SUPERIOR COURT OF NEW JERSEY
LAW DIVISION, CRIMINAL PART
MIDDLESEX COUNTY
INDICTMENT NO. 17-06-01785
APP. DIV. NO. _____

STATE OF NEW JERSEY,	:	
	:	TRANSCRIPT
v.	:	
	:	OF
DARRYL NIEVES,	:	
	:	FRYE HEARING
Defendant.	:	

Place: Middlesex County Courthouse
56 Paterson Street
New Brunswick, NJ 08903

Date: September 29, 2020

BEFORE:

HONORABLE PEDRO J. JIMENEZ, JR., J.S.C.

TRANSCRIPT ORDERED BY:

CAROLINE V. BIELAK, ESQ., Assistant Deputy Public Defender (Office of the Public Defender)

APPEARANCES:

VANESSA I. CRAVEIRO, ESQ., Assistant Prosecutor
(Monmouth County Prosecutor's Office)
Attorney for the State of New Jersey

CAROLINE V. BIELAK, ESQ., Assistant Deputy Public Defender, - and -
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I N D E X

(Proceedings commenced at 10:07:11 a.m.)
THE COURT: All right. So, we're on the record. Darryl Nieves, The State versus Darryl Nieves. The indictment is 17-06-785. The file is 17-837, a continuation of a 104 hearing with regards to the admissibility of testimony regarding Abusive Head Trauma, more commonly known as Shaken Baby Syndrome.
Counsel, let me have your appearances, please?
MS. CRAVEIRO: Vanessa Craveiro for the State. Good morning, Your Honor.
THE COURT: Good morning.
MS. RUE: Good morning, Your Honor. Danica Rue and Caroline Bielak on behalf of behalf of Darryl Nieves who is present in court --
THE COURT: All right.
MS. RUE: -- seated in the gallery.
THE COURT: All right. Counsels, good morning. Continuing the hearing with the testimony of Dr. Medina. Even though I told her she was under oath last time, I'm just going to swear her in just to go from there. Today is 9/29.
Let's call in -- Collin (phonetic), let's call in Dr. Medina.
UNIDENTIFIED SPEAKER: Dr. Medina.

THE COURT: And she was still on cross, right?
MS. CRAVEIRO: Yes.
MS. RUE: Yes, Your Honor.
THE COURT: Let's all stare at the doctor as she walks in. Put the pressure on her. No, I'm just kidding.
Doctor, good morning. Thanks for coming back. I hope everything's okay. Doctor, I'm going to swear you in, even though I know you were sworn in the last time. So, let me just ask you.
G L A D I B E L M E D I N A, STATE'S WITNESS, SWORN
THE COURT: All right. Now, let me make sure -- have a seat, get comfortable. Make sure I got this camera right. All right. Okay. We got everybody. All right. This gentleman is with whom?
MS. BIELAK: This is Dr. Scheller, Judge. I -- should I have him sit outside?
THE COURT: All right. Doctor, would you mind just waiting outside so we can --
DR. SCHELLER: Not at all.
THE COURT: All right. Thank you, sir.
MS. BIELAK: Can I just have a moment, Judge? I'll give him the conference room.
THE COURT: Okay. Okay. All right. So,

Counsel, you're up.
MS. RUE: Thank you, Your Honor.
THE COURT: All right.
CROSS-EXAMINATION BY MS. RUE:
Q Good morning, Dr. Medina.
A Good morning.
Q Last week, you testified about DJ, or Darryl Nieves' head circumference, correct?
A Yes.
Q And -- do you mind speaking up a little bit?
A Yes.
Q Thank you. And you had in your report listed certain measurements, correct?
A Yes.
Q And those were the measurements that had been made available to you prior to your writing -- the writing of your report?
A Yes, ma'am.
Q And you wrote your report back in April of 2017?
A Yes, ma'am.
Q And you testified last week that you didn't have any of the head circumferences from October of 2016 until DJ's hospitalization in February of 2017?
A Yes, ma'am.

Q And you said, I believe on direct and cross-examination, it would have been very helpful for you to have had records of the head circumference in that time frame?
A Yes.
Q And when I say in that time frame, it would have been helpful for you to have had the head circumference from October of 2016 through February of 2017?
A Yes, ma'am.
Q Now this morning, you spoke to the Prosecutor, correct?
A Yes.
Q And that was to discuss the head circumference measurements of DJ?
A Yes.
Q Additional records were obtained between Thursday of last week and this morning?
A I guess, yes.
Q Well, I should say -- strike that. Additional records were shown to you between Thursday of last week and Tuesday morning today?
A Yes.
Q Records that you did not have in generating your report?

A No.
Q But records that you reviewed today and charted, correct?
A I didn't review the record. I just charted the head circumference.
Q Well, you learned what the head circumference was?
A Yes.
Q How did you learn what the head circumference was?
A She provided a record with the head circumference.
Q And by she, you mean the Prosecutor?
A Yes.
Q She told you what the head circumference was in November of 2016?
A She showed me on the record.
Q She showed you on the record. So, you did see the record?
A The head circumference -- the record is three pages or something. I saw the head circumference.
Q Specifically, she just drew your attention to the head circumference itself?
A Yes, ma'am.
Q And she asked you to chart them on the CDC head growth head circumference chart?

A Yes.
Q And you -- and you did that?
A Yes.
Q So, it included -- the records that you saw today for the first time included an additional head circumference from that time frame of October to February?
A Correct.
Q And specifically, it included a measurement from November of 2016?
A Yes, ma'am.
Q So, as you sit here today, you still haven't seen any records of DJ's head circumference from December of 2016?
A No, ma'am.
Q Or January of 2017?
A No, ma'am.
Q Ultimately, you came to a conclusion in your report, correct?
A Yes.
Q And the conclusion you came to was a diagnosis of child physical abuse?
A Yes.
Q And specifically Abusive Head Trauma?
A Yes, ma'am.

Q That occurs with a shaking event.
A Yes, ma'am.
Q And you qualify that as with or without impact?
A Correct.
Q Now, without impact would mean shaking alone, correct?
A Yes.
Q Meaning the finding that you made would be that DJ was shaken hard enough to cause the injuries that you saw?
A Yes, ma'am.
Q Or that you -- the records that you reviewed, I should say.
A Yes, ma'am.
Q With impact would mean DJ was shaken and hit against something?
A Yes, ma'am.
Q That's what with impact would mean?
A Yes.
Q Now, we discussed last week on cross-examination that DJ had no bruises, correct?
A Correct.
Q No bruises anywhere on his body?
A Correct.

Q Anywhere on his face?
A Yes, ma'am.
Q He had no broken bones of any kind.
A Correct.
Q His ribs were not broken.
A Correct.
Q There was nothing to indicate that DJ was hit against anything, correct?
A Correct.
Q You spoke at length on direct examination about the importance of a comprehensive metabolic evaluation?
A Yes.
Q And these were tests that you requested be done, is that right?
A That I requested, and that the subspecialties did.
Q Right, but -- and you were brought in by DCP&P, right?
A By the hospital and DCP&P.
Q Well, in your report, you list that DCP&P contacted the center of child protection where you work, correct?
A Yes.
Q And asked for assistance?
A Yes.

Q And after you looked at the records that you did, you sent out for a metabolic evaluation?
A Yes.
Q Looking for any potential metabolic condition?
A Yes.
Q Also, that a geneticist be consulted -- genetic work, I should say, be done?
A Yes, ma'am.
Q Okay. Essentially, that means blood work was done, correct?
A Yeah. It just -- a geneticist came in and evaluated DJ.
Q The geneticist came in and evaluated DJ?
A Yes.
Q Did that geneticist write a report?
A Yes.
Q The geneticist wrote a report?
A Yes.
Q And the blood work that was drawn -- blood work was drawn, correct?
A Yes.
Q Panels were drawn to see if there was any genetic or metabolic condition that would cause injuries that DJ exhibited?

A Yes.
Q And there was no bleeding disorder found, right?
A No.
Q No other pathological disorder?
A Correct.
Q Did you meet with the geneticist?
A I spoke to her, yes.
Q You spoke to her. And what is her name?
A Dr. Day-Salvatore.
Q Dr. Day-Salvatore, okay. You testified that you -- part of what you do is to consider all possible alternative explanations, correct?
A Yes, ma'am.
Q And specifically in this case, all -- pardon me, plausible alternative explanation that DJ would have these symptoms?
A Yes, ma'am.
Q You ruled out every other possible scenario?
A Yes.
Q Considered it?
A Yes.
Q And dismissed it, or ruled it out?
A Yes, ma'am.
Q You listed the subspecialist that didn't

reveal a disorder that would cause the symptoms.
A I'm sorry?
Q You listed the subspecialists, right? And those that did not reveal a disorder that would cause the symptoms?
A Yeah, I listed the subspecialists that saw him and their results.
Q Right. So, what I mean by that is blood work was done, and a hematologist didn't say that DJ was a hemophiliac, for example?
A Correct.
Q There was nothing that you saw in -- or that the geneticist or hematologist saw that would provide an alternative explanation of the injuries?
A For the bleeding, yes.
Q For the bleeding.
A Yes.
Q And you also listed that the parents didn't provide any explanation of an accidental cause?
A Correct.
Q Because DJ was -- he was 11 months old, but obviously delayed in his milestones because of his very early birth.
A Yes.
Q And so, he was more at the stage of a 4 month

old than an 11 month old in terms of movement, is that right?
A Yes.
Q Meaning an 11 month old can -- some are walking, some are, you know, most are crawling, and you know, potentially cause an accident that a 4 month old couldn't.
A Correct.
Q And therefore, you came to a conclusion that it came from abuse, that the injuries came from abuse?
A He also had an eye exam.
Q Pardon?
A He also had two eye exams by an ophthalmologist and a retinal specialist.
Q Right.
A Yes.
Q Prior to your involvement in the case.
A Prior and after.
Q Well, the retinal examination that was done after was because there was concern about a mass, correct?
A Yes.
Q And that was ruled out as being anything other -- it wasn't ruled a -- it was benign, I guess I should say, right?

A That concern, yes.
Q Right. So, that was the follow-up ophthalmological exam?
A No. They saw the residual retinal hemorrhages on that exam.
Q There was the retinal hemorrhages that DJ had shown back in February?
A And there was concern for Shaken Baby at the retinal specialist also.
Q Correct. That was after you had done your assessment of DJ?
A That's correct.
Q Right. You testified about this being a multi-disciplinary team effort, right?
A Yes.
Q That all possible causes were considered?
A Yes.
Q By this team?
A Yes.
Q And the team included you, the child abuse pediatrician?
A Yes.
Q The ophthalmologist who described the retinal hemorrhages?
A Yes.

Q The neuroradiologist who found the subdermal hematoma?
A Yes.
Q But there obviously was no biomechanist in this team, correct?
A A biomechanist? No.
Q A biomechanist, or biomechanist, if that's how you want to --
A No.
Q There wasn't one consulted as part of your team?
A No.
Q Okay. Did you, as a team, sit down and meet together?
A Not together, just talked to them and get records.
Q You spoke to them?
A I spoke to them.
Q Okay. Nowhere in your report does it indicate you spoke to any other expert, correct?
A Not besides the ones that are in there.
Q Well, in your report, you don't list having any conversations with other experts.
A I only listed summaries of what was found.
Q You say you reviewed their records?
A I have to talk to them to get their records.

Those are not -- those interviews didn't happen at the hospital. They were follow-ups.

Q What interviews are you referring to?

A When he went to the hematologist after and nothing was found on final exams on the tests that were pending. When he went to the retinal specialist follow up. When he went to the geneticist follow up.

There were still some other tests that were being performed, because there were concerns about motor development, which don't have anything to do with the case, but just it's important for the health and well-being of the child. That's documented in my record.

Q Okay. You don't ever say that you spoke to any other doctor.

A Well, that's the team that we work with.

Q You review all of the records that you reviewed?

A They are in the hospital at the same time that I'm in the hospital.

Q Okay. You list in your report the records from the ophthalmologist that you reviewed?

A Yes.

Q Okay. You list the records from the neurologist that you reviewed?

A Yes.

Q The ophthalmologist that you reviewed?

A Yes.

Q You never say that you actually spoke to anyone.

A The only one I didn't speak to is the retinal specialist. The rest I did.

Q Okay. But you don't document that anywhere in your report, right?

A Not specifically like that.

Q Not generally, either?

A Yes. Their information is in my report.

Q Correct, and you indicate that you reviewed their records?

A The information is in my report, yes.

Q I didn't hear what you said.

A The information is in my report, so that's by communications with them or review of records.

Q Right. And you indicate the records, right?

A Yes.

Q But not any conversation.

A It's part of my regular practice to talk to the multi-disciplinary team that takes care of the child. I reviewed the images specifically with the radiologist. I didn't write that there, but that's the common practice.

Q Well, when you testified on direct examination about your duties, you didn't include having conversations with these experts.
A They didn't ask me about that.
Q Well, the State asked you to list what you do as a child abuse pediatrician?
A I conduct evaluations of kids when there is a concern of abuse and neglect. You didn't ask me to describe what the evaluations -- how the evaluations are conducted.
Q So, it has to be specifically asked of you to indicate what you do?
A Yes.
Q All right. And you don't list it on your CV, either?
A No.
Q You did speak to Lucy (phonetic) and Darryl. We talked about -- Lucy and Darryl meaning our client. You spoke to them at the hospital, right?
A Yes.
Q And you asked whether DJ had been in an accident?
A If he had any accidental injuries.
Q Right.
A Yes.

Q And they didn't really have any explanations, or they didn't -- couldn't think of anything, right?
A No, they didn't.
Q They had mentioned -- both of them had mentioned that DJ's half-brother had been jumping in the crib with him at some point?
A Oh, yes.
Q Right.
A That's correct.
Q And both of them told you that, right?
A Yes.
Q But that had been -- they both told you that had been about a month before this happened?
A Yes, ma'am.
Q And that he didn't appear injured in any way?
A Yes.
Q Right? And that he had been smiling when this was going on, right?
A Yes. Yes.
Q So, that was ruled out as any potential cause?
A Yes.
Q When you spoke to them, they gave you a lot of information, right?
A Yes, they did.

Q And you believed a lot of what they told you?
A Everything.
Q Everything?
A Yes.
Q Okay. So, you believed both Darryl and Lucy when they told you that Darryl was the primary caretaker of their child?
A Yes.
Q Right? You believed both of the parents when they described DJ as a good baby?
A Yes.
Q You believed Darryl when he told you that he was alone with the baby when these seizure incidents happened, correct?
A Correct.
Q And you believed that there were these three separate incidents?
A Yes.
Q But you didn't believe Lucy when she said she didn't have any concerns about Darryl taking care of DJ?
A Oh, no. I believed that.
Q And you didn't believe Darryl when he said he would never hurt his son?
A That I didn't comment on.

Q Well, you came to a conclusion that he abused his child?
A That he abused the child? I didn't come to that conclusion. I said that the injuries are consistent with child abuse. I didn't say who did it.
Q Well, you believe that he was the only person with the baby.
A That is what he re --
Q During those times. Right, and you believed that?
A I believed that.
Q He reported it, and you took stock in that. You noted it in your report.
A Yes.
Q Right. But when he said he would never hurt his child, you didn't believe that?
A I didn't comment on that. I wrote it. He said he would never hurt his child.
Q So, we've talked extensively about DJ's very complex medical history. And it's fair to say that DJ is in a unique position here, right?
A Explain?
Q Sure, I'll explain. So, this is an 11 month old who actually has prior neurosonograms, right?
A Yes.

Q That is unique.
A Yes.
Q Most of the time, when you are asked to make such an assessment, the first scan of a brain that you see is after an allegation of abuse or suspicion of abuse?
A That is correct.
Q This is a child who, because of his medical history, had had a number of scans done --
A Yes.
Q -- prior to that. At no point, did you go back to the radiologist and have him or her look at those prior scans in conjunction with this scan, meaning the scan from February of 2017?
A Oh, yes. That is routine practice.
Q Okay. Nowhere in your report do you list asking the radiologist with a fresh set of eyes to look at this data all over again.
A Correct, I don't.
Q You didn't put that anywhere in your report?
A No.
Q Even though you acknowledge that it's crucial to consider all possible alternative explanations, right?
A Of course.

Q But nowhere do you -- do you indicate that you spoke to the radiologist.
A But it was done.
Q Fine, you're saying that now, but in the report that you wrote back in February of 2017 -- pardon me, April of 2017, you never indicate that those conversations ever took place.
A It's not indicated in my report. It's routine practice, however.
Q Well, there's nothing indicated about what those conversations entail.
A That is a summary of my evaluation.
Q Well, it's an 18 page report, right?
A Right.
Q It's more than just a summary.
A It is pretty long.
Q It's long. It's more than a summary.
A Yes.
Q Right? In fact, I mean there are summaries included in it. That -- the report itself isn't long.
A It's just the data that was reviewed. It's the summary of the data that was reviewed. It doesn't explain how I conduct my routine evaluations. It took two months to write that report.
Q Right. I understand that, because this

report is so crucial, right?
A Absolutely.
Q It's what DCP&P is asking you for?
A Of course.
Q It's what DCP is going to rely upon when making a decision about whether a parent gets to keep their child?
A Of course.
Q Right? It's about whether a parent will be able to see their child?
A That is correct.
Q It's about whether a person is prosecuted criminally for the case?
A Yes.
Q Right. So, it's more than a summary. It's an 18 page report that took you two months to write.
A Yes.
Q And nowhere in there do you indicate that you spoke to the radiologist and asked the radiologist to go back and look at these scans.
A It was done, though.
Q And in no place in your report does it indicate what the radiologist told you, having looked at those prior scans.
A Oh, the final conclusions are there. Yes.

Q You're saying in your report, you indicate what the radiologist told you having looked back at the prior scans in relationship to the scan that was done in February of 2017?
A Yes. If there was any discrepancy, it would have been in my report.
Q Well, not any discrepancy. What I'm asking for, you testified on direct examination that there had been, I believe, three prior neurosonograms done to Darryl prior to February of 2017. And you discussed on direct examination what the indications were in the report of when those scans were done.
A Yes.
Q Meaning the measurements of the subarachnoid space, right?
A Yes.
Q The lack of hematomas?
A Yes.
Q Those were the results from the time that those scans took place.
A Yes.
Q There is nothing, your report is absent, of looking at the February 2017 exam how it relates to the prior scans.
A I understand.

Q And that's right, right?
A That is incorrect.
Q There -- you have in your report, it listed how the February exam relates to the prior exam?
A I reviewed all those scans with multiple radiologists. They're all at our hospitals, every single day. And yes, all of them were reviewed in conjunction. The only one we didn't have access to is the child's neurosonograms.
Q Okay. You don't have your report over there anymore? I apologize, I'm going to approach with --
COURT CLERK: It's going to be S-1.
MS. RUE: S-1?
THE COURT: Wait, give her these.
MS. RUE: Oh, give her those? Okay.
THE COURT: They're all here. They're all complete.
(Court and personnel confer)
BY MS. RUE:
Q I want you to look through your 18 page report and tell me what the radiologist or radiologists said looking at the scan of 2017, how it relates to the scans that were taken of DJ prior.
A That's not in this report.
Q It's not in the report?

A No.
Q Okay. You testified about BESS on direct examination, correct?
A Yes, ma'am.
Q And what is that again?
A Benign enlargement of a subarachnoid space.
Q And that is not mentioned anywhere in your report, correct?
A No.
Q Nowhere in your report does it say I approached the radiologists, I asked them to look at the data and see whether BESS is applicable here, correct?
A Oh, no, yeah. That was not.
Q I'm going to repeat. Nowhere in your report do you indicate you spoke to them and ruled that out.
A Correct.
Q In your report, you do list things that you ruled out, correct?
A Yes.
Q You ruled out that these injuries were caused from seizure?
A Yes.
Q You ruled out that they were caused from any sort of hematological issue, right?

