and

(B) if there are changes in form or substance, to sign a statement listing the changes and the reasons for making them.

(2) Changes Indicated in the Officer's Certificate. The officer must note in the certificate prescribed by Rule 30(f)(1) whether a review was requested and, if so, must attach any changes the deponent makes during the 30-day period.

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VERITEXT LEGAL SOLUTIONS

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