A Right.
Q You never indicate that BESS was considered.
A Yes, we did.
Q You include that BESS was considered?
A Extra-axial spaces were normal in all the sonograms. That was a very specific question, and I wrote it in each of them.
Q Well, you wrote that the prior scan indicated that they were within normal range.
A That is what was reviewed. That is a very basic part of medicine.
Q I understand it's a basic part of medicine, and it's actually something that you're expected to do, to rule everything out.
A Right, that's why it's included. Extra-axial spaces refer to that.
Q Well, you don't actually cite that as an alternative explanation?
A He doesn't have that as a diagnosis.
Q But you don't write that, do you?
A Why do I have to write it if he doesn't have it?
Q Well, you would have to write everything you considered and ruled out, right?
A I didn't consider it. It's extra axial spaces. That's another word for --

Q Okay --
A -- what you're looking for.
Q So, you're testifying today that you considered it?
A Of course.
Q Right. And you actually testified to what BESS is?
A Of course.
Q It's not mentioned anywhere in your report.
A It doesn't apply to Darryl according to the scan.
Q Okay. It's not mentioned anywhere in your report.
A It doesn't apply to the child. It is not mentioned because it doesn't apply to the child. The extra-axial spaces were looked at and were considered normal.
Q Right. And again, no indication that those conversations of looking back at the data that existed in this case ever took place?
A It was part of my practice.
Q And you didn't write it down anywhere?
A I did not.
Q Now, you are not DJ's primary care physician, right?
A No.

Q And you weren't at any point?
A No.
Q You did a, is it fair to say, a cursory exam of DJ when you saw him in the hospital?
A You mean an external exam?
Q Yes.
A Yes.
Q Right. I don't mean -- I'm not meaning that (indiscernible), I just mean that you did an exam of him, but it wasn't, like, a thorough?
A It wasn't looking at his eyes.
Q Right.
A Yeah.
Q Well, you're not qualified to do that, right?
A Exactly.
Q Right. And you had never treated him before any of this took place?
A No, ma'am.
Q And you didn't treat him the many times that DJ had required medical treatment?
A Correct.
Q You examined other doctors' findings and their reports, correct?
A Yes.
Q And you came to the conclusion he was shaken

after you ruled out alternative explanations?
A Yes, ma'am.
Q And you found that he was a victim of child abuse with or without impact?
A Yes, ma'am.
Q You didn't recommend any course of treatment for him, correct?
A No.
Q You recommended that he follow up with any doctors' appointments?
A Yes. Whatever was given.
Q Right. Not that he take any certain medication, right?
A No, ma'am.
Q That he get any other specific testing done?
A No, ma'am.
Q Or physical therapy done?
A I think that's part of what he was --
Q Right. But I mean, you didn't prescribe any treatment at all?
A No.
MS. RUE: Just one moment, Your Honor? Nothing further, Your Honor.
THE COURT: Okay. All right.
REDIRECT EXAMINATION BY MS. CRAVEIRO:

Q Doctor, I believe on cross-examination, we just went over in great detail exactly what you did in those two months after Darryl was hospitalized to come up with this diagnosis of Abusive Head Trauma. Did you list in your report every single little thing that you did in conducting this evaluation?
A No.
Q Okay. And you mentioned that it's routine practice -- you mentioned what radiologists do when they're looking at scans. What is the routine practice for radiologists?
A So, when a child --
MS. RUE: Objection.
THE COURT: Grounds?
MS. RUE: She's not an expert on radiology.
MS. CRAVEIRO: It came out on cross, Judge.
MS. RUE: I didn't ask her what radiologists do.
MS. CRAVEIRO: She asked if the radiologist prior to had looked at the scan, and the Doctor answered that it's routine practice and yes, they did, and she spoke to them.
MS. RUE: Judge, I asked Dr. Medina if she asked for the radiologist to do those things, not what the radiologist routinely does. That's the

distinction.
THE COURT: I had a -- I had my -- if I had my notes correctly, hopefully I did, I think they were more in line with this doctor understanding what the practice of the radiologist was given that this -- of this multi-disciplinary team approach, and as a the person making the ultimate diagnosis here, she had to have understanding as to what everybody did, does, and how they do it.
But if you want to ask the fundamental question again, you can, just to re-establish that she understands what a routine -- what the routine practice for radiologists is, and how she comes to understand that.
MS. CRAVEIRO: Okay, Judge --
THE COURT: Lay the groundwork, maybe that will solve everybody's problem.
MS. CRAVEIRO: Thank you, Judge.
MS. RUE: Thank you.
BY MS. CRAVEIRO:
Q Doctor, are you familiar with the routine practice of a radiologist at St. Peter's?
A So --
THE COURT: You trailed off at the end, I think -- because you said at St. Peters?

MS. CRAVEIRO: At St. Peter's, I'm sorry.
THE COURT: Okay.
THE WITNESS: The radiologists read the film.
BY MS. CRAVEIRO:
Q Okay.
A Is what they do.
Q And how do you know that?
A How do I know that they read the film?
Q How do you know that that's the routine practice?
A I interact with them on a regular basis.
Q Okay.
A So, when we order -- so, I'm a pediatrician of 20 years. When I order a scan on a child, they image whatever the concern is, and provide a reading of any abnormalities that they see on a film. That is their basic practice. When -- okay, so that's your question?
Q Yes.
A Okay.
Q And you also testified that -- on cross that they also see the prior films?
A So now, that's my practice.
Q Okay.
A When they do their readings, they have access to comparison studies. They may or may not write that in

their report, but that is what they do.
When I get involved in a case where an image is involved, for example, head or a body, arm, leg, whatever. The radi -- I meet with the radiologist, because I am not a radiologist, to read those films. I meet with the radiologist at the radiology room. We pull any studies for comparison, if there are any, and then we go over the different aspects of what the abnormalities are.
If the films are read as normal, unremarkable, we still have to go back and look at the different -- specifically to head trauma, the brain, the anatomy of the brain, the fissures, the extra-axial spaces, because in cases of subdurals, that's really important. Document any presence of collection, and that would include, on that particular film, and any other films that were done prior to that.
Q Okay. So, I'm going to provide you with your report, S-1, if you -- just in case you do need it. In this particular case, for this infant, who did you meet with? Which radiologist?
A So, we have Dr. Lee and Dr. Hanhan, and another doctor that read those films. They're all at St. Peter's.
Q And if you're referring to your report,

please just let us know what page.
A Oh, okay. So, the first was by Dr. Walor, who works at St. Peter's, Dr. Hanhan, and Dr. Vincent Lee. There's also some -- some other ones that I saw (inaudible). Those radiographs are reviewed as -- to make a consensus to see if there's any difference to when the film was presented in February. The only difference then was subdural collection.
I asked specifically about the extra-axial spaces. It was not felt to be enlarged by these radiologists that read them.
Q And --
A We did not have access to this child's record, so that was not included as part of my review and comparison. We didn't have that. It was requested for DCP&P (inaudible). The circumferences were requested (inaudible). The follow ups, all the follow ups were requested because I never had that. And then I said, if there's any information that you don't see in my report, please contact us if that information clarifies anything on this child or the record, we got to go back.
Q Okay. So, after the meeting with these three radiologists, what would have been done if there was anything that was found to be abnormal in any of the

scans that you saw?
A Oh, so then I would write it in my report.
Q Okay. And was anything found to be abnormal in this infant's case?
A No.
Q Okay. And you also mentioned on cross that you had conversations with the other subspecialties that consulted with this infant, correct?
A All except the retinal specialist.
Q Okay. And who was the retinal specialist?
A At the (indiscernible), I don't know --
Q Okay. And are your conversations with them -- did you receive any different information than any of the information that is in your report?
A No metabolic abnormalities, no coagulation abnormalities, and no concern for any neurological issues that would account for the bleeding in the brain or the eye.
Q And all of that is in your report, correct?
A Um-hum. Yeah.
Q Okay.
A Absolutely.
Q And you were also discussing BESS. Why does it not apply in this case?
A I'm sorry?

Q You also discussed BESS. Why does it not apply in this case?
A So, because BESS wasn't brought up on this case. And BESS, like I just before, it's a condition that predisposes children to subdural collection. When -- so, that's the -- that is the importance of that. BESS is not indicated with retinal hemorrhages in the pattern described to Darryl, and subdural collections in the context of BESS will not be associated with retinal hemorrhages either in the context that Darryl had.
Q Okay. And is BESS associated with an altered mental state?
A No. It's called benign extra -- enlargement of the subarachnoid space, because it is usually an incidental illness.
Q And did Darryl present with an altered mental state?
A Yes.
Q Okay. And how many people took a look at the neurosonograms in this case and determined that they were normal?
A Three different radiologists, and it was -- with all them were reviewing it.
Q Okay.

MS. RUE: I missed the last part of --
THE WITNESS: Three different radiologists, and then the review that I did with -- when the child came in, in February.
MS. RUE: Okay.
BY MS. CRAVEIRO:
Q Okay. And who are those radiologists?
A In February?
Q Yes.
(Court discusses unrelated matter)
(Pause)
THE WITNESS: Dr. Schonfeld.
BY MS. CRAVEIRO:
Q Doctor who? I'm sorry.
A Schonfeld.
Q And what page on your report is that, just for the record?
A Nine.
Q Okay.
A Oh, ZW-1-1.
Q Okay. And the other three were the ones you mentioned earlier?
A Yes.
Q Okay. And how many of those radiologists, or how many doctors in general determined that the extra-

axial space was normal?
A Dr. Lee, Dr. Walor, and Dr. Hanhan.
Q Okay. And did that fourth doctor that you just mentioned find the same thing?
A Yes. Once the subdural collections are there, it's very hard to measure the subarachnoid space.
Q Okay.
A But nothing --
Q And now -- okay. There was also discussion on cross about a brother and jumping on the bed. How did you rule that out as causing Darryl's injuries?
A The parents had reported that it was about a month prior. Darryl's retinal hemorrhages are acute. The subdural collection, that is on its own -- in the context of that, it could be consistent with minor trauma, not the retinal hemorrhaging. So, the acuteness of the altered mental status and the retinal hemorrhages, especially bleeding observed, would not relate to a (inaudible).
Q And when you diagnose Abusive Head Trauma, do you diagnose who it is perpetrated by?
A No.
Q Does that factor into your determination in any manner?
A (No audible response).

Q Okay. What is the significance of the Defendant being around his son during these episodes?
A He's the one that can provide information about what happened. What he looked like, how his behavior changed.
Q So, what information did you use in your -- in evaluating for this diagnosis from the Defendant and his interactions with the infant?
A He indicated that the limpness and unresponsive episodes happened every time he would change his diaper.
Q And how did you use that in your evaluation and diagnosis?
A Basically, I just wrote that to indicate when the episodes occurred.
Q And did you -- did you factor that into your consideration? Or strike that. Would changing a diaper have caused these injuries?
A No.
Q Okay. Okay. Now, there was also some discussion about the head circumference, and the Defendant's (sic) developmental age. What was his developmental age at the time of the incident?
A He was 11 months --
Q He --

A -- and he was born 15 weeks premature, so about 4 months early.
Q So, he would have been about 3 to 4 months developmentally at that time?
A Yeah. Well, developmentally is different than chronological.
Q Yes.
A Right? So, developmentally, he was at a 2 to 4 month old. Chronologically, if he was (indiscernible), it would have been more like 7 months, 7 to 8 months, 7 and a half months?
Q So, what does -- how does his developmental age affect his everyday life?
A So, the develop -- in cases of Abusive Head Trauma, the developed mental age is basically because kids that are ambulatory and moving around having higher incidence of possibilities for accidental head impact without the parents knowing or being aware of it.

So, that's a big difference. Some injuries, even though the parents don't have an explanation, and may not have witnessed, something still could have happened because the kids are moving, and from sitting or standing, they can suffer head trauma, and be fine, and the parents are not aware of it. So, that is very

important to know.

In this case, developmentally, not chronologically. Developmentally, he was at a level of 3 to 4 months where they can't really ambulate yet. So, any history of an accident would have to have been observed by the caretakers.
Q Did he also have a condition called global hypotonia?
A Yes.
Q And what is that?
A Just low muscle tone.
Q How --
A Due to his prematurity.
Q How would that affect his injury threshold, or his ability to be injured?
A Self-injured?
Q Or inflicted injury. Inflicted injury.
A Oh. In terms of inflicted injury, he doesn't have his -- the strength of his muscles, especially in the neck, it's less, much less than in a baby at 11 months, that age chronologically.
Q So, what would happen if a baby would get shaken?
A His head would go in different places, (indiscernible) in different places, easier than an

older baby that same age.
Q So, does that mean that there's the potential to cause more injury?
A There's a potential for more injury.
Q Okay. Now, I'm approaching with what's been previously marked for identification as S-20 and S-21. Can you tell us what those are?
A It's the head circumference that you gave me this morning and the visit documentation of head circumference in November.
Q Okay. And those -- I'm just going to sit down, because I might put it up. Can you just -- I believe it's S-20, is that the visit or is that the head circumference?
A The visit.
Q What is the date range of those medical records?
A What is that?
Q Date range of those medical records.
A It's 3/9 through 2/15.
Q Okay.
MS. RUE: Judge, I'm going to object just because the witness testified -- and this is obviously discovery turned over today. I -- the chart, I don't have an objection to, because it was within the scope

of cross, but Dr. Medina testified on cross that she did not review the records itself, just literally the number of the head circumference. So, if we're getting into the body of the records, I object.
THE COURT: Ms. Craveiro, do you want to rephrase, or?
MS. CRAVEIRO: She did answer on cross that she didn't review the records completely, but that she reviewed that one page. So, I mean, I can give her the records and have her review them right now, which is what I was going to ask her.
THE COURT: The entirety, beyond the one page that she reviewed?
MS. CRAVEIRO: Judge, I was -- the next question was going to be can you just review those records and see if there's any other head circumference measurements that you can find. That's it.
THE COURT: Oh. I'll allow that, then.
MS. CRAVEIRO: Yes.
THE COURT: If you -- but -- and I'll take it for what it's worth here, so. Sure.
(Pause)
THE WITNESS: So, on page 10, there's a head circumference on January 25th, 2017.
THE COURT: And again, what exhibit is she

referencing?
BY MS. CRAVEIRO:
Q It's S-20. Okay.
A There is a head circumference January 25th, 2017, of 43 point 5 centimeters.
Q And I'm sorry, can you repeat the date?
A January 25th, 2017.
Q And what page?
A What page?
Q Of the -- that?
A Ten. And on page 15, 11/29/2016, a head circumference of 42 point 5.
Q Okay.
A That's it.
Q Okay. And had you seen these records before today -- this morning?
A No.
Q Okay. And S-21, what is that?
A It's a growth curve.
Q And where does this come from? Can you just explain what the document is?
A It's a growth curve that any person can use to plot the head circumference for -- of an infant.
Q Okay. And in the particular one you have in front of you, which is S-21, are there points plotted?

A Yes.
Q And who plotted those points?
A I did.
Q And who are these points related to?
A The head circumference for Darryl.
MS. CRAVEIRO: Judge, I actually have another copy if you want it in front of you during the testimony, just --
THE COURT: Are you using it as -- as an --
MS. CRAVEIRO: Exhibit? Yes.
THE COURT: -- as an exhibit? To illustrate? Well, then let me have it. Does Counsel have one?
MS. CRAVEIRO: Yes.
MS. RUE: Yeah, we received it this morning, Judge.
THE COURT: I know.
BY MS. CRAVEIRO:
Q Okay. And where did these plot points come from?
A They're one -- so the plots from 2 months through 7 months come from my report.
A Okay. And can you explain how you plotted them and what the plotting means?
A So, it -- and I -- can I show ---
THE COURT: Yeah, yeah.

MS. CRAVEIRO: I can put it up on the --
THE WITNESS: So, basically --
THE COURT: Wait, hold on. You can put it up on the -- oh, like that? Well, however you want, Doctor, because I can see it from and I got a copy as well.
THE WITNESS: Okay. So, the top is the months.
THE COURT: Top left-hand corner of the page?
THE WITNESS: It says -- yes.
THE COURT: Okay.
THE WITNESS: The -- right next to the word birth?
THE COURT: Um-hum?
THE WITNESS: There's 3, 6, 9, 18, I mean, 12, 15, 18. Those are months. Every line in between is another month.
THE COURT: Okay.
THE WITNESS: So, four weeks in between the squares, okay? Then the head circumference, the measurements in centimeters is right next to the graph right here. When we plot points, we do the two months -- the chronological age of the kid. So, two months. In this case, four months by 6, 7 months, but then we have to correct it, meaning we have to go back 15

weeks, which is about 4 boxes, not completely, 4 boxes back because we have to take into account prematurity.
THE COURT: Um-hum.
THE WITNESS: When you go back, his head circumference was growing at the 25th percentile, 25 to 30. When he came to the hospital at 11, it was above the 50, between the 50 and 75th percentile.
This had jumped from where he was, then the two points in those records offer additional points to see when his head circumference had a significant increase, if it did, compared to the measurements that brought him in in February. So, if he -- so, I -- everything is plotted except the one that I was --
BY MS. CRAVEIRO:
Q Except the -- which one?
A The January one.
Q Okay. And that was found on page 10 of the records, on S-20?
A I believe so.
Q Okay. So, can you plot that? I believe you said it was 43 point 5?
A So, on January 25th, he was -- he was 10 and-a-half months, so going from the top, 10 and a little bit more to the middle of the curve, 10 and-a-half months, it says 43 point 5, 43 point 5. And if you go back

four weeks, so four squares but from the middle, because it's ten and-a-half months, we have -- that puts him right at the 25th, from the 25th to 30.

Q Okay. And you said you obtained the November and the January numbers from the records in S-20?

A The November and the -- yes.

Q Okay. And just -- I don't believe I asked you, but are those -- when you looked at them this morning, were you able to confirm that those were for Daniel (sic) -- for this infant, Darryl Nieves?

A That's what it says in this record.

Q Okay. And what -- what is the significance of these head circumference measurements?

A His head had a steady growth all the way through January at least, with an increase in head circumference from January to February to above the 50 to 75th.

Q Okay. So, what does that mean?

A That means that -- so, head circumference really is affected by any space occupying lesion in the brain. It could be cerebrospinal fluid, which is the fluid that goes in the subarachnoid space, when that is -- when that accumulates more than usual, that can cause an increase in head circumference. Blood that leaks out of the vessels can cause an increase in head

circumferences, and any masses that grow out of proportion can cause an increase in head circumference.

So, in this case, he was steady until the February admission, when it jumped. That reflects something happening inside his brain consistent with the subdural collection in his brain.

Q So, how does that affect your diagnosis in this case?

A It supports that something happened between January and February.

Q Okay. And what do you mean by --

A That hadn't happened before.

Q And what do you mean by something happening?

A So, from the head circumference, you can only know there is something that happened to cause an increase in the circumference of the head between January and February.

Q Okay.

A That's all you can say from the graph.

Q And when you take that in consideration with everything else that you reviewed in this case, what -- can you -- does that help you define what the something happened was?

A Yes. It's consistent with subdural collection.

Q Okay. And -- okay. And your diagnosis in

this case is that there was abusive head trauma with shaking with or without impact, correct?
A Yes.
Q And when we're talking about impact, what kind of impact are we talking about?
A Oh. It would have to be an impact into a soft surface, because he doesn't have any external signs of trauma.
Q Okay. And can you have shaking alone with no external signs of trauma?
A Yes.
Q And can you have shaking with impact with no external signs of trauma?
A Oh, yes.
Q Okay. And how does acceleration and a deceleration of the head cause injury?
A So, in abusive head trauma, it is really the movement of the brain inside the skull. If a kid is shaken, the brain -- the head tends to move not only in the front and back direction, hyperflexion, hyperextension, but it can also move sideways.
So, it creates rotational forces, angular forces. That can actually create tension in the bridging veins of the head, okay? When -- because the bridging veins are not -- are connected to the brain

surface and to the skull base.
If there's movement within the intercranial structures, then you can actually have some tearing and leaking of those bridging veins, producing blood in the intercranial cavity. That is the mechanism of acceleration deceleration, movement of the brain within the skull. Breaking those bridging veins.
That is what we see in kids that have BESS, with the bridge's position to subdural, even though that is rare, but it could happen because of the tension stretching mechanism.
Q And how does the medical community use the triad of symptoms?
A It's really a probability. It's more -- it's used to support a diagnosis and a finding. When you have retinal hemorrhages in the severity that is present in this case, you assess for medical pathology or accidental injuries that could be associated with that pattern of hemorrhaging.
In this case, you do not have any such history or any such medical findings. Inflicted trauma has -- had a high specificity for this pattern of retinal hemorrhages in the 96 percent. Taken together with subdural bleeding and no signs of external trauma is very specific for a shaken injury.

Q So, just because -- so, does any one of those triad symptoms, or all three together, conclusively show a diagnosis of Abusive Head Trauma?
A The conclusivity (sic) comes from the fact that the child has no medical conditions that could produce those retinal hemorrhages or accidental injuries.
So, the triad itself is not diagnostic, but the combination of findings, in the absence of pathology, is what gives the final diagnosis.
Q Okay. And so, in coming to this diagnosis, you have to eliminate all other possibilities?
A Yes.
Q Do -- okay. And your diagnosis in this case, is it based upon your training and experience in the field of child abuse?
A It's based on the medical literature.
Q And is it also based on your training and experience?
A Yeah.
Q Okay. I have no further questions.
MS. RUE: One moment, Your Honor. Judge, I don't have any further questions.
MS. CRAVEIRO: Judge, I'd like to admit S-20 and S-21 into evidence?
THE COURT: Any objection?

MS. RUE: Judge, just the -- renewing the objection to the fact that their report was not reviewed by the witness prior to her testifying.
THE COURT: S-21 is her -- is her chart, is her head circumference chart, right?
MS. CRAVEIRO: Yes.
MS. RUE: S-21, yeah.
THE COURT: All right. I'll admit that.
(Exhibit S-21 entered into evidence)
THE COURT: S-20 is not her report? It's not authored by her, not drafted by her, not created by her?
MS. CRAVEIRO: No, it's medical records.
THE COURT: Medical records, but --
MS. CRAVEIRO: For this -- for this infant, that she confirmed that was for this infant that she reviewed to plot some of the points. To plot the additional points that aren't mentioned in her report.
THE COURT: Well, I'll let it stand on the testimony that she provided with regards to --
MS. CRAVEIRO: Okay.
THE COURT: -- why she used those medical records with regards to points that she plotted for S-21, but I won't admit it into evidence because there is probably is more in there that's based on the actual

observation -- on the actual author's observations rather than hers.
MS. CRAVEIRO: Got you.
THE COURT: -- and conclusions rather than hers. So, there's no way of assessing the validity of what any of those extra conclusions would be without the author appearing to testify.
So, I'll let the testimony about how she used it with regards to the plot come in, but the record isn't coming in. So, let me have 21 here.
MS. CRAVEIRO: This one.
THE COURT: Doctor, can I ask you just to -- just to clarify, because I want to -- I want to -- yeah, no, just leave them right there.
These diagnoses that you make to conclude Abusive Head Trauma, you used the word probabilities. Is that really all they're pretty much based on? An elimination of all factors, and what's left is a probable result?
THE WITNESS: Elimination of things that can account for the findings.
THE COURT: Okay. Okay. And you indicated that there was no test for -- I've been practicing this world. The bleeding in the eyes, petechial hemorrhaging?

THE WITNESS: Retinal hemorrhaging?
THE COURT: Retinal hemorrhaging.
THE WITNESS: Yes.
THE COURT: Retinal hemorrhaging. There's no way to test its source, its origin, or anything of that nature, right?
THE WITNESS: Um.
THE COURT: Or did I misunderstand your testimony?
THE WITNESS: Yeah. Retinal hemorrhages in the pattern described by Darryl has been associated in the medical literature with specific conditions and specific accidental events.
THE COURT: Okay.
THE WITNESS: None of which are present in this case. They have not been associated with subdural collections only.
THE COURT: Okay.
THE WITNESS: Or benign enlargement of the subarachnoid spaces.
THE COURT: So, in this instance, you haven't been able to test for what caused it with regards to Darryl?
THE WITNESS: I'm sorry, Your Honor?
THE COURT: In this case, you haven't been

able to determine what caused it in Darryl because there's no specific test for it, it's just based on circumstances?

THE WITNESS: So, the retinal hemorrhages, more consistent with inflicted injury. There's no specific test in terms of -- the test is to look at the fundus.

THE COURT: Right.

THE WITNESS: To look at the retina. Ophthalmologists and retinal specialists know what type of hemorrhages is associated with what medical condition.

THE COURT: Um-hum.

THE WITNESS: Both the retinal specialist in this case and the ophthalmologist documented consistency with inflicted head injury, Shaken Baby.

THE COURT: But the conclusion with regards to the -- And I want to make sure I'm getting this right.

THE WITNESS: Yes.

THE COURT: Because I remember this -- this is stuff that I've been wanting to clarify, and I should have the last time you were here. The aspect of somebody confessing to causing the baby injury?

THE WITNESS: Yes.

THE COURT: In past cases, that -- is that what enables you to say once we've eliminated all of these other options, this is something that is -- also exists, because we -- people have said, I shook the baby, and caused the blood. That's what it leads you to think? That in those cases, because you've eliminated everything else, that this was the cause?

THE WITNESS: Yes, Your Honor, because in those cases of confession, these are the injuries that you see.

THE COURT: Okay.

THE WITNESS: And they have been documented medically.

THE COURT: Okay. Well, with or without that confession --

THE WITNESS: Yes.

THE COURT: -- if you go through the same process of elimination, you still come to the conclusion with regards to the -- what I -- laymen's terms, bleeding in the eyes? You still come to the same conclusion that there was some outside force responsible for it?

THE WITNESS: So, again, retinal hemorrhages.

THE COURT: Um-hum.

THE WITNESS: Regardless of the confession

part, okay? Has been seen in cases of intercranial injury --

THE COURT: All right.

THE WITNESS: And other things like bone fractures.

THE COURT: Okay.

THE WITNESS: Kids that die, internal organs, kids that have bruises. There is a big literature that documents all these other injuries that are clearly traumatic and when not an accident is in question, inflicted.

THE COURT: Right.

THE WITNESS: All right? Those are the retinal hemorrhages that are seen, that pattern. Ophthalmologists know that, it's been published all over the literature. Retinal specialists know that.

When the cases of confession came, which is 2004 and 2010, those are the three big cases that we have, that just added confirmatory medical evidence that yes, that pattern is seen, and this is what the people have described that they do. Fifty-five percent shake alone, the other percentage shake with an impact. But without the confession cases, retinal hemorrhages is in this pattern specifically, because retinal hemorrhages happen, just not in this pattern. They

have been associated with cases with no confession but the kids have other injuries that clearly state that the kid has suffered some trauma.

THE COURT: True. Okay.

THE WITNESS: And assaulted.

THE COURT: I get that.

THE WITNESS: So, even without confessions, we know that this pattern is found in those cases where there is broken bones, bruises, internal organ injury, and then we have the cases where none of those extra findings are, just subdurals and retinal hemorrhages, but you have a confession. So, it is the same pattern that is seen.

And again, ophthalmologists and retinal specialists are the subspecialty of medicine that deals with the eye and the vitreoretinal traction theory is what is felt to be the cause of the retinal hemorrhages, because they happen at the site of attachment of the vitreous, the jelly-like, against the retina.

THE COURT: Okay. And you will still come to that conclusion, that there is an outside cause, when you -- in a situation where you would only have subdural hemorrhages and retinal hemorrhages?

THE WITNESS: There has to be --

THE COURT: By process of elimination. No confession. No other physical injury on the baby. Nothing else.
THE WITNESS: In this pattern?
THE COURT: Forget this pattern. In the pattern of you have a baby, subdural hemorrhages, retinal hemorrhages, baby's a preemie, and the -- you would still -- and you eliminate all other possibilities. You would still lean towards somebody having caused this damage to this baby?
THE WITNESS: No, Judge.
THE COURT: Okay.
THE WITNESS: If the hemorrhages are not like that, no. Because increased intercranial pressure can give you hemorrhages.
THE COURT: Okay.
MS. CRAVEIRO: Judge, can I just have --
THE WITNESS: (Indiscernible).
THE COURT: Okay. All right. See, that's what I'm trying to get.
THE WITNESS: Yes.
THE COURT: There's a whole -- there was a whole bunch of discussion, a whole bunch of testimony that I'm going to go through about all the causes of everything, okay? And we're -- clearly, we can agree

that we're talking about possibilities, or probabilities.
THE WITNESS: Yes.
THE COURT: Not anything certainty, okay? And you reached these probabilities and possibilities by way of process of elimination.
THE WITNESS: And what's been documented in the literature.
THE COURT: I mean, even the literature reaches all conclusions by way of process of elimination, right? Based on testing done?
THE WITNESS: Based on what is seen with accidents and not.
THE COURT: Okay. Okay.
THE WITNESS: Yes.
THE COURT: And who -- what people confess to, right?
THE WITNESS: Yes.
THE COURT: Okay. And --
MS. CRAVEIRO: Judge, can I just ask one question that I think could clarify?
THE COURT: Sure.
BY MS. CRAVEIRO:
Q When you say pattern of retinal hemorrhages that are associated with Abusive Head Trauma, what do

you mean?
A It has to be all layers of the retina extended to the front of the retina, meaning not just in the back of the eye, around the optic nerve. Those are very non-specific hemorrhages, and when they're just in one layer, they don't mean anything because they can be caused by falls, by intercranial pressure, by other conditions.
But the pattern that he has, the boy, Darryl, has, is very specific to the circumstances that is found. Either severe disease, severe accidents, or inflicted injury.
THE COURT: Okay.
THE WITNESS: So, the pattern matters. You -- we can't make a diagnosis just because there is one retinal hemorrhage. That would not --
THE COURT: So, in this case, you have three possible causes based on the patterns, one of which includes inflicted injury?
THE WITNESS: Yes.
THE COURT: But the other two which don't?
THE WITNESS: What you -- I'm sorry, Your Honor. I am not --
THE COURT: You just gave me three things that could have caused -- that you just spoke about,

one of which was inflicted injury.
THE WITNESS: Yes.
THE COURT: Okay? I have to go to the record to get the exact wording that you indicated.
THE WITNESS: Yes.
THE COURT: But when I listened to you list these three things for this pattern in this case, only one of them was inflicted injury.
THE WITNESS: Yes.
THE COURT: Okay?
THE WITNESS: Yeah.
THE COURT: And you're not -- when you say inflicted injury, are you saying that someone, not the baby, inflicted this injury on the baby?
THE WITNESS: I'm talking about a shaking event.
THE COURT: A shaking event?
THE WITNESS: Yes.
THE COURT: Okay. All right. Well, when you say a shaking event.
THE WITNESS: Um-hum?
THE COURT: Okay? You're suggesting that someone had to have shaken this baby?
THE WITNESS: Yes.
THE COURT: There's no circumstances that

would have explained this baby being shaken or anything like that? Unless -- other than someone grabbing the baby and shaking them, right?
THE WITNESS: Yeah, or an accident. Roll over and fall down the stairs.
THE COURT: Okay.
THE WITNESS: Yes.
THE COURT: Okay. Roll over, falling down the stairs. Is that also -- would that be part of the inflicted injury element?
THE WITNESS: No, that would be accidental trauma associated with this pattern.
THE COURT: Okay. But you gave me the three things that would have caused this injury, or this pattern, and those are the three probabilities that -- after you eliminated everything else?
THE WITNESS: Yes. Illness, accidents, and inflicted trauma.
THE COURT: Okay.
BY MS. CRAVEIRO:
Q Did you rule out accidents and inflicted -- and illness?
A Yes, that's a lot of categories.
Q Okay. And how did you rule those out?
A By the medical evaluations.

Q Okay. And when we're talking about the pattern of retinal hemorrhages that the infant had, what pattern are talking about?
A Multiple layers, hemorrhages that are too numerous to count, extending to the front of the retina.
Q Okay. And to be clear, those -- that pattern is only associated with shaking, accidents, or illnesses, correct?
A Yes.
Q And in this case, the accidents and illnesses were ruled out, correct?
A Yes.
Q Okay. So, and -- is that one of the reasons why your diagnosis is what it is in this case?
A (No audible answer)
Q I'm sorry, I didn't hear you?
A Yes.
Q Okay.
THE COURT: I spoke in terms of inflicted trauma. Ms. Craveiro spoke in terms of shaking. Is shaking the only way of inflicted trauma on a baby like this?
THE WITNESS: Shaking --
THE COURT: Because I interpreted inflict -- I interpreted inflicted trauma to have a much broader

definition than just shaking.
THE WITNESS: Of course.
THE COURT: Okay. So --
THE WITNESS: Yes.
THE COURT: -- inflicted trauma is the better term to use because it has a much broader definition?
THE WITNESS: Well, inflicted trauma encompasses shaking, impact, or a combination of the two. And crush injury.
THE COURT: Right, which you can't determine what the source of any of those were. So, that's why you have to document it medically in terms of inflicted trauma, rather than narrowing it down to this baby was shaken, this baby suffered a crushing event, or some other, right?
THE WITNESS: Yeah. He doesn't have any external signs of an impact.
THE COURT: Right. Okay. So again, the best you can do is say that there was some kind of inflicted trauma?
THE WITNESS: Yes.
THE COURT: Okay. Any cross?
MS. RUE: I don't, Judge. Thank you.
THE COURT: All right. Well, there's nothing else, Doctor. Thank you, very much.

THE WITNESS: Thank you.
THE COURT: Now, Doctor, you're going to be subject to recall, in case something comes up, I got to call you back.
THE WITNESS: Yes.
THE COURT: But we'll give you plenty of time for that, okay?
THE WITNESS: Thank you, Your Honor.
THE COURT: All right.
(Witness is dismissed)
THE COURT: Do you want to take five before the next witness?
MS. BIELAK: Yes, Judge. We did just receive these medical documents this morning, so I would like to give Dr. Scheller the chance to look at them. So, if we could take 10 or 15 minutes?
THE COURT: Well, are you going to get done with Dr. Scheller's testimony today?
MS. BIELAK: Probably not. Oh, well, no, no --
MS. RUE: Today? Yes.
MS. RUE: Today, with the afternoon, yes.
THE COURT: Oh, okay. All right. Well, there's also a lunch break, so don't feel like he has to rush and look over them now, because he --

MS. BIELAK: Right, but once he starts, that's fine. I can't talk to him about anything.
THE COURT: No, no, but at lunch time, you can -- you can give him the documents now, and say he can review these and at some points address those documents.
MS. BIELAK: If you want to take 10 minutes now, Judge, I'm sure he can --
THE COURT: I just don't want to rush the guy.
MS. BIELAK: Yeah. Thank you, Judge.
THE COURT: I'm sorry, assuming it's -- it's John, Joe, what's his name?
MS. RUE: Joseph, yes.
MS. BIELAK: Joseph.
THE COURT: Joseph, that's right. So, Doctor, thank you very much, I appreciate it.
DR. MEDINA: Thank you.
THE COURT: Give me a sticker for S -- S-20 on the graph, right? The head graph?
MS. CRAVEIRO: Um-hum. Yes, Judge.
THE COURT: All right.
MS. BIELAK: The other thing is, Judge, you know what we can do, probably before the lunch break? We'll get through everything up to the tech portion,

and then when we break, I can figure out how to do the tech --
THE COURT: Don't worry about it, just, you know, keep it going, and at 12:15, I just need a moment to prep for another meeting. So, that's fine. And then I'll ask you to come back. I'll give you some extra time to deal with -- so, the Doctor can still review this, so I'll give you until 2. But we're going to go from 2 to 4, okay?
MS. BIELAK: All right.
THE COURT: All right then.
MS. BIELAK: So, we're just going to take ten minutes right now?
THE COURT: Yeah, take ten now.
MS. BIELAK: Okay.
MS. RUE: Okay, great,
THE COURT: Take a bathroom break, and I know I need one.
MS. CRAVEIRO: Thank you.
MS. RUE: Thank you, Judge.
(Off the record from 11:23:01 a.m. to 11:42:06 a.m.)
MS. RUE: Dr. Scheller is just using the restroom.
THE COURT: Okay.
MS. RUE: He'll be here momentarily.

THE COURT: Counselor, give me again the correct spelling of your last name?
MS. RUE: R-u-e.
THE COURT: R-u-e, okay. Bielak.
(Counsel confer)
MS. RUE: And tomorrow, I believe I let the Court know. Dr. Mack will be testifying via Zoom, so I don't know if she needs an invite to do that, or?
THE COURT: Yeah, and we will -- Emily (phonetic), you hear that? We got to make sure the Doctor has an invite. We'll get her on no matter what.
MS. RUE: Okay.
THE COURT: But we'll send her an invite today to make -- just to make sure --
MS. RUE: I'll forward her email address now.
THE COURT: -- we got that covered.
MS. RUE: While we're sitting here.
(Pause)
(Court and Counsel discuss unrelated matter)
MS. BIELAK: Your Honor has to break at 12:15 you said?
THE COURT: Yeah, I got a meeting to go. So, we got to start, and that'll give your doctor more time to look at those reports.
MS. BIELAK: That's fine.

THE COURT: So.
(Pause)
MS. BIELAK: And Your Honor, I do have electronic copies of my exhibits that are stamped. So, I have the physical ones to use in court today.
THE COURT: Okay.
MS. BIELAK: But if the Court wants electronic ones, I have those as well.
THE COURT: Okay. Well, we'll just take copies. Well, when you -- if you admit them, just put them on the desk right there, and we'll take it from there. And I'll use the other ones in reserve.
MS. BIELAK: Dr. Scheller, would you come around and sit right there?
THE COURT: You got to stay over there. Only because I want to make sure nobody is -- Doctor, you can come on, have a seat.
UNIDENTIFIED SPEAKER: Sorry, I was just trying to show him where to go.
THE COURT: No, no, let the officers do that.
UNIDENTIFIED SPEAKER: Okay.
MS. BIELAK: So, Dr. Scheller, you can sit if you want.
THE COURT: We'll take it from here, Ms. -- appreciate it Ms. Bielak. Okay.

MS. BIELAK: Want to make sure everybody's comfortable, Judge.
THE COURT: All right. Yeah, but I got to run this show and social distancing and stuff, so.
MS. BIELAK: Yeah.
THE COURT: Doctor, how are you?
DR. SCHELLER: Great, no complaints.
THE COURT: All right. Doctor, I'm going to swear you in, and then we're going to begin with the testimony. I'm going to need you to speak loud into that microphone. I've even suggested to the other witnesses take it and use it like you're a game show host or a singer, and karaoke. Keep it to your mouth, we've got to make sure we cover everything -- everything you say.
Also, I give you the option of testifying with or without the mask. Whatever -- I'm trying to get your voice recorded. So, if you feel comfortable pulling it down, great.
DR. SCHELLER: Yes, sir. I'm fine with that.
THE COURT: All right, then. So, let me start by asking you.
J O S E P H S C H E L L E R, DEFENSE WITNESS, SWORN
THE COURT: All right. Doctor, what I'm going to ask you to do is just state your name for the

record and spell your last name so we have it correctly.
DR. SCHELLER: Joseph Scheller, S-c-h-e-l-l-e-r.
THE COURT: E-l-l-e-r. Okay.
MS. BIELAK: And --
THE COURT: Have a seat, Doctor. Make yourself comfortable. All right.
MS. BIELAK: The microphone was held by Dr. Medina, do you -- oh, well, she wasn't holding it like that.
MS. RUE: Yeah, I just didn't know if you wanted a hand sanitize it first.
THE COURT: She held it by the base.
(Court discusses unrelated matter)
THE COURT: Doctor, I'm going to give you this Lysol thing if you'd like to wipe it down, if you don't mind. And then there's hand sanitizer right there. Are you serious? Not in there?
(Court and personnel confer)
MS. RUE: We have some here.
(Court discusses unrelated matter)
THE COURT: All right. Ms. Bielak, your witness.
MS. BIELAK: Thank you, Judge.

VOIR DIRE EXAMINATION BY MS. BIELAK:
Q Dr. Scheller, are you ready?
A Yes, ma'am.
Q Okay. If you can't hear me, or I get muffled because of the mask, just let me know, okay?
A Okay.
Q Dr. Scheller, what kind of medicine do you practice right now?
A Pediatric and adult neurology.
Q Do you have a specialty?
A I'm a neurologist -- I'm a -- first, I was a pediatrician, and then I became a neurologist, and then a specialist in pediatric neurology, but you can practice both.
Q What is a pediatric neurologist?
A It's a specialist that's both a specialty of pediatrics and a specialty of neurology. So, it's dealing with children from the day of birth until college age who have any kind of problem of development or problem of the brain, problem of the spinal cord, problem of the nerves or muscles. That could be something as serious as a brain tumor. It could be something as minor as headaches or back pain.
THE COURT: Doctor, can you give me one second? Can you give me one second? A little bit of

an emergency came up real quick.
(Off the record from 11:48:35 a.m. to 11:51:58 a.m.)
COURT OFFICER: Remain seated.
THE COURT: Okay, sorry. Dr. Scheller, you're still under oath obviously, and so let's see what happens from here, okay? Ms. Bielak?
MS. BIELAK: Thank you, Judge.
THE COURT: You got it.
BY MS. BIELAK:
Q All right, Dr. Scheller. Where are you employed now?
A I work in my own practice, private practice.
Q And what do you do there?
A Two days a week I see adults and children with any kind of neurological problem that might come into the outpatient, and then three days a week I do medical-legal work.
Q Before you had your own practice, where did you work?
A Mostly at university and children's hospitals, and that was for about 25 years. And then I did two years at a big community hospital where I trained in neuroimaging.
Q Was that time spent in pediatric neurology as well?

A No, I was just reading CAT scans and MRI scans of people of all ages that would come into this large community hospital, and I was being mentored so that I could earn my certificate in neuroimaging.
Q So, how long have you been working in pediatric neurology total?
A Since 1987, so that's 33 years.
Q All right. Where did you go to undergrad, Dr. Scheller?
A Johns Hopkins and Baltimore.
Q And where did you go to medical school?
A University of Illinois in Chicago.
Q Where did you do your residency?
A My pediatrician residency I did in Detroit at the Children's Hospital, and then I did a neurology residency following that. They call it a fellowship because it's after the residency, and I did that in San Diego at the University Hospital.
Q Can you explain what you do for residency?
A Basically your diagnosing and treating patients under the auspices of a mentor. So, there are a lot of experienced pediatricians in a children's hospital, or neurologists in a big, general hospital, and they're supervising everything you do, telling you when you're getting it right, what you're getting wrong, and what

you need to bone up on, learn about. And it's usually a few years, and then when you finish, then you're eligible to take an exam to be certified.
Q And you mentioned a fellowship being something similar. What's a fellowship?
A So, a fellowship is considered a subspecialty. So, for example, in another sense, if I could say I was a cardiologist, getting extra training in cardiology, and then you also learned how to do the catheterizations.
Q Um-hum.
A Where you put the little tube in, and squirt the dye, and get to see what the blood vessels look like around the heart. So, that would be cardiology, and then a fellowship in cardiac catheterization.
So, the same is true. Once you do pediatrics, and you're a pediatrician, then you can get extra training. So then, I became a pediatric neurologist, that was called a fellowship.
Q And how many years was the residency and then the fellowship?
A The pediatric training was two years, and the fellowship was three years after that, a total of five years.
Q Okay. And where -- what states are you

licensed to practice medicine?
A Maryland, D.C., and New Jersey.
Q How long have you been licensed to practice medicine?
A It would have been from the day I graduated medical school, which was 1982.
Q What are you board certified to practice?
A I'm board certified as a pediatrician. That's lifetime when I took the test, and then they changed the rules after that. And then I'm board certified as a neurologist with special competence in pediatric neurology, and that's also lifetime. And now I'm board certified in neuroimaging, which is a specialty within neurology, and that's good for ten years, so that will come up for retest in 2025.
Q How, specifically, do you get a neuro imaging certification?
A So, you have to -- there's only several programs around the country. They're all run by neurologists who are considered the top in their field as far as reviewing CAT scans and MRI scans. And so, we work under their supervision as their mentor, and then once you've trained under them, then you're eligible to take the exam. You take the exam, and then you can get certified, again, as a neurologic -- neurologic

subspecialist in neuroimaging.
Q Okay. Let's talk about neuroimaging. What's neuroimaging?
A So, it's a specialty within neurology, and neurologists are supposed to know a lot about any type of brain disease. Strokes, Parkinson's Disease, Epilepsy, Alzheimer's, but in any one of those, you can specialize, and say, well, I'm a Parkinson's expert, or I'm an Alzheimer's expert. And so, one of those areas of specialization now is expert in -- expertise in brain and spine imaging, what they call neuroimaging.
Q And what can you do as a doctor who is certified in neuroimaging?
A You're qualified to read CAT Scans and MRI scans of the brain and spinal cord and to assess what they mean as far as a patient's symptoms and their diagnosis and treatment.
Q Okay. What's the difference between neuroradiology and neuroimaging?
A Neuroradiology is a specialty within radiology. Radiologists are very, very valuable, but they only do one-fourth of what a regular doctor does. A regular doctor will get the medical history from a patient, why are you here, get all of the details. What are you allergic to, have you ever been in the hospital before?

The regular doctor will do the physical exam and see oh, your liver's too big, you've got this rash, your lungs don't sound good. A regular doctor will order and review other tests, like blood tests, urine tests, EKG, that kind of thing, and then the regular doctor will often order a radiologic test, an x-ray, CAT scan, MRI, ultrasound.

So, a radiologist is a specialist in one-fourth of that. That one -- that radiological part. They very rarely actually meet the patient, do the history, do the physical exam, order the test. So, a neurologist -- so, a neuroradiologist is somebody who can tell you everything you want to know about what a CAT scan or an MRI of the brain or spinal cord shows, but they can't put it into context as to how that fits in with the history, the physical exam, and the other laboratory test.

Q Um-hum.

A Because they're usually not aware of those. A neurologist is basically interested in all of those things. What did I learn from the history? What did I learn from the physical exam? What did I learn from the lab tests? And what did I learn from the imaging?

Q Thank you. All right, so as a neurologist with a subspecialty in neuroimaging, are you able to

read different scans of the body?

A So, it's brain and spinal cord, and that would be ultrasounds, CAT scans, and MRI scans.

Q So, what is a CAT scan?

A A CAT scan is a very, very fancy x-ray. So, just like you could take an x-ray and get an idea of what the skull looks like, what the head looks like. If you use a whole array of x-rays and get them from different positions and with different strengths, then you can actually see the slices. You can create slices of the head and you can see the scalp, you can see the skull, and you can see the brain within.

Q Okay. And what is a -- well, are you able to read MRIs, you said?

A I read CAT scans and MRIs of the brain and spinal cord, yes.

Q So, what is an MRI?

A An MRI is another way to obtain slices of a body part, and in my case, that would be the brain and spinal cord, and that does not use x-rays at all. Rather, it uses radio waves and magnets.

Q Um-hum.

A So, radio waves are sent into a person's body. The magnets are able to figure out how the body reacted to that onslaught of radio waves, and then create an

image based on what the measured reaction was of the body's receiving those radio waves. And so, that's a completely different technique, but it accomplishes the same goal, let's look at slices within the body. A slice of the brain, a slice of the spinal cord, or other organs.

Q So, what's the difference between a CAT scan and an MRI?

A The MRI technology is so much better that we can see almost everything so much more clearly on an MRI. A CAT scan is a very good test initially, and then -- but if you really want to get detail and really understand what's going on, then you would do the MRI test. There are exceptions to that, but in general, a CAT scan sort of gives a general idea of what's going on. An MRI, a very, very detailed idea of what's going on.

The -- so, one might say why are people doing CAT scans at all? Why don't -- let's just go for the gold, and get the MRI. A CAT scan is super fast. You can be in and out of there in five minutes. An MRI scan is usually an hour. And so, when you have somebody in the emergency room or you just have a lot of patients that need to be looked at, then you're going to get the CAT scan first.

Q Dr. Scheller, as a pediatric neurologist with a neuroimaging subspecialty, what issues or symptoms can be present in a child that you would then be consulted on?

A Wow. Almost anything that involves a child's development or concerns about their brain or spinal cord. So, that would include strokes, it would include Epilepsy, it would include a head growing too slow. That might happen in Down Syndrome or Fetal Alcohol Syndrome. It might be a head growing too fast, where perhaps there's too much fluid accumulating inside the skull.

It could certainly be brain tumors, certainly injuries. So, a child falls off the playground at school, hits her head, certainly there would be a CAT scan or an MRI scan to assess has there been any injury, and then anything in the spinal cord. So, that could be car accidents, it could be infections like meningitis, encephalitis, it could be tumors.

So, any time you suspect that there is a pathology, there is something bad happening to the brain or the spinal cord, you're almost always going to want to do a CAT scan or an MRI scan in this era.

Q What about just any neurological episode like a seizure or losing consciousness, would you be

consulted on those types of things?
A Absolutely. The number one thing that pediatric neurologists do from all of the work that they do is evaluate -- diagnose and treat infants, and children, and teenagers who are having seizures.
THE COURT: What was that last word, Doctor? Seizures?
THE WITNESS: Seizures.
THE COURT: Okay.
BY MS. BIELAK:
Q All right, Doctor. I want to ask you a little bit about eyes. Is a retinal exam a standard part of a neurological examination?
A Yes, ma'am.
Q And why is that?
A The -- in the fetal life, the eye is actually part of the brain. And then as the baby develops as a fetus and then gets ready to come out, the eye moves away from the brain and is a separate organ. But we are trained as neurologists that if you're suspecting a problem in the brain, always look in the eye, because it may give you a clue as to what's going on in the brain because of that embryonic connection.
Q Have you diagnosed retinal hemorrhages before in children who had neurological issues?

A Yes.
Q What's the difference between an eye exam that you would perform as a neurologist versus one that an ophthalmologist would perform?
A My ophthalmoscope, the scope that I use to shine the light into the eye and look is -- an ophthalmologist would call that old-fashioned or rudimentary. They have a very, very fancy one, much more expensive, more fancy. And they, because they have the fancier scope, if we could imagine we're looking inside a tennis ball, that there's a little opening inside the tennis ball, which would be the pupil of the eye. So, they have the ability to look at the periphery.
In other words, if I'm looking, I can just see what that light is shining at towards the back of the eye. But I can't really see the edges, or the other parts of the inside of the eye. Ophthalmologists can because they're using this fancier equipment, can look at what we call the periphery of the back of the eye.
Q Is it -- otherwise it's the same type of exam, right?
A Yes, they can -- they can document things with more detail, and they can look at the periphery better.

But basically, we're looking at the same nerves and blood vessels of the back of the eye.

Q Dr. Scheller, when you do an eye exam, are you able to observe if there are multi-layered, severe retinal hemorrhages in a patient?

A Yes.

Q We'll come back to eyes a little later. All right, Dr. Scheller, are you a member of any groups related to pediatric neurology?

A There's a national -- actually an international group called the Child Neurology Society. So, it's child neurologists from the U.S., Canada, and many European and other countries. And so, I'm a member of that group.

Q Have you ever published any articles in scholarly journals?

A Yes, I have.

Q Do you remember a few off the top of your head?

A I've written about Epilepsy, Cerebral Palsy, migraine headaches, head injuries, retinal hemorrhages, and also imaging of problems that you might -- imaging problems that you might encounter in a neurology office.

Q Have you written about Abusive Head Trauma at

all?

A I have, yes.

Q And how -- what's the process of getting something published in a scholarly journal?

A Well, you have an idea of something that you think doctors really need to know about this. You send it to a journal. The journal then sends it to people like you who try to decide, we call those peers, is that worthwhile reading or not? Is it done in a valid way? And so, that's called peer review. If the peer reviewers say oh, we like this, we think it should be published, then it gets published. Otherwise, not.

Q Dr. Scheller, have you testified in court before?

A Yes, in New Jersey and other states.

Q Do you know how many times?

A A few hundred, at least.

Q And did you testify as a pediatric neurologist to your expertise in that field?

A That's the only thing I've testified about.

Q Have you testified about Abusive Head Trauma cases before?

A Yes.

Q Have you ever testified for the prosecution in an abusive head trauma case?

A No.
Q Why not?
A I've never been asked yet.
Q So, how -- so, then you normally testify for the defense, is that right?
A In every case so far, and that's been more than 200, I have only testified for the defense in a suspected Abusive Head Trauma case.
Q For suspected Abusive Head Trauma cases, how does that case, a legal case, come to you?
A Almost always from a defense attorney, and so the defense attorney will email me or call me and say I understand that you know a lot about head trauma, will you review a file for me? I'll say yes often, and then they'll send me -- send me the file, and then I'll give an opinion about do I think I could support a defense position or not.
Q Do you take every suspected Abusive Head Trauma case sent to you by an attorney?
A I take them to review them --
Q Um-hum.
A -- and then sometimes I'll call them back or email and say I think I can help in the defense of this case, and other times I'll say I don't think I can help in the defense of this case.

Q Why are there times when you say you think you can't help?
A When there are so many injuries that are unexplained, that can only be explained by traumatic event or events. And when I say traumatic, I mean abusive traumatic events -- event or events.
Q So, is -- from what I'm understanding from you, you're saying sometimes you reject cases, or you find child abuse in cases where defense attorneys reach out to you?
A That's right.
Q Would you be able to give us an example of a time that that's happened without giving names or identifying information?
A Oh, sure. There was a child who had burn marks as well as, I guess you'd call them electrical cord marks from what people call a whipping or a whooping. That might happen from a whipping or whooping. The child had broken bones that were new and old. The child had a lot of bruises, and then plus the child had brain injury.
And so, in that case -- I can't say -- every case is different, but in that specific case, I wrote back to the defense attorney and said I cannot think of an accidental or a natural disease way that this child

accumulated all these injuries, so I can't help you.
Q Dr. Scheller, is all the information we just reviewed contained on your CV?
A Yes.
Q Would you recognize a copy of that if I showed it to you?
A Yes.
MS. BIELAK: Defense, may I approach the witness -- Judge, I'm sorry, may I approach the witness?
THE COURT: Sure.
BY MS. BIELAK:
Q All right. I'm approaching with what's been marked for identification as D-1. Dr. Scheller, just take a look at that. What is that document I just handed you?
A A curriculum vitae.
Q Is that yours?
A Yes.
Q Is it -- does it look complete?
A Yes, it does.
MS. BIELAK: Your Honor, at this time, Defense moves D-1 into evidence.
MS. CRAVEIRO: No objection.
THE COURT: So moved.

(Exhibit D-1 entered into evidence)
MS. BIELAK: Okay. You can put that to the side, Dr. Scheller. Thank you. Judge, it is 12:10 and we'll be starting sort of a new area at this point. I don't know if you want to break now, or?
THE COURT: Are you finished qualifying this doctor as an expert, or?
MS. BIELAK: Oh, yes. I'm sorry, Judge. At this point, the Defense offers Dr. Scheller as an expert in pediatric neurology and neuroimaging.
THE COURT: Okay. Any objection, Ms. Craveiro? Neuroimaging.
MS. CRAVEIRO: Judge, I may have some voir dire, but if we're going to break, I'll review it.
THE COURT: Okay. I'll -- you know what? Let's come back, we'll do your questions, and then, you know, if you're satisfied, or if I'm satisfied, then I'll qualify you, Doctor, as an expert in pediatric neurologist and -- neurology and neuroimaging. We'll take it from there.
MS. BIELAK: Okay.
THE COURT: Okay? Now, Doctor, just so everybody's clear. There was a report that was provided today by the State -- Defense --
MS. CRAVEIRO: Judge, just for the record,

the medical records were actually emailed to Defense Counsel last night. The only thing that was --

THE COURT: Last night?

MS. CRAVEIRO: Yes. Yesterday, around 6:00 p.m., when I -- if I'm -- I'm missing medical records, so I'm not sure if Defense Counsel --

THE COURT: Okay.

MS. CRAVEIRO: -- already had copies of them, so it was done in an abundance of caution. The only thing that was done this morning was what Dr. Medina prepared, being that head circumference chart.

THE COURT: Sure. And whatever you have, exchange it with each other.

MS. CRAVEIRO: Yes.

THE COURT: And if there's an issue, let me know.

Doctor, all I wanted to tell you is that there are apparently some new records that have been obtained by Defense, as early as maybe last night, if not today, that they wanted to submit to you. My instruction to you over the break is don't have any discussions with the State about the case, or anything like that. You're still under oath, and when you come back, we'll continue with your testimony, except that I want you to have these records to review, and to the

extent that you can, prepare, within the next, you know, we'll come back at 2:00 to see if you can testify to them. If not, we'll just take the time that we need for you to be able to do that. Okay?

DR. SCHELLER: I should be able to look at them over the lunch break.

THE COURT: Not a problem. There's no pressure. There's no pressure. Now, we'll give you an extra, you know, 15 minutes to get it done, 20 minutes. We'll come back at 2, everybody here at 2:00. I'm going to be here, and we'll get rolling.

MS. RUE: 2:00? Okay.

DR. SCHELLER: Thank you.

THE COURT: Okay.

MS. BIELAK: Thank you, Judge.

THE COURT: All right, then.

(Off the record at 12:12:46 p.m.)

(On the record at 2:02:52 p.m.)

THE COURT: All right. So, let's go on the record, continue this hearing. Darryl Nieves, indictment 17-06-785, file 17839.

Dr. Sheller, you're still under oath from this morning. Welcome back.

THE WITNESS: Thank you.

THE COURT: All right. And Ms. Bielak, you

were engaged in your examination of Dr. Scheller.
MS. BIELAK: Yes, Judge. I had just tendered him as an expert in pediatric neurology and neuroimaging.
THE COURT: Any questions, Ms. --
MS. CRAVEIRO: I do.
THE COURT: Pediatric.
MS. CRAVEIRO: Okay.
VOIR DIRE EXAMINATION BY MS. CRAVEIRO:
Q Doctor, you mentioned that you're certified in pediatrics, correct?
A That's right.
Q You said it's a lifetime certification, correct?
A That's right.
Q And what that means is that you're not required to study any course materials or take any tests to maintain that certification; isn't that right?
A That's right.
Q And you don't have any subspecialties that are board certified in child abuse, correct?
A That's right.
Q You haven't taken any of the extra years of schooling that would be required to have that subspecialty, correct?

A That's right.
MS. CRAVEIRO: Judge, if no one objects, can I just take my mask off a little? It's fogging up my glasses.
THE COURT: Right. Yeah, sure. No problem.
MS. CRAVEIRO: Okay.
MS. BIELAK: I'll scoot over.
MS. CRAVEIRO: I'll move more to this side so we can keep the social distancing. Okay.
BY MS. CRAVEIRO:
Q Okay. And Doctor, because you haven't taken those extra courses, you're not a child abuse pediatrician; isn't that right?
A That's right.
Q You've never performed a forensic examination for child abuse, correct?
A That's right.
Q You've never sat on any child abuse response teams, correct?
A Correct.
Q You've never taught doctors about child abuse, correct?
A Well, I teach them about, I guess, mimics or neurological diseases or conditions that would mimic child abuse, but I don't specifically teach about child

abuse.
Q Okay. And how do you teach doctors other -- about what mimics that?
A For example, one of the big findings that makes one suspect child abuse --
Q I just mean, Doctor, where do you teach these other doctors?
A I -- at the hospitals I've worked at. I've worked at hospitals in D.C.; Winchester, Virginia; University of Maryland; and in Baltimore; and Universe -- Children's Hospital in San Diego.
Q Okay. But when you worked at those hospitals, that was quite some time ago, correct?
A The last time I worked in a hospital was 2014.
Q Okay. So, you, I would assume then, haven't taught anyone since 2014?
A I'm trying to remember if I've given lectures since that time, and I just -- it might be on my CV but I just don't recall.
Q Okay. And if it was on your CV, it would be listed as you giving lectures on this topic?
A Invited lectures, yes, ma'am.
Q Okay. And you've never actually taught any doctors about recognizing the characteristics of abusive head trauma, correct?

A Again, only the mimics part but not the characteristics of abusive head trauma.
Q Okay. And you don't qualify yourself as an expert in child abuse, correct?
A That's right, I don't.
Q And your current -- in your current practice, you said you see both children and adults, correct?
A With neurological problems. That's right.
Q Okay. And it's solely -- children that you see are solely involved with neurological problems, right?
A That's right.
Q You mentioned seizures, but you also see them mainly for epilepsy and headaches; is that right?
A Epilepsy and headache are two big ones, yes.
Q Okay. And that time frame that you see these children, it's only two days a week, right?
A That's right.
Q And you see children and adults both in those two days a week, correct?
A That's right.
Q And your current -- you have been in your current practice since 2012, correct?
A 2012 weekends and then 2014 full-time. From 2012 to 2014, I was doing the neuroimaging fellowship in

Winchester Hospital during the week.
Q Okay. And your practice -- you said you practice pediatrics, but your practice isn't in pediatrics. It's in pediatric neurology, correct?
A I do not officially practice pediatrics, though I have.
Q And you haven't officially practiced pediatrics since 1991, correct?
A I have said that many times in trial, but it's not really --
Q You have not officially practiced --
THE COURT: Whoa, whoa, whoa, wait a minute. Wait a minute. I'll say it once. I'm not going to say it again. And I've said it before in other trail -- in other hearings that you all have been in. You ask a question, you let the witness answer before you interrupt.
MS. CRAVEIRO: Sorry, Judge.
THE COURT: Okay? Don't worry about being sorry. Just listen to the instruction that I've given many times before and never let it happen again, okay?
MS. CRAVEIRO: That's fine.
THE COURT: So, Doctor, you want to finish that answer?
THE WITNESS: I do. I have said in trials

like this one that I have not practiced pediatrics as a pediatrician since 1991. That's not accurate. This summer, for example, I was camp pediatrician for two camps and that was via I guess you'd call it Zoom or mobile apps to help them at the camps diagnose COVID and other conditions, and I have done that previous summers at at least four or five occasions.
And so, I -- so, that is a true practice of pediatrics, but I wouldn't consider that my main practice. My main practice has been pediatric neurology and adult neurology.
BY MS. CRAVEIRO:
Q So, then what you're saying is that you lied in prior testimonies?
A That's one way to say it, yes.
Q And that's not listed on your curriculum vitae either; is that correct?
A It's not.
Q Okay. And your certification in child neurology is also a lifetime certification, correct?
A That's right.
Q And you've mentioned that board certification in neuroimaging that you have, correct?
A I'd mentioned it, yes, ma'am.
Q Okay. And that was from what year?

A I got certified in 2015.
Q Okay. And that certification isn't recognized or accredited by the American Board of Medical Specialties, right?
A That's right.
Q And it's not certified by the American Board of Medical Specialties either, correct?
A That's right.
Q And in fact, it was issued by the counsel of neurological subspecialties, correct?
A It's called UCNS, United Counsel for Neurologic Subspecialties; that's right.
Q Okay. And has that United Counsel for Neurological Subspecialties been accredited by the American Board of Subspecialties?
A I don't know.
Q Okay. And you mentioned your fellowship in neurology at Winchester, right?
A That was the fellowship in neuroimaging. Neurology was way back in the '80s in University Hospital in San Diego.
Q Okay. And that fellowship in neuroimaging, that wasn't accredited by the American Counsel of Graduate Medical Education either, right?
A That's right.

Q And you mentioned also spending some time in John (sic) Hopkins. When was that?
A I didn't mention that.
Q I thought I wrote down John (sic) Hopkins. Okay. So, you never spent time at John Hopkins?
A I've never worked there. I was an observer there for six months in 2000 -- perhaps -- 2014 perhaps or 2013.
Q Okay. You also -- you mentioned a -- that you worked at the Children's Hospital. When was that and what did you do?
A I was a staff neurologist at Children's Hospital in Washington D.C. from 1997 to 2012.
Q Okay. And you also mentioned working in a large community hospital. Which hospital were you referring to then?
A That was where I was doing my fellowship at Winchester Hospital in Winchester, Virginia, a very large hospital.
Q In Winchester, Virginia?
A Yes, ma'am.
Q Okay. You're not a neurologist, right?
A I am a neurologist.
Q I mean -- I'm sorry, radiologist.
A I am not.

Q It's late in the day. You're not board certified in radiology?
A That's right.
Q You didn't undergo the five years of schooling that's required to become a radiologist?
A Correct.
Q You're not an ophthalmologist, correct?
A Correct.
Q You have no board certification in ophthalmology, correct?
A Correct.
Q You didn't go to the schooling to become an ophthalmologist, correct?
A Correct.
Q And you don't know -- and you aren't affiliated with any hospitals currently, correct?
A Right now, I am not working with any hospitals.
Q And you mentioned that you diagnose some retinal hemorrhages, correct?
A Part of a neurologist's job is to look for and diagnose retinal hemorrhages, and I've done that.
Q Okay. But you also mentioned that obviously ophthalmologists have a much broader scope that they can use to fine tune things, correct?
A To look for and to further detail the extent of

retinal hemorrhages, yes.
Q Okay. So, you can't -- when you say you diagnose retinal hemorrhages, you don't mean that you've actually diagnosed them in detail or anything of that nature, correct?
A I have diagnosed them in detail, but not with the detail of an ophthalmologist. They have better tools so that they can classify it in a much more specific way.
Q And that's also because they also have a lot more schooling, correct?
A It's -- I think it's more the tool -- I don't think so. I think it's more the tools than the schooling.
Q So, you're saying you've had the same amount of schooling in ophthalmology as an ophthalmologist.
A I did not say that. No, ma'am.
Q Okay. So, you are not an expert in ophthalmology in any sense of the word, correct?
A That's right.
Q And you're not an expert in radiology; is that correct?
A That's right.
Q And you also mentioned being part of societies, correct? You just mentioned the one.

A (Indiscernible) Neurology Society, yes.
Q So, you're not a part of the American Academy of Neurology?
A I'm not.
Q And you're not a member of the American Academy of Pediatrics?
A I'm not.
Q Or the Academy of Radiology?
A I'm not.
MS. CRAVEIRO: Okay. Judge, at this time I would object to him being qualified. I don't object to him being qualified as a pediatric neurologist, because I think he has given -- I apologize, Judge -- given his schooling. However, the neuroimaging, he's not a radiologist. While he did say he did have a subspecialty, that subspecialty isn't board certified by the American Academy of Medicine. It's very limited, and I don't think that qualified him. I don't think it's sufficient to qualify him as an expert in neuroimaging.
THE COURT: You want to respond, Ms. Bielak?
MS. BIELAK: Sure, Judge. Dr. Scheller is qualified in neuroimaging because he has the certification that is available. He has the certification that you get for neuroimaging. So,

there's -- what the State's looking for is something that doesn't exist.
THE COURT: Doctor, put on the record, please, if you don't mind, specifically the act of engaging in neuroimaging. What is it?
THE WITNESS: So, when somebody has a neurological problem, they will often get a CAT scan or an MRI scan --
THE COURT: Uh-huh. Uh-huh.
THE WITNESS: -- of the brain or spinal cord.
THE COURT: Okay.
THE WITNESS: That is always done -- well, not always -- almost always done in a radiology department.
THE COURT: Uh-huh.
THE WITNESS: And is often read by radiologists but not always read by radiologists. It might be read by a neurosurgeon if, let's say, there's a tumor that needs to be taken out or a big blood clot that needs to be taken out, or it may be read by a neurologist.
A neurologist could be a regular neurologist who is reading that CAT scan or MRI scan, or it could be one with extra training in reading and interpreting CAT scans and MRI scans.

I did that extra training so I'm certified for -- by a group within neurology, esteemed neurologists, to say --
THE COURT: Uh-huh.
THE WITNESS: -- you've done that extra training in CAT scans and MRIs and you're qualified to read and interpret them. That's not saying that a radiologist is not. That's just saying as a neurologist I also am.
THE COURT: Okay. Anybody, any follow-up questions based on that?
BY MS. CRAVEIRO:
Q What training was required to undergo that, to get that certification?
A I had to read CAT scans and MRI scans at the Winchester Hospital for two years under the mentorship of very high-level neurologists who control the neuroimaging in that hospital.
Q And were there any radiologist that you shadowed?
A There were radiologists as well, but it was mostly neurologists and neurosurgeons who controlled the CAT scan and the MRI scan there.
Q And were there any courses that you had to undergo?

A It was courses liked you are doing when you're a -- - when you're a resident. You are being trained by mentors. They are giving you assignments. You do them and then you do the work. You present your work to them and then they decide is this adequate work or not. And then at the end of that period they give you a board exam, and that -- if you pass the board exam, then you're certified.
MS. CRAVEIRO: Judge, I'll submit. I --
THE COURT: Okay. No objection?
MS. CRAVEIRO: Still --
THE COURT: Doctor?
MS. CRAVEIRO: Well, I apologize, Judge. I -- - my objection stands. I'll submit for Your Honor as far as it goes for whatever the rest of the questioning was.
THE COURT: Okay.
MS. CRAVEIRO: I don't think that even that qualifies him in that sub -- as an expert in that subspecialty, especially given that he also testified that he's not an expert in radiology and radiologists are the ones who predominantly look at these scans and imaging.
THE COURT: Is that the -- but they're not the only ones who do, right? Here's what I'm going to

do. Doctor, I'm going to qualify you in the field of pediatric neurology and neuroimaging. Based on what you've indicated, and again reestablished in your testimony, you have the requisite training, education, and experience to be able to testify as an expert in both fields, medical diagnoses, how you go about examining things, etcetera, okay?

Clearly, I know the issue is with regard to neuroimaging. Their believe is that radiologists primarily do that. You're not -- you don't hold yourself out as a radiologist, but you indicated that your training and experience within the field of neurology by experts who are neurologists, that is a component of your life in neurology, that you have to be able to be trained to engage in neuroimaging and managing and seeing these scans and being trained to take them and read them.

So, I'm going to find that that's sufficient enough to be able to allow you to qualify as an expert in both fields and allow you to testify with regard to opinions that are sought from you in this regard, okay?

All right. Ms. Bielak?

MS. BIELAK: Thank you, Your Honor.

DIRECT EXAMINATION BY MS. BIELAK:

Q Okay, Dr. Scheller. How long have you been

involved with studying and reviewing shaken baby syndrome or abusive head trauma?

A About 20 years.

Q Are you aware of the modern debate about abusive head trauma?

A Yes, I am.

Q Are you aware of the historical development of abusive head trauma?

A Yes, I am.

Q All right. Let's talk first about abusive head trauma now in 2020. Who diagnoses abusive head trauma?

A Child abuse experts like Dr. Medina.

Q And how --

A There's about 350 of them in the United States.

Q How do they diagnose abusive head trauma?

A They are -- they have a suspicion aroused by a referring doctor. Often it's a pediatrician.

MS. CRAVEIRO: I'm going to object, because he said he's never actually conducted one of these forensic examinations, so I believe that's speculation.

THE COURT: Well, it calls -- your objection calls for speculation. Do you want to reestablish the foundation to see how he --

MS. BIELAK: I think that the foundation --

THE COURT: -- can answer that question?
MS. BIELAK: I can ask a few more questions, Judge, if it --
THE COURT: Okay, more foundational questions.
BY MS. BIELAK:
Q Dr. Scheller, do you know how ped -- how abusive head trauma is diagnosed?
A Yes.
Q How do you know that?
A I know that because I've worked at children's hospitals for more than 25 years where there are child abuse specialists and they are called to consult on patients by other doctors in the hospital, like I was.
Q All right. So, you were asked -- I asked you how do the child abuse specialists diagnose abusive head trauma?
A So, they diagnose it based on their findings of a constellation of symptoms that have no other explanation. I'm sorry, symptoms and findings that have no other explanation. So, for example, if there's a skull fracture, a broken bone in the skull, and nobody has an explanation for it, a child abuse doctor might diagnose abusive head trauma. A parent, caregiver, babysitter, how did it happen? We don't

know. Okay, well, then that might be enough to diagnose abusive head trauma. So, child abuse doctors rely on this constellation of symptoms rather than on one specific symptom or finding.
Q And how is the public educated on shaken baby syndrome and abusive head trauma?
A There are websites that address it. It's in the -- it's in the American Academy of Pediatrics website. It's in the CDC website. There's a website devoted to it called "dontshake.org." And then in the many states in the United States, women who have babies are required by law to watch videos about what to do when a child is upset and how not to shake a baby, because shaking can cause a tremendous amount of harm.
Q And what does that do to public perception for doctors who are critical of shaken baby syndrome/abusive head trauma?
A It's like arguing against a given like apple pie or, you know, the family unit or something like that. It's something that has become so basic in the thoughts of American parents that it's a kind of thing that, well, you're arguing with something everybody already knows already.
Q Doctor, do medical understandings sometimes change over time?

A Absolutely.
Q Do you have an exam -- or how often do medical understandings or scientific understandings change?
A I think every couple of years something very dramatic is learned about a very common disease that we had no idea we didn't understand that before.
Q Do you have an example?
A When I finished medical school in 1982, I was absolutely sure that people got ulcers because of stress. Later on in the 1980s, a doctor in Australia who was a stomach specialist thought that perhaps it was caused by a bacterium, and he wrote a paper about it.

That paper was ridiculed by all the other doctors and -- but for -- he pursued that interest and in the mid-1990s he began to change medical thought, and everybody -- and convince other doctors that, no, ulcers are not caused by stress. Ulcers are caused by a bacteria.

In 2005, he won the Nobel Prize in medicine for having convinced the medical public in an accurate way that there's a bacteria that causes ulcers, not stress, but until he came along, I was sure that if a patient came to me with an ulcer, it was because of

stress and not because of a bacteria.
Q All right. Let's talk about the history of shaken baby syndrome/abusive head trauma. When was shaking as a mechanism for abuse first proposed in the medical literature?
A Around 1971. The neurosurgeon in England proposed it, Dr. Guthkelch.

MS. CRAVEIRO: Judge, at this point, again, I'm going to object because this is outside the scope of his expertise. And --

THE COURT: Ms. Bielak, I qualified in him in the field of pediatric neurology and neuroimaging and now you're asking him about history. So, how do you tie in the two?

MS. BIELAK: Your Honor, I did ask him before if he was aware of the history of the development of shaken baby syndrome/abusive head trauma. He said yes, and he's been involved in reviewing and studying these cases for decades. I forget the exact number of years he mentioned before. So, he does know the history. The history is relevant to the current science, Judge, and his conclusions today.

THE COURT: I'm not -- I'm not suggesting that it's not. What I'm suggesting is that if he's qualified as an expert in one -- neurology and

neuroimaging --
MS. BIELAK: Uh-huh.
THE COURT: -- that doesn't mean he's qualified as a -- as an expert in the history of shaken baby syndrome. So, I don't know where -- and it sounds like Ms. Craveiro is objecting because she doesn't know where the basis for his information is coming from.
Did he read 100 articles about it before coming to court and research the history? Did he look at the World Book Encyclopedia? Or as a result of his medical instruction over the years, whatever certifications he's gone for, you know, professional journals, working with other doctors on certain cases he's come to understand how shaken baby has evolved?
We don't know. So, I think we'll probably need to get a little bit more foundation along those lines. I'm not saying he doesn't know, but we need to know exactly how he knows.
MS. BIELAK: Absolutely, Judge. I'll lay the foundation.
BY MS. BIELAK:
Q Dr. Scheller, are you aware of the history of shaken baby syndrome/abusive head trauma?
A Yes, I am.
Q How are you aware of that?

A They -- in 1971, a neurosurgeon -- I'm a neurologist, and neurologists and neurosurgeons often work hand-in-hand. I did for 25 years of my practice. A neurosurgeon was faced with a problem. He was faced with a group of infants who were in the first few months of life who had a subdural hematoma. A subdural hematoma is a blood clot in between the brain and the inside of the skull.
That neurosurgeon, like all neurosurgeons and neurologists, knew that a subdural hematoma comes from an impact injury to the head. If a 10-year-old is falling off his bicycle and not wearing a helmet, he might get a subdural hematoma. If a 9-year-old falls in her kitchen and whacks her head on the floor, she might get a subdural hematoma, and anywhere in between.
So, this neurosurgeon had the question, how did these infants suffer a subdural hematoma if they're not active enough? They're still little. They can't get into trouble and fall down the stairs, and they don't have any evidence that they've been -- had -- suffered an impact, whether accidental or any type of impact.
He asked that question, and he proposed perhaps you can get a subdural hematoma from violent shaking. So, if a parent lose -- or a caregiver loses

his temper and violently shakes a 2 or 4 or 6-month-old baby, perhaps that in addition to an impact injury, which everybody knows can cause a subdural hematoma, perhaps even violently shaking can cause an acute subdural hematoma. So, that's what he suggested in 1971.

Q And was shaking recognized as a valid mechanism of abuse before that?

A No.

Q Or --

MS. CRAVEIRO: Judge, he still didn't --

THE COURT: Sustained. Sustained.

MS. BIELAK: Okay. I (indiscernible).

BY MS. BIELAK:

Q Dr. Scheller, this history that we're talking about, how do you know it? Did you read the papers? Did you learn it from someone? How do you know the history?

A I actually knew the neurosurgeon --

Q What about --

A -- who described it in 1971, Dr. Guthkelch. He moved to the United States and I met him here.

Q And from 1971 on when it comes to the history of shaken baby syndrome, how do you know that?

A So, once Dr. Guthkelch opened the door for this

idea, another doctor, Dr. Caffey, C-A --

Q Dr. Scheller, I'm just going to just stop you real quick. Just -- how do you know these things? Did you read them? Did you learn them? How did you learn --

A Every pediatrician learns it and every neurologist -- well, every pediatric neurologist learns it. I'm sure the adult neurologists know it, too, but they're not faced with it, so they probably forget it. But every pediatrician learns about shaken baby syndrome. I did in the 1980s. And every neurologist -- every pediatric neurologist learns about it because it's a traumatic brain injury.

Q So, I'm sorry. You were saying from 1971. What happened after that?

A A few years later, approximately 1974, another prominent doctor who had recognized that sometimes children are abused and doctors miss it, don't pick up on the abuse, also agreed with that idea and presented several cases of what he thought was the shaken whiplash syndrome, children who are shaken so violently that not only did they suffer subdural hematomas but also neck injury from the whiplash, from the head bouncing back and forth. And so, he more -- even more so popularized the idea, and by the late 1970s, people

were taking it as a given.
Q And who was that second doctor?
A Dr. Caffey, C-A-F-F-E-Y.
Q Okay. Was shaking recognized as a valid mechanism of abuse 160 years ago?
A No, ma'am.
Q All right. So, you brought up through Caffey in the '70s. Do you know -- are you aware of the 1968 Ommaya monkey study?
A I am. He did several studies in the late '60s, early '70s that -- with monkeys. Yes, ma'am.
Q Are you aware of the whiplash study that he did?
A Yes, I am.
Q Okay. Can you describe what that study was?
A In those days, it was permitted to do these kinds of tests on monkeys, and so he would basically mimic a car accident where he had them in a -- in a chair that was moving very, very fast, and then they were impacted by the head and then they were knocked unconscious. And then he looked at their brains to see what exactly bad happened to their brains from this dramatic impact.
Q Were they impacted on the head or was the car just impacted that they were in?
A I didn't hear the second half of what you said.

Q Was -- were -- was their -- were their heads impacted or was the car they were in stopped short and they whiplashed?
A They actually were impacted on the head.
Q Did the whiplashed monkeys sustain the triad?
A Well, we didn't talk about what the triad is, and I'm happy to talk about it, but actually, they did not.
Q What symptoms did the monkeys get? I'm sorry, Doctor.
A So, the monkeys -- many of them did suffer whiplash injury. In other words, when they died and they looked at their necks, there was evidence of injury to the muscles and the ligaments in the neck. And then the other thing that they noticed, that there were symmetrical subdural hematomas that they could see just when they -- when they cut open the brains. They could see that there were small but definite subdural hematomas that they could document.
Q Do you recall how fast the cars were going in that study?
A About the equivalent of 30 miles an hour.
Q All right. So, you had mentioned Dr. John Caffey. How did Dr. Caffey identify shaking as dangerous for infants?
A He wrote this paper in the mid-1970s of children

that he believed were shaken because they had a number of injuries including subdural hematomas and retinal hemorrhages.

Again, he didn't have first -- he didn't see them being shaken. He suspected they were because they did not have evidence of this impact to the head, which as I explained before is the number one cause of an acute subdural hematoma. So, Dr. Caffey addressed the problem the same way. Retinal hemorrhages, subdural hemorrhages, no impact, must be that they were violently shaken.

Q Was Dr. Caffey's study reliable?

A It was published in the 1970s, but --

MS. CRAVEIRO: I'm going to object. How does he know whether or not it was reliable?

THE COURT: I think what she wants to ask you is how was that study received by the medical profession?

THE WITNESS: At the time it was received and accepted and it was later criticized.

THE COURT: You want to go from there?

BY MS. BIELAK:

Q And Doctor, what was that criticism?

A The criticism was that these children had all sorts of injuries and that he didn't really know

clearly what had happened to them. And so, he was drawing conclusions based on an assumption, but he didn't really know that that assumption was true.

Q In the -- when did this criticism come? Was that in the '70s, '80s, and '90s, or was it more recent?

A I'd say the '90s and in the early 2000s and since then.

Q And what did Caffey conclude was indicative of shaking trauma?

A So, he called it a triad, and the triad is a loss of consciousness or alteration of consciousness, a perfectly happy child becoming suddenly lethargic; an acute, subdural hematoma, which is a fresh blood clot between the brain and the inside of the skull; and retinal hemorrhages which are drops of blood on the lining of the eye which can be seen by an ophthalmologist or another doctor.

Q What happened once John Caffey proposed this theory of shaken baby or shaken whiplash syndrome in the pediatric community?

A It was sadly adopted with open arms and I was pediatric training in 1982 and I learned about it, and it was -- it was taught to me as if it was fact, and since that time, the 50 or 75,000 pediatricians in the

United States have been taught that that is just a known fact, if one violently shakes young infants, one can produce three characteristics: a loss of consciousness or alternation, a subdural hematoma, and retinal hemorrhages.

Q Now, Doctor, if you were there in the '70s when -- and someone asked you to try to prove that shaking alone can cause the triad, as you described, how would you try to prove it?

A I'd say there's only three ways to prove it, and I would still say that. Number one is to find an animal model that's legal to use that we can shake and try to produce those same findings.

Number two is produce a crash test dummy baby model that we could shake violently and at least measure the forces that are going on inside that baby's head and inside that baby's neck.

And way number three is find witnesses -- in this day and age that would be with video, in those day -- that day and age would be random people walking in and catching somebody in a violent act, find witnesses that have caught somebody violently shaking a baby, and then say, okay, oh my gosh, this is exactly what this violent person was doing and this is what the findings show. There's subdural hematoma, retinal hemorrhage,

and a loss of consciousness. And then that will confirm it.

So, one of those three would be the accepted method to confirming that this theory actually does happen to babies.

Q You mentioned animal models and crash test dummies.

A I did.

Q Are those biomechanical studies?

A Both are. One is more you're doing a lot of measuring, because in a -- in a crash test dummy you're measuring how much force is inside, how much force is outside, that kind of thing. In an animal model, you're more like, well, let's look what happens to the brain when we do something that causes a certain amount of force.

Q Generally speaking, what is a biomechanical study, when I say biomechanical?

A There are ways to measure forces -- how do we know if a seatbelt works? We take a crash test dummy that's an average person's size. You put that person into a car, real or otherwise, crash it into a wall, and then watch what happens exactly on impact. Where does that body go? Where is the stress? Where is the force? Where are bones being hit? Where are body parts being

hit?
So, that's a biomechanical model, and you can do that for any type of trauma or impact. Obviously, we can do it with football players. We can do it with other athletes who suffer stresses. And then we can do it with babies. That's -- again, that's how we would know if a car-seat is safe. You can't put a doll in it. You have to put a real model of a baby into a car-seat.
Q When was the first biomechanical study of shaking alone done?
A 1987.
Q And who did that?
A A neurosurgeon named Dr. Duhaime, D-U-H-I-M-E (sic).
Q By 1987, how long had pediatricians been diagnosing shaken baby syndrome?
A At least 7 years, possibly 10 years.
Q And what did Dr. Duhaime discovery in her study about shaking?
A In the model that she created, she could not create forces inside the crash test dummy head that were powerful enough to create a subdural hematoma.
Q Have there been more biomechanical studies since then?

A There have.
Q Have you read them?
A I have.
Q Have you -- have any of them been able to produce forces great enough to cause subdural hematoma?
A With shaking alone, they cannot create the amount of force that is thought to be needed to have -- to make a baby suffer a subdural hematoma.
Q Is there a biomechanical study that shows shaking cannot cause the triad?
A No.
Q And why not?
A You can't prove a negative. It's like trying to prove that a lawyer asking you questions is going to lead to a migraine headache. I mean, how can you prove that?
Q So, as of right now, what you're telling us is that as of right now, there's no biomechanical study that positively shows shaking can cause the subdural hematoma?
A More than 45 years after the idea was proposed, we haven't confirmed it with a crash test dummy baby.
Q Have we confirmed it with an animal model?
A And we have not confirmed it -- we are not permitted to us -- researchers are not permitted to use

monkeys anymore. With smaller animals like rats and piglets it has not been confirmed.

Q Dr. Scheller, why is it that there's a shaken baby syndrome but there's no shaken adult syndrome?

A We -- the average baby at birth is about seven pounds, and I think all of us can imagine in a fit of temper violently shaking a seven-pound object, living thing, and perhaps creating some harm. The average adult is 70 or 60 kg, 100-plus pounds, and I don't think anybody can imagine shaking an adult that violently and causing serious harm.

Q So, at what age is an infant too big, basically, for this?

A Well, it -- certainly it depends on the size of the person who is very, very upset. The -- if it's a -- someone who plays for the New York Giants or the New York Jets, in theory that person, if violent and if wanting to shake something, might be able to shake something 20 or 25 or even 30 pounds with a lot of force.

But somebody who is perhaps your size, and I will assume that the attorney, Ms. Bielak, is not an Olympic strength athlete, I would say once you get past 10 pounds, you're not going to be able to exert much force at all on any type of infant. So, it really

depends on who's being suspected of that violent shaking.

Q Dr. Scheller, do you know what happens when a regular, average, adult human shakes let's say a 6 -- less than a 6-month-old baby?

A I don't know what happens. I'm sure it's not a good thing, and I'm assuming you're asking about a violent shake.

Q Yes.

A I'm sure it's not a good thing, but I don't know for sure what happens.

Q Does anyone know for sure what happens?

A We have no reports of witnessed cases where we've seen subdural hematomas or retinal hemorrhages or neck injury, so I don't think anybody knows.

Q Dr. Scheller, is it true that shaken baby syndrome/abusive head trauma was widely accepted in the '70s, '80s, and '90s as a valid diagnosis?

A Well, they didn't use the term abusive head trauma back then, they just used shaken baby syndrome, but absolutely, it was taught and accepted from I'd say 19 -- late 1970s to 2000.

Q Is it still as widely accepted today in 2020 as it was back then?

A There's a lot more discussion and criticism and

analysis about the validity of that diagnosis.
Q And why is that? Why is that controversy happening?
A Because of the lack of this scientific data. For almost any other disease or medical problem, there's quite good scientific data, and for abusive head trauma/shaken baby syndrome, the scientific data is very sorely lacking.
Q Is there a growing controversy in the medical community about whether shaking alone can cause the triad?
A Yes, there is.
Q You mentioned before video recordings. Are there any video recorded cases of shake -- are there any cases of video recorded shaking?
A There's at least 20 that I am aware of, in other words caught by a nanny cam and either published in a newspaper, put out on YouTube, or something like that.
Q Are there any cases of third-party-verified shaking? And what I mean by that is a third-party witness observed someone else shaking the infant.
A Not that I'm aware of that have been reported in the literature, no.
Q Of the cases of the video-recorded shaking, how many of those children developed subdural

hematomas?
A None.
Q How many developed retinal hemorrhages?
A None.
Q How many developed seizures?
A None.
Q How many died?
A None.
Q Are there any objectively confirmed cases of shaking that resulted in the triad?
A Not as we stand -- sit here today in 2020.
Q Are there any in the world?
A I don't read foreign language literature -- medical literature, but everything that's translated into English, I have -- there is -- not that I'm aware of.
Q Dr. Scheller, what's the difference between a confession and a medical history?
A A medical -- so, a medical history is some piece of information freely given to me by a patient or caregiver of a patient when I say, why are you bringing this patient to the hospital or to the ER or the clinic. So, they provide a medical history that there's no -- there's no -- it's just -- it's just an open-ended, I'll say, relaxed atmosphere type of

question. Of course there's tension because somebody's very sick, but just tell me what happened, and they say it. That's what a medical history is.

Q Is that the same as a confession?

A In my view, no.

Q Why not?

A Well, I -- because I -- because I review these cases, I read confessions all the time, and the situation and the background of the confession is way different. There's a tremendous amount of pressure and coercion and inaccuracies that are -- that are presented at the time when I -- when I've read confessions.

Q Is a confession medical evidence?

A To me, it is not, though there are articles about confessions in the medical literature.

Q Why is it not medical evidence to you?

A Because a confession is something that a psychologist and a policeman and perhaps a judge has to understand, but doctors are only trained in obtaining medical history, not in obtaining medical confessions, so it's not something medical.

Q All right, Doctor. I want to move on to talking about circularity and circular reasoning. What is circular reasoning?

A Circular reasoning is the idea that you started with becomes the conclusion. And so, rather than concluding based on other facts, you're concluding based on an idea that you had to begin with.

Q Okay. Can you give an example of that?

A Tattoos. Sometimes I have to go into prison to evaluate patients who have neurological problems, and so, I know from going to prison that criminals have tattoos. So, if I see somebody on the street that has a tattoo, I'm going to assume he's a criminal, because I was in jail and so many people had tattoos. That's false. I'm not saying that it's true. But it's because of circular logic. Tattoos, I see them in an environment that's bad, and so let me assume that any time I see a tattoo in another environment that's also something bad.

Q Is circular reasoning good or bad to have in a science?

A It's not at all science, because science -- you have to take something that -- and imagine you know nothing about it, and then say, okay, I know nothing about it. What tells me that it's meaningful or what tells me that it's not meaningful or important?

Q So, is circular -- if something is -- has circular reasoning, is it reliable -- scientifically

reliable?
A It wouldn't be anything I would trust in a medical study.
Q Okay. Does shaken baby syndrome/abusive head trauma suffer from any circular reasoning problems?
A Absolutely.
Q And when I say shaken baby syndrome/abusive head trauma, to clarify, I mean the medical literature about shaken baby syndrome/abusive head trauma. Does that suffer from circular reasoning?
A Not my criticism, but the -- I would agree with the criticism that the vast majority of papers that draw conclusions about what we know about shaken baby syndrome/abusive head trauma, are tainted by circular reasoning.
Q How do you know that they are tainted by circular reasoning?
A When patients are recruited, let's say for retinal hemorrhages, so we find retinal hemorrhages in a patient and then we immediately start looking for other pieces of evidence of abuse, and then when we find them, we say, you see, retinal hemorrhages are associated with abuse.
Well, not necessarily. You -- it only triggered you to look, so why are you using the retinal

hemorrhages that started you off on the path to conclude that it is retinal hemorrhages that are important?
Really, to me, it would be the same as the tattoos. The tattoos convince me that there was something wrong with prisoners. Oh, so I meet somebody in the 7-Eleven with a tattoo, I'm going to make an assumption about them.
Q Are you familiar with the article by Matthieu Vinchon, confessive use -- "Confessed Abuse Versus Witnessed Accidents in Infants?"
A I am.
Q And what does that article conclude about retinal hemorrhages?
A That severe retinal hemorrhages are almost always -- I don't know if he uses almost always or always -- connected with -- with the -- with the assumption or the conclusion of abusive head trauma.
Q And does that study suffer from circular reasoning?
A Absolutely.
Q How?
A Again, he was hunting for patients -- a number of reasons, but the most important reason is because he looked for abuse in cases where he had found retinal

hemorrhages, and if you find the retinal hemorrhages, then you can't conclude that the retinal hemorrhages are important. So, again, he concluded based on what he started with rather than starting with an open mind, that perhaps anything could cause retinal hemorrhages.

Q Doctor, is this -- is this circular reasoning problem, particular for retinal hemorrhages, is this present in -- is this present in the retrospective studies about retinal hemorrhages when it comes to abusive head trauma?

A Absolutely.

Q All right. So, we're going to move on to diagnosing. Doctor, can you explain what a good diagnostic gold standard is for a disease?

A Sure. A gold standard is that if you did this test and this test -- or a number of tests and these tests prove positive, then you've made that diagnosis. In the world of COVID, you might say if you have the evidence of the virus in your nose and then a couple of months later you have evidence of the antibody, that would be the gold standard to prove that this person had COVID.

Q Is there a diagnostic gold standard for abusive head trauma?

A There is not.

Q Doctor, is abusive head trauma actually a diagnosis?

A It's an -- it's a question that's up for debate. Obviously, something like diabetes and high blood pressure or cardiac arrest, ulcerative colitis, these are all medical diagnoses. Abusive head trauma is much vaguer than that, and so there is a discussion about whether that is a medical diagnosis or not.

Q And who's having that discussion?

A Child abuse experts themselves.

Q Did that include the proponent Debelle and the other writers on the abusive head -- abusive head trauma and the triad article?

MS. CRAVEIRO: Judge, I believe that's leading. Objection.

MS. BIELAK: I can rephrase it, Judge.

THE COURT: Sustained.

MS. BIELAK: I'll rephrase.

BY MS. BIELAK:

Q Dr. Scheller, are you aware of the article, "Abusive Head Trauma and the Triad," by Debelle?

A Yes, I am.

Q And what do they say regarding the diagnostic standards of abusive head trauma?

A They say clearly that there is no gold standard

for diagnosing abusive head trauma.
Q Would you recognize that article if I showed it to you?
A Sure.
MS. BIELAK: Judge, may I approach?
THE COURT: Yeah.
MS. CRAVEIRO: Should I take a look at it?
MS. BIELAK: Yeah, you should have this one already. This one I sent to you, so I only have one copy of each one.
MS. CRAVEIRO: Okay. All right.
BY MS. BIELAK:
Q Dr. Scheller, I'm showing you what is marked as D-3 for identification. Take a look at that. What is it that I just handed you?
A The name of the journal is, "Archives of Diseases of Children." It's the British Pediatric Journal. And this is an opinion piece written by the doctors who are on the Child Protection Committee of the Royal College of Pediatrics in England.
Q And what does that say about the diagnostic standard of abusive head trauma?
A That there is no gold standard for diagnosing it.
Q Is there a particular quote in there that says that?

A I'll read it.
Q If there is?
A It's on page 2, which is really -- well, I just have it as page 2. "While it is accepted that there is no gold standard diagnostic (indiscernible) for abusive head trauma."
Q Thank you. Thank you, Doctor. All right. So, let's talk about a few symptoms and their relation to abusive head trauma. Can subdural hemorrhage or subdural hematoma be a symptom of abusive head trauma?
A Absolutely.
Q If there is no subdural hemorrhage or hematoma, can a child still be diagnosed with abusive head trauma?
A Yes.
Q Can retinal hemorrhages be a symptom of abusive head trauma?
A Yes.
Q If there are no retinal hemorrhages, can a child still be diagnosed with abusive head trauma?
A Yes.
Q Is a seizure evidence of abusive head trauma?
A Possibly.
Q If there's not seizure, is that also evidence of abusive head trauma?

A Yes.
Q Is bruising evidence of abusive head trauma?
A Can be, yes.
Q What about the absence of bruising?
A Also can be.
Q Are broken ribs or bones evidence of it?
A It can be, yes.
Q What about the absence of broken bones?
A Also possibly abusive head trauma.
Q If there are other external signs of trauma, is that evidence of abusive head trauma?
A Can be, yes.
Q Could the absence of those things also be used to support a diagnosis of abusive head trauma?
A Yes.
Q Is the presence of neck injury evidence of abusive head trauma?
A Yes.
Q What about the absence of neck injury?
A Can also be consistent with abusive head trauma.
Q So, basically what you're telling me, Dr. Scheller, is that both the presence and absence of any type of physical injury to the child it always evidence, or can be evidence, of abusive head trauma?
A I'd say can be evidence of abusive head trauma,

yes.
Q All right. Let's talk about today case, Dr. Scheller. For today, you wrote a report, right?
A Yes, I did.
MS. BIELAK: All right. Your Honor, may I approach the witness?
THE COURT: Yeah.
BY MS. BIELAK:
Q All right, Dr. Scheller. I'm showing you what's marked as D-2. Take a look at that. What is it that I just handed you?
A I wrote a report dated September 6, 2019, so that's a year ago, with my timeline about what had happened medically to Darryl Nieves and then my opinion about what those medical findings represent.
Q Okay. And Dr. Scheller, so you know, for clarity, we're going to refer to the baby as D.J.
A Okay.
Q Does that report look complete?
A Does it look? I'm sorry?
Q Does it look complete?
A Well, I was given some information today by you, I believe.
Q Uh-huh.
A And that's not in the report. And there is an

ultrasound, a head ultrasound, that was done July 22, 2016, and I'm not sure why, perhaps I didn't have it back a year ago, but there was a head ultrasound July 22, 2016 which I have looked at and is not in this report as well.

Q Okay. I guess what I meant was --

THE COURT: I'm sorry. What's this exhibit? D what?

MS. BIELAK: D-2.

BY MS. BIELAK:

Q Does this look the same as the last time you saw it when you wrote it?

A Yes.

Q Is it -- it's substantially the same as when you wrote it and provided it?

A Yes.

MS. BIELAK: Your Honor, at this time I'd ask to move D-2 into evidence.

MS. CRAVEIRO: Can I just take a look at it? Thank you. I have no objection.

THE COURT: So moved.

(Exhibit D-2 entered into evidence)

BY MS. BIELAK:

Q Okay, Dr. Scheller. What documents did you review to write your report?

A I -- may I look at D-2 in order to --

Q Yes. You can look at it. If you are looking at it, just let us know for the record that you are looking at your report.

A Okay. I'm looking at the report from September 6th, and there was a prolonged nursery stay, so I reviewed the birth and nursery records. Then there was a -- pediatric visits that I reviewed, and then I reviewed the hospitalization at St. Peters in February of 2007 -- 2017, and then I also reviewed all the radiology images.

Q All right. I was about to ask you, Doctor, this -- the radiology images are the scans of the images, right?

A X-rays, ultrasound scans, CAT scans, and MRI scans.

Q And what was your conclusions regarding abusive head trauma in this case?

A There was no evidence at all that Darryl -- D.J. was a victim of abuse.

Q Was your conclusion different than the child abuse pediatrician?

A Yes, it was.

Q What did Dr. Medina diagnose?

A I quoted it in short form in my note of September

6, 2019, and Dr. Medina said that D.J. was a victim of abusive head trauma with or without impact.
Q What findings did Dr. Medina use to justify her diagnosis of abusive head trauma?
A D.J. had retinal hemorrhages that were multi-layer.
Q Uh-huh.
A And D.J. -- in both eyes, and D.J. had what was described as varying density subdural hematomas. Some looked more -- newer and some looked older, and so those two findings suggested to her that D.J. was a victim of abusive head trauma.
Q All right. Let's take those one at a time. What is a subdural hemorrhage?
A A blood clot in between the brain and the inside of the skull.
Q And what can cause subdural hemorrhages?
A Number one cause in the whole world is an impact injury to the head. There are less common causes, but that -- the number one is an impact.
Q What else can cause besides an impact?
A People who are taking blood thinners or have blood problems like leukemia can suddenly develop a blood clot between the brain and the inside of the skull. People who have abnormal blood vessels in that location

born with strange blood vessels, they might leak and cause that type of bleeding. And then people who have had a blood clot in the past or have had an accumulation of fluid in that space between the brain and the inside of the skull can then, without much impact at all, develop a blood clot between the brain and the inside of the skull.
Q Do you know if shaking -- an adult shaking a baby can cause a subdural hemorrhage?
A It might be able to, but I don't know that for sure.
Q Why don't you know that?
A As I told you before, there are no animal studies, there are no biomechanical studies, and there are no witnessed events that we know that violent shaking of a young child can cause a sub -- an acute subdural hematoma.
Q How does a doctor find a subdural hematoma or hemorrhage?
A In this day and age, with a CAT scan or an MRI scan.
Q All right. Let's talk about MRIs. What is an MRI?
A I think I mentioned it earlier. It's a way to get slices of the body using radiowaves that move molecules

inside the body and then magnets that pick up the signal of how those molecules were moved and translate those millions of signals into a picture.

Q Are you able to read and interpret MRIs?

A Yes, I am.

Q Is Dr. Gladibel Medina qualified to read and interpret MRIs?

A As far as I know, no.

Q Do you conduct the MRI yourself or do you interpret the images afterwards?

A Well, the MRIs are almost always done in a radiology department by technologists, and then they generate binary data which can be interpreted into a picture, just like if I take a phone -- take a photograph on my iPhone. There is no film there. It's just binary data of somebody's face or scenery or whatever it is, but my phone or somebody else's phone can take that binary data and make it into a picture. Similarly, the radiology department gets the binary data, and then you need software to make that into an image.

Q Was an MRI done for D.J.?

A Yes, ma'am.

Q And when was that?

A February -- I got to look up the date. I'm

looking at D-2.

February 13th, 2017.

Q Do you know which hospital that was at?

A St. Peter's.

Q And what did the MRI show?

A I could say it in words or I could show the pictures.

Q Well, we'll get to the pictures in just a minute. So say it in words. What did it show?

A It showed there was a large fluid collection between D.J.'s brain and the inside of the skull. There was a small sliver of a blood clot within that fluid.

Q We -- we can get to the exhibits.

A And -- and I'll just say it showed that his brain looked actually very normal.

Q All right. Doctor, if you -- have you seen those MRI images before?

A I have.

Q If you saw them again, would you recognize them?

A Oh, sure.

MS. BIELAK: All right. Let me do this as D-9.

All right. So, Judge, I'm going to have --

if it's okay with the Court, I'd like to have Dr. Scheller use his computer to pull up the MRI images. And when it's up, I can lay the rest of the foundation. And I have the image on -- on a disc for the Court for evidence.

THE COURT: Doctor, if you don't mind.

No objection, right, Ms. Craveiro?

MS. CRAVEIRO: No objection.

THE COURT: These are basically exhibits that are on the laptop, the doctor's laptop that he's going to use to support his testimony. Right?

MS. BIELAK: Exactly. He's got the copies of what's on this disc that I'm holding. And I've labeled it D-9 right now.

THE WITNESS: Can I speak loudly? Will that work? Because I don't know if the microphone will come all the way.

THE COURT: Well, Doctor, you can speak loudly. And if you want, you can put that microphone on the stand like right on that -- right on the ledge as it was before because that's way -- and then we'll just -- I'm sure with your powerful voice, we'll get it. All right? No problem.

(Witness not near a working microphone)

THE WITNESS: I forgot what the question was.

BY MS. BIELAK:

Q Oh. So, Doctor, if you could please pull up the MRI image -- images that you reviewed for D.J. from February 2017.

A I've highlighted in purple the series of images. And we can see D.J.'s name there. If we follow the purple line from left to right, we could see towards the right it says MR brain, w/o means without contrast. He did not have any dye.

And then if we look at the final column, which I'll try to highlight, it says the date, which is February 13th, 2017.

Underneath there -- and I'm sorry to say if you look where that purple highlight is, it says there's 290 images. I'm not going to show all 290, just a series of them that highlight the abnormality.

THE COURT: The record should reflect that on the screen you're pointing to the top-right-hand corner. The far column to the right, first line.

THE WITNESS: I'm going to now click on one of the thumbnails, the thumbnail on the left. I'm going to make it bigger. I'm going to (inaudible) on the (inaudible).

Okay.

BY MS. BIELAK:

Q All right. Before you proceed, Doctor, let me just ask you a few questions. Do you recognize these images on the screen?
A I do.
Q And what are they?
A This is one particular series of that MRI scan that was done February 13th, 2017.
Q Is this the same one that you reviewed for your report?
A One of them, yes, ma'am.
Q Is -- does it look the same as when you reviewed it for your report? Is it in the same condition?
A Yes, ma'am.
MS. BIELAK: Judge, at this point I'd like to move this -- these MRIs into evidence as D-9. And, again, I do have a disk that has a copy of them here for the Court.
THE COURT: Miss Craveiro?
MS. CRAVEIRO: No objection.
THE COURT: So moved.
(D-9 admitted into evidence)
MS. CRAVEIRO: Judge, I would just -- since there are a whole bunch on that disc and we're not using all of them, I'm just concerned how are we going

to differentiate the ones that he's testifying to here today and everything else on the disc if this does get up, you know, to the Appellate Division or anything like that, just for the record?
THE COURT: You're using certain slices of the MRI taken. Right?
MS. BIELAK: Yes.
THE COURT: Okay.
MS. BIELAK: Judge, doc -- Dr. Scheller knows better than I do about how it's organized.
MS. CRAVEIRO: But on the disc aren't there like over a hundred?
THE COURT: Doctor, we're looking at the screen right now.
MS. BIELAK: It's all of them. I'm not sure.
THE COURT: And let's assume you're going to task about this screen. Okay? How am I -- how am I able to distinguish this screen from any of the other screens you have on this disc?
THE WITNESS: They're very kind at radiology and they give the -- every series a number. So if we look at the top, it says c-o-r.
THE COURT: Right.
THE WITNESS: And Cor means this is the face-to-face view. Right on the top --

THE COURT: Right there.
THE WITNESS: -- of the head.
THE COURT: Right.
THE WITNESS: It says Cor.
THE COURT: Okay. Yep.
THE WITNESS: And then FLAIR is a technique. That's not so important. But then at the end of it it says Number 9. This is the 9th series.
THE COURT: Okay.
THE WITNESS: I'm going to refer to this. And then at the bottom-left corner, we know that this is Image Number 24.
THE COURT: Okay.
THE WITNESS: If I go to a -- oops. Sorry. I have to fix that.
THE COURT: Well, this is a good one. This next image you jumped to, we were talking about this image, it had Cor FLAIR. It had the Number 10 at the end on the top. But at the bottom-right -- left-hand corner it had the Number 1.
THE WITNESS: Correct. So that's how we identify it.
THE COURT: All right. So that's how I'm going to -- Doctor, what I'll -- what I'll need you to do then is to do that for me, just to identify --

identify the top number and -- and the title number and the number on the left so we know exactly what we need.
So then what's going to happen then is, those images used are going to have to be -- you'll have the disc, Miss Craveiro, of the entire set of images, but you'll have to print out copies them so that we identify as part of the record, for Miss Craveiro, maybe for this hearing when it's done, that these are the images that we actually used.
So, Doctor, you -- somebody can print out a copy of this image from the disc that these attorneys have. Right?
THE WITNESS: Yes.
THE COURT: All right. All right.
MS. BIELAK: Okay. So as we go, Doctor, we'll -- whenever you change series, just let me know and we can put on the record what series number we're looking at.
THE WITNESS: Sure. My pleasure.
THE COURT: All right, Doctor.
BY MS. BIELAK:
Q So -- so pick whichever series you would like to start with, Doctor. I leave it to you. And we can start explaining to the Court what we're looking at here. Just let me know which one you want to start

with.
THE COURT: Well, we should have a question posed so we can identify why we've particularly gone to this image.
And, Doctor, you'll tell us why this image is important to your answer.
MS. BIELAK: Yes.
THE COURT: So.
BY MS. BIELAK:
Q Dr. Scheller, are you ready?
A I'm -- I'm ready. So am I waiting for a question or --
THE COURT: Yes, you are.
BY MS. BIELAK:
Q Oh, yes.
So what -- what series number are we looking at here?
A Series Number 9, which is COR coronal, which means it's a face-to-face image. So we're trying to imagine that I'm looking at D.J. face-to-face, but I have the magical ability to slice off the front of his face so that my right eye is looking at his left eye and my left eye is looking at his right eye. And the same is going to be true with the brain, which you can't see yet, but we're going to see in a moment.

And then FLAIR comes after the word cor, and FLAIR means that it's an image that highlights fluids in or around the brain in various shades of white or black, depending on what's in it.
Q Okay. I just want to orient us a little bit, Dr. Scheller, when you're talking about the left and right. So on our screen in front of us, on the right-hand side, I was looking at it, there's a little letter "l" and on the left hand side there's a little letter "r" is what I'm seeing on the screen. Is that -- why is that?
A That's -- that's correct. So everything on that "l" side is D.J.'s left half of his body and everything on the right is the right -- on the "r" side is on the right-hand side.
Q Okay. So why are we looking at this particular image to start with?
A Because it helps everybody get oriented as we move front to back, we'll be realizing that, oh, now we're going behind the eyeballs, we're going into the middle of the brain.
Q Okay. Before we describe that, Doctor, the image we're looking at, what color -- what colors is it in?
A I don't understand the question.

Q It's in black and white. Right? It's a grayscale.
A Well, everything's either white, black, or somewhere in between.
Q Why -- why is it that we get different colors on this picture, different levels of gray.
A Diff -- when we do that process of sending radio waves and then reading what they say, depending on the thickness of the material and on some other properties, it's going to give some -- either a whiter or a blacker or somewhere in between.
Q Okay. If it's a thicker material, what color are we going to see?
A We're going to see a lighter than black. So less black.
Q Okay. And if it's more black, what does that mean?
A More watery. More fluid. More liquid.
Q Okay. Doctor, can you please orient us to this image as to where we are?
A So, yeah. We're right behind the nose. Again, we have to have -- if we could try to imagine that D.J.'s sitting under a virtual guillotine, that's just above the -- his forehead and we're slicing off the front of his face. So this is what we're going to get.

Virtually, right, we don't see his nose anymore, but we can see his eyeballs. We're beginning to see a little bit of the frame just above the eyes.
Q Let me ask you a question, Doctor, in terms of where would be -- where would D.J.'s chin be in this picture?
A We don't see his chin. But here's the -- here's -- this would be the area -- this would be the area behind his mouth.
Q So you're -- you're highlighting the bottom of the --
A I'm highlighting --
Q -- image.
A -- the bottom middle.
Q Okay.
A It would be the back of his mouth.
Q Okay. So his head is the -- is up top?
A The top of his head is at the top of the picture.
Q Okay. Okay, Doctor. So let's take a look at the inside now of the brain.
A I'll just point out this is Image Number 24, which means they went from front to back and I think it's a total of about 24 images. I'm going to now -- oh, I'm sorry.
I'm going to go and just point out where the ears

are, so people have that frame of reference and see what the brains looks like.
So this is the exact -- oops. Sorry. Not exactly on sync.
Okay. This is --
Q Here. Doctor, Scheller, I'm going to give you a pointer.
A I think the curser is going to work better.
MS. BIELAK: Yeah. That doesn't work on the screen.
MS. CRAVEIRO: Oh.
MS. BIELAK: Yeah.
MS. CRAVEIRO: I'm having trouble seeing the white --
MS. BIELAK: Yeah.
MS. CRAVEIRO: -- on white.
MS. BIELAK: We're having trouble seeing the pointer, too. Here.
MS. CRAVEIRO: It's okay.
THE WITNESS: I can always magnify it with the --
MS. CRAVEIRO: Yeah.
THE WITNESS: -- curser.
MS. CRAVEIRO: That's fine.
THE WITNESS: This is Image Number 13 in the

same series. And at this image we're halfway from front to back. And so you can see the ears. The left ear would be on everybody's right. And vice versa for the right ear. And so this is the brain if, indeed, we were to slice off the front of the head at the level of the ears.
BY MS. BIELAK:
Q And, Dr. Scheller, the brain for -- to describe this for the record, the brain that we're looking at here that's in the middle of this picture?
A So the brain is gray. I'll just highlight it. That -- the brain is gray. The spinal fluid, which is lakes of watery bath material for the brain is black. And some of the lakes are within the brain. And then there's also that watery material that bathes the brain, and so that would be along the surface of the brain.
So the brain is sort of medium gray. The watery spinal fluid is black. And that's its -- and lakes in the brain and around the brain.
And then the scalp and the skull are way on the outside.
Q And, Doctor, the lakes you're describing, those are in the center of the picture. Is that correct?

A Yes. In this image they look almost like a butterfly. So that would be the lakes of spinal fluid that everybody has.
Q Okay.
THE COURT: Doctor, have we gone from cor FLAIR Number 10 to Number 9?
THE WITNESS: Oh. We -- I've been at Number 9 the whole time. We're --
THE COURT: Well, no. You started with 10/24.
THE WITNESS: I thought it was 9/24. I'm sorry.
MS. BIELAK: I believe it --
THE COURT: That's all right.
MS. CRAVEIRO: It was nine.
MS. BIELAK: It was 9/24, Judge, I think.
MS. CRAVEIRO: I have nine.
MS. BIELAK: Yeah.
THE WITNESS: I -- I can show it to the Judge again.
THE COURT: No. Because when I looked at that first screen you had -- we had at -- it was at 10/24. But, all right. So you're -- 9/24 is the one you're starting with and now you've jumped to 9/13. Right?

THE WITNESS: Yes, sir.
THE COURT: All right.
BY MS. BIELAK:
Q Okay.
A On this image we could see that there's something else in between the brain and the inside of the skull. It's something that is not black, so it's not watery fluid. It is approximately the same color of -- as the brain, but it certainly doesn't have the hills and valleys or the -- the nubbins and the crevices that the brain does. And it is sitting all the way around the brain. And I'm going -- we can start -- we can start with -- we could imagine the brain is the clock. We can -- we could imagine this starting at around eight o'clock, going up to the top of the -- of the area between the brain and the inside of the skull 12 o'clock, and then going back around.
This is something within a space that is between the dura and the arachnoid. The brain is covered with two membranes. The one that's keeping the watery stuff in is the arachnoid, and that's why the watery stuff has a very nice boundary to it. And then in between the arachnoid and the dura, the dura is the second membrane, that's where this other stuff that has some thickness to it is located.

This does not belong there. This is definitely abnormal. And the location of it is subdural.
Within this stuff there's a tiny sliver of recent blood clotting, and that's the white.
Q All right. Let's talk about that for a second, Dr. Scheller. First, just to clarify. The -- the skull in this image, is that the white line that's circling around the whole thing?
A The white line is the scalp. And just like water, bone does not show up very nicely on an MRI. So the bone -- the skull bone is this little black line just inside the scalp.
Q Okay.
A So the scalp is white. That's the farthest from the periphery. And then just inside that is the skull bone.
Q All right. Let's talk about this gray that you were describing like a clock going around. What kind of fluid is that, based on your review?
A All we know that is thicker than water. That's all you can tell. And all you can tell, that it's somewhat symmetric. We happen to be at Image Number 13. If we choose to go to another image, let's say Image Number 3, well, it's still pretty symmetric. You could see that fluid from about 10 o'clock to 12

o'clock, from 12 o'clock to 2 o'clock.
If we go further forward.
Q Thirteen.
A So we go to Image Number -- Number 17, that -- oops. Sorry.
Number -- it's -- I'm sorry. That's a time delayed.
If we go to Image Number 19, we see that that fluid is symmetric, as well.
So all we can say about it is it's got some thickness to it. It's around a good part of the brain and it's symmetric and it's pretty large. It doesn't belong there. And if that's something -- somebody who's has looked at a lot of these will say, wow, that -- that's a big collection of stuff in between the brain and the inside of the skull.
Q All right. Doctor, you mentioned a little bit of blood on the previous image. Can you go back to that, please?
A Yes. I'll call it a blood clot. It's not actually bleeding.
This is Image 13. I think that's the image we were at.
Q And can you describe where you see the blood on this?

A Right. So it's on the left side. It is inside that collection of stuff. It's a sliver and it goes from about one o'clock to two o'clock, give or take.
Q Okay. For the record, you're indicating a -- a white sliver on the upper-right-hand portion of the image. Is that correct?
A Right. Which we recollect that spot just underneath the left skull at -- so if -- if I would take my finger and put it on my left ear and go straight up but not all the way to the top, which is a little before it, if I did that with D.J., the blood clot would be just underneath the skull about an inch or so before I got to the top of the head.
Q Okay. And after reviewing this, what did you conclude about this -- this blood that you saw?
A So the blood clot is -- is real. There's no evidence that he has been traumatized anywhere near there. In other words, the brain is not swollen or bleeding, the scalp and the skull are not swollen or bleeding, the scalp is not cracked. The skull is not cracked. And that it is within this much larger collection and so my conclusion is that this small fresh blood clot is a complication of something that has been sitting there for a period of time.
Q When you say it's within this larger

collection, can you -- what -- what does that mean exactly?
A Well, very clear, this blood clot in this like little strip of white is within this larger thicker gray material that's -- that is a subdural thick fluid collection.
Q Okay. Is there a name for the -- the thick fluid collection that we see here?
A I call it a subdural hygroma. Hygroma is fluid that's not water. And, again, the water would be much blacker. There are other names. Some people call it subdural effusion, something that has flowed into the subdural space, subdural collection. But we're all really sort of describing the same thing.
Q All right. So what is a subdural hygroma?
A To put it very simply, it's a plumbing problem. And -- and (inaudible) to take something human and reduce it to those types of terms, but sometimes fluid collects in that space and the body does not know how to get rid of it. And so when the body can't get rid of it, the fluid collects and gets bigger and bigger as we can see in this picture. So this is a condition that neurosurgeons might encounter. Sometimes they have to do surgery to drain it. And sometimes a neurologist would encounter to diagnose it and then

decide do I send this child to the surgeon or do I just wait to see if it will go away.

Q How would you normally detect a subdural hygroma?

A Two ways. One way is by noting that the head circumference is bigger than it should be. Ordinarily, when we're measuring a head circumference, we're just measuring the brain and the skull and the scalp. In this case, whoever is measuring it is measuring the brain, this material, and then the skull and the scalp.

So once suspicion would be a head circumference that grew too fast. Another one would be if you can see this material on ultrasound. An ultrasound is not nearly as clear as this type of test, but we can get an indication from an ultrasound, is -- is there too much fluid between the brain and the inside of the skull or not.

Q And how would you diagnose someone with a -- a subdural hygroma?

A Based on a picture like this or on -- based on -- if it was very apparent on the ultrasound. Sometimes we don't even bother with an MRI, we can see it on a CAT scan.

Q What causes a subdural hygroma?

A The number one -- so the answer is, a minor

trauma. And I need to give an analogy, too, so that people can understand a minor trauma.

Q All right.

A And the analogy is going to be with my left first and my right palm. My left fist is the brain. My right palm is the skull. So, ordinarily, in most people, the left fist, the brain, sits inside the palm, inside the skull really nicely. Well, what if there is something that jars it, that moves either the skull or the brain? A little space will develop. If it's my hands we're talking about, then air will go into that space. But if it is a -- the people that we're talking about, there is no air in that system. There's only liquid.

And so if somebody has movement of the skull or the brain so that there is a gap created between the brain and the inside of the skull, fluid will submit to that space and cause the subdural hygroma. In infants, the number one cause is the head being squeezed inward. I don't believe that's the cause in D.J.'s case, but that is the number one cause.

Q Can prematurity cause subdural hygromas?

A This is one of the -- because we do a lot of ultrasounds on premature babies to make sure their brains are developing normally, this is a common

finding in premature babies and ex-premature.
Q What do you believe caused the subdural hygroma for D.J.?
A His prematurity. He was born extremely premature, only 600 grams at birth.
Q This kind of subdural hygroma that we see here, what kind of symptoms could that cause?
A Sometimes none, other than a large head. Sometimes poor feeding and poor weight gain because there is pressure from that fluid on the brain and it irritates the brain. Sometimes it can cause seizures. And sometimes it can cause delays in development.
MS. BIELAK: I'm sorry, Judge. Just give me one second.
(Pause in proceedings)
BY MS. BIELAK:
Q Dr. Scheller, what is a bridging vein?
A I could tell you or I could show you a picture or both.
Q Both would be great, Doctor.
A In between the brain and the inside of the skull there are some large veins that drain the blood from the brain and help bring it to big -- even bigger veins that bring the blood back to the heart.
Let me just backtrack. A vein is a blood vessel

that takes the blood back to the heart, as opposed to an artery which is bringing the blood to the heart. So a bridging vein is one of those big veins usually found near the top of the brain that is collecting blood and bringing it back to larger blood vessels that will deliver it to the heart. And I'm happy to show you a picture.
Q Yes. If you could show us an image of it.
A On this, this is going to be the same MRI scan. It's going to be Series Number 11 and I'm going to show you one on the left and one on the right.
So I'm at Series Number 11. This looks like a negative.
Q What image is this, Doctor?
A This is Image Number 8 in Series 11. And it's also coronal, so we're looking face-to-face. And I'll just make that clear. The coronal view on Image Number 24.
Once again, Image Number 24, series -- Image Number 24, Series 11, we can see D.J.'s eyeballs and a little bit of his brain on top of it. As we go towards the back, we are going to see two things that look like worms near the top of his brain, between the brain and the inside of the skull. The first one is on our left at about 11:30 in pic -- Image Number 8. This is a

bridging vein.
So this is a large blood vessel that is collecting blood from the brain and will bring it to one of the larger veins that's sitting right in the middle at the top.
And on the other side, I think you'll see it very nicely on the next image, Image Number 7, we could see another bridging vein at approximately 12:30, 1 o'clock, where that large blood vessel is delivering blood to the inside of the skull, which will actually drain into this very big vein that's sitting right there at 12 o'clock. Those are bridging veins.
Q Thank you, Doctor.
What happens -- you said that this is -- these are large veins. So what happens when these large veins rupture?
A Usually that -- somebody will develop a large blood clot.
Q Will you consider the blood clot we saw to be a large blood clot?
A Not at all. It's just a sliver of a blood clot.
Q Dr. Scheller, did you ultimately diagnose D.J. with a subdural hygroma?
A I did.
Q Could that have caused the neurological

symptoms he suffered?
A I believe he had a seizure on or around February -- February 10th and that certainly could have been caused by this large fluid collection that was irritating his brain.
Q Can you explain how the fluid collection causes a neurological symptom like a seizure?
A Well, the brain doesn't like to be pushed. And when you have this -- these large collections of fluid pushing or, I would say, in a -- not in an extreme way, but squeezing the brain a little bit, the brain can become irritated. A seizure is an electrical disturbance caused by anything that might irritate the brain, from squeezing it, blood sugar that's too low, too much illegal drugs, a bad reaction to a regular medicine. So anything that irritates the brain can cause a seizure. Certainly this is something that can cause it, meaning a large fluid collection where it doesn't belong.
(Pause in proceedings)
Q All right, Doctor. I think we're done with the MR images for now. So we can leave them up, but -- just in case we need to go back to them, but I think that we're ready to move on to retinal hemorrhages. All right?

A Okay. I do have some retinal hemorrhage images that I'm happy to show with your permission, but.
Q Let's talk about them first and we'll see.
A Okay. And it's going to -- the battery is going to go out, so -- I have a green toiletry bag there that has a plug.
Q If you want to just close it, I don't that we're going to need to come back to it.
A Okay.
Q Thank you, Dr. Scheller.
Okay. So I don't know if you wanted to go back to the other seat.
All right, Dr. Scheller. What is a retinal hemorrhage?
A We had talked about veins. So just like every other organ in the body, the retina, which is the inside of the eyeball, has arteries and veins. And an ophthalmologist or I can actually see them. There's a whole network of them and you could see them when you look through the pupil with the right kind of light and the right kind of lens.
A retinal hemorrhage is one or more drops of blood that are next to a retinal vein.
Q And what is the mechanism that causes retinal hemorrhages?

A When something bad happens to the brain that affects the adjacent blood flow in the eye, there can be a backup of blood flow and that can cause a retinal hemorrhage.
Q When you say a backup of blood flow, can you explain that a little bit more?
A Sure. Let's pretend I have a -- a garden hose in my backyard and it's been in the son too long so parts of it are cracked or thin. If I step on one part of the garden hose, another part might start to leak. So if there's pressure anywhere in that system that connects the veins and the brain and the veins of the eye that can cause leakage out of the eye veins. The eye veins are the most fragile. So when you step on the garden hose it's not necessarily going to leak where you step, it's going to leak at the weakest -- it's going to leak at the weakest part.
So the same is true when there's a problem in the circulation of the brain, then any kind of leakage is going to happen at the weakest blood vessels, which are the ones in the back of the eye (inaudible).
Q So does the -- does the blood -- the -- the veins in the eyes connects to the brain?
A The -- exactly. The -- and that's what -- the picture I wanted to show you, the -- the blood that is

leaving the eye goes to the back of the eye to the base of the brain.

Q What two common neurologic conditions can cause retinal hemorrhages?

A First aneurisms. So that's like a leakage of blood. Or anything that causes too much pressure inside the brain, a tumor, a stroke, something like that.

Q Could a subdural hygroma cause that pressure?

A Sure.

Q What is a multilayered retinal hemorrhage?

A It's a little bit of a complicated term, but I'll -- I'll try to explain it the way I understand it.

We can imagine the retina as a phyllo dough. A phyllo dough is like a bunch of thin pieces of dough that are all squished together, the way I understand phyllo dough. And so the retina is actually ten of those layers that are squished together and they're responsible for processing the light that we all see and allow us to see.

So when the -- a -- a neurologist or an ophthalmologist looks at the eye and sees drops of blood, that blood can be within those 10 layers and that would be called intraretinal.

Q Uh-huh.

A Those drops. Or you could see the blood in front of the eye, in front of the retina. That would be preretinal. Or you could see the blood behind those 10 layers. That would be subretinal.

So multilayer retinal hemorrhage would be if we -- we just described three layers, within the retina, in front and behind, two out of three would make a multilayer.

Q Okay. What are bilateral retinal hemorrhages?

A It's in both eyes, so you're always going (inaudible) both eyes.

Q So what are bilateral multilayered retinal hemorrhages?

A That when an ophthalmologist looked at both eyes they saw retinal hemorrhages in at least two out of those three layers of both eyes.

Q Okay. What does it mean when a retinal hemorrhage is too numerous to count?

A So an ophthalmologist will sit and count them to say that there's five or ten or fifteen. Once they get past twenty, they're just going to say there's just too many, I'm not going to sit here and count them.

Q Okay. So they don't just count indefinitely, they just count.

A There are just too many to count.
Q Okay. What -- what makes a retinal hemorrhage severe?
A Three qualifications:
Number one, too numerous to count.
Number two, that the hemorrhages go into the periphery. I said before, neurologists are very good at looking at just the back (inaudible) or the back part of the eye, but ophthalmologist are very good at looking at the edges of the inside of that ball as well. (Inaudible) they're in the periphery.
And number three is that they're multilayered (inaudible).
So all those three make it severe.
Q Okay. When you see retinal hemorrhages in a patient, what does that tell you to look for?
A That there's something going on with the circulation of the brain that's abnormal.
Q And why is that?
A Because of -- we know that the blood flow in the eye and the eye (inaudible) is directly related to what's going on with blood flow in the brain.
Q So this -- this understanding that blood in the eye is linked to blood flow in the brain, how long have we known that in medicine?

A About 1900 Dr. Churcin (phonetic), a French doctor, described that.
Q And historically were -- how did doctors -- before we had MRIs and CAT scans, how did doctors use retinal hemorrhages when trying to examine the brain?
A I heard the first part, how did doctors use retinal hemorrhages, and then what's -- what did you say after that?
Q When -- how did doctors use retinal hemorrhages when trying to examine the brain or come to conclusions about the brain back before we had MRIs that could actually look? What did a retinal hemorrhage tell the doctor?
A That -- that was a -- a vascular problem. There was something -- there was something wrong with the blood flow or the blood vessels in or around the brain.
Q Could a subdural hygroma lead to increased pressure and lead to retinal hemorrhages?
A Sure.
Q When it comes to abusive head trauma, are you familiar with the vitreoretinal traction hypothesis?
A Yes, I am.
Q Can you describe what it is?
A Sure. So just like there's a theory about what's shaking might do to the brain, there's a theory about

shaking might do to an eyeball. So let's pretend I can just hold an eyeball in my hand and shake it back and forth like I was shaking a salt shaker or something, that eyeball, the lining is blood vessels, but the actual inside of the eyeball, and like a tennis ball which is just air, is a gel caused a vitreous.

So the idea is out there that if you take an eyeball and you shake it violently, that gel will tear the retina and cause bleeding. So the theory is, just like shaking a baby violently will cause a subdural hematoma, that shaking a baby violently will cause a retinal hemorrhage from the gel pulling against the inside of the eye.

Q What makes the vitreoretinal traction hypothesis difficult to understand scientifically?

A Number one, it hasn't been proven in laboratory animals. It hasn't been proven in mechanical models. It hasn't been proven in these videos of shaking. But much more important, the eye moves together with the head. You would need -- in order to create I'm holding an eyeball and shaking it, I'm creating movement in that eyeball. But in order to get movement in a real person's eyeball, you'd have to separate it from the head because it's moving with the head and it's moving together. You're not going to generate any forces of

(inaudible).

Q So is it -- it sounds like what you're saying, it is not anatomically possible to shake the eye separately from the head.

A That's right.

Q Has anyone ever shown that shaking only can lead to retinal hemorrhages?

A We don't have any witness accounts. And, again, we don't have any laboratory animal accounts of that.

Q Have you -- are you aware of any studies that show that shaking alone does not lead to multilayered bilateral retinal hemorrhages?

A Well, that's sort of proving a negative.

Q Yeah.

A So I don't know how you could do that.

Q Are you aware of the lamb studies, where they shook lambs?

A They shook baby lambs, yes.

Q Are you -- have you read those studies?

A I have.

Q Would you recognize them if I showed them to you?

A I would.

MS. BIELAK: All right. For the record, these will be D-4 and D-5.

Judge, may I approach the witness?
THE COURT: Yes.
BY MS. BIELAK:
Q Dr. Scheller, I'm handing you two documents, D-4 and D-5. Can you take a look at D-4 and tell me what that one is?
A It's a study about shaking abnormalities that are found in -- I think this is the lamb -- not a lamb, a cat model. A cat animal model of shaking.
THE COURT: That's D-4?
MS. BIELAK: Yes.
BY MS. BIELAK:
Q I'm sorry.
A I'm sorry. It's lambs.
Q It's ovine. Right?
A Ovine.
Q Yes.
A I thought I saw bovine.
Q Yeah. I have the same problem.
A Ovine, which is a lamb model. So they shook -- they shook neonatal or baby lambs.
Q And what year was that one done?
A This was 19 -- 2009.
Q And does that -- do you recognize that study?
A I do.

Q Does it look complete?
A Yes.
MS. BIELAK: Judge, I'd like to move D-4 into evidence as D-4.
MS. CRAVEIRO: I'm sorry. I don't think he's actually mentioned the relevance is, unless I missed it.
THE COURT: What's the relevance?
MS. BIELAK: I'm going to get into questioning, but I wanted to have it entered into evidence for the questions.
THE COURT: You're going to question him about this article?
MS. BIELAK: Yeah. I'm going -- I have questions about it, yeah.
THE COURT: But you need to lay a foundation for that before you do that.
MS. BIELAK: Okay.
BY MS. BIELAK:
Q Dr. Scheller, this study, when it comes to retinal hemorrhages -- or can you -- can you describe what they did in this study?
A They actually physically shook baby lambs.
THE COURT: One second. Doctor, you recognize what you have in your hands, D-4?

THE WITNESS: Yes, sir. D -- I'm looking at D-4 and D-5.
THE COURT: Have you ever read those articles before?
THE WITNESS: Yes, sir.
THE COURT: In what context?
THE WITNESS: In my interest in brain injury and -- from trauma and brain injury from possible shaking.
THE COURT: Okay. Interest or as part of your professional development and continuing study as a -- as a --
THE WITNESS: I'd have to say both.
THE COURT: Okay. Your witness.
MS. BIELAK: Thank you, Judge.
BY MS. BIELAK:
Q Dr. Scheller, who authored the study that's labeled D-4?
A There are a number of authors, but mostly Dr. Finnie, F-i-n-n-i-e.
Q And who authored D-5?
A Also Dr. Finnie.
Q And can you tell me what year D-5 was from?
A 2012.
Q And as the Judge said, you're familiar with

both of these studies. Is that right?
A That's right.
MS. BIELAK: Judge, at this time I move them into evidence.
THE COURT: Miss Craveiro?
MS. CRAVEIRO: Judge, that's fine. I just -- I don't think we've gotten to the relevance yet, but I believe defense counsel said she was going to get to it after.
THE COURT: Well, let's -- let's operate -- I'm going to allow it in if he's going to reference it. I'll have assess credibility. It's not a jury. If -- if it's not credible --
MS. CRAVEIRO: Yeah. That's fine, Judge.
THE COURT: -- I'll -- you know, all right. Evidence -- for now evidence without -- for purposes of this hearing, so.
MS. BIELAK: Thank you, Judge.
(D-4 and D-5 admitted into evidence)
THE COURT: All right.
BY MS. BIELAK:
Q All right, Dr. Scheller. Can you describe what -- I'm sorry, you've already said that these -- they -- they shook lambs.
In this study, did they look for retinal

hemorrhages?
A Yes, they did.
Q Did they find mult -- bilateral multilayer retinal hemorrhages?
A They did not.
Q Are you aware if any of the lambs died from the shaking they underwent?
A Yes, some of them did.
Q And they did not have multilayered retinal hemorrhages?
A They still did not. That's right.
Q Thank you, Doctor. You could put those to the side.
Doctor, what conditions are known to cause retinal hemorrhages?
A The number one condition in the whole world, similar to impact for subdural hematoma, the number one condition that causes retinal hemorrhage in the whole world is being born normal.
Q What's -- what causes -- what conditions cause multilayered retinal hemorrhages?
A Being born normal.
Q Is -- are there any studies about retinal hemorrhages in birth?
A Yes. A number of them, they all pretty much find

that -- that perfectly normal newborns, one-fifth to one-third of them, perfectly normal babies in the nursery have retinal hemorrhages.
Q Are you familiar with the Callaway study on retinal and optic nerve hemorrhages in newborn infants?
A Yes, I am.
Q Would you recognize it if I showed it to you?
A Yes.
MS. BIELAK: Judge, may I approach?
THE COURT: Yep.
BY MS. BIELAK:
Q Dr. Scheller, I'm showing you what's marked for identification as D-6. What is it that I just handed you?
A They looked at more than -- this group in California looked at more than 200 perfectly normal newborns shortly after they were born to examine their eyes and see if they did have retinal hemorrhages.
Q The -- what's the document that I just handed you?
A It's the study of -- by Dr. Callaway, 2016, Retinal and Optic Nerve Hemorrhages in the Newborn Infant.
Q Have you read this study?
A Yes, ma'am.

Q Does it look complete?
A Yes, it is.
MS. BIELAK: Your Honor, at this time we move D-6 into evidence.
MS. CRAVEIRO: No objection.
(D-6 admitted into evidence)
BY MS. BIELAK:
Q Now in this study, Doctor, what was the percentage of children born that had multilayered retinal hemorrhages?
A About 20 percent.
Did you say multilayered?
Q Yes.
A Oh. Twenty percent had retinal hemorrhages. Out of that 20 percent about 70 percent had multilayer retinal hemorrhages.
Q Why do babies get retinal hemorrhages from birth?
A The same kind of problem, there's a circulation problem at the brain as babies are coming out because the -- the head is being squeezed very dramatically, as well as a very, very dramatic change going from fetal circulation to normal (inaudible) circulation. Those two things combined, they change what's going on in the eye, increase the pressure and cause this backup of --

of blood and that causes the hemorrhages.
Q And when you say increase in pressure, do you mean the pressure of the head?
A The pressure of the head being squeezed, in most cases by the birth canal, but even when they come out in a caesarian section.
Q Dr. Scheller, have you authored any papers on retinal hemorrhages appearing in children with subdural hygromas?
A I have.
Q Would you recog -- do you remember the title of that paper?
A No, not exactly.
Q Would you recognize it if I showed it to you?
A Sure.
MS. BIELAK: This is a copy for you.
MS. CRAVEIRO: Uh-huh.
MS. BIELAK: Judge, may I approach?
THE COURT: Yeah.
BY MS. BIELAK:
Q Doctor, I'm handing you what's marked as D-7 for identification. What is that that I just handed you?
A It's a paper that was published in 2017 entitled, Infantile Retinal Hemorrhages and the Absence of Brain

and Bodily Injury.
Q Does it look -- or, rather, did you write that paper?
A I did.
Q Does it look complete?
A Yes.
Q Was that paper published?
A Yes.
Q In what journal?
A In the Pediatric Journal of Sweden.
MS. BIELAK: Your Honor, at this time we'd move D-7 into evidence.
THE COURT: No objection?
MS. CRAVEIRO: No objection.
(D-7 admitted into evidence)
BY MS. BIELAK:
Q And, Dr. Scheller, what did you conclude in that paper about multilayer retinal hemorrhages in infants with -- well, what did you conclude in that paper? I'll leave it to you.
A I had collected a series of -- of infants who had had multilayer retinal hemorrhages and, yet, there was no evidence that they had been injured in any way, including no brain injury. Again, so, of course, that raises a question it -- it takes an act of violence to

create multilayer retinal hemorrhages. Where -- where's the -- where's the violence. And so that's the question that the paper was asking.
Q All right. Let's talk a little bit about this case specifically. Did D.J. have retinal hemorrhages?
A Yes.
Q What kind did he have?
A He had multilayer retinal hemorrhages in both eyes.
Q And how do you know that?
A The ophthalmologist reported it, I'm looking at D-2, on February 15th.
Q And in your opinion, what caused D.J.'s retinal hemorrhages?
A The accumulation of too much fluid and too much pressure in between the brain and the inside of his skull.
Q All right, Doctor. So just to summarize what you've testified about, and stop me if I'm incorrect.
MS. CRAVEIRO: Judge, objection. Summaries are not on -- on direct.
THE COURT: Relevance of the summary?
MS. BIELAK: I just want to tie everything together that he's testified to, Judge.

THE COURT: For what --
MS. CRAVEIRO: That would be a leading question --
THE COURT: -- purpose?
MS. BIELAK: I'm just repeating what he's --
MS. CRAVEIRO: -- either way.
MS. BIELAK: It's going -- it's going to be a question. I'm going to ask him if it's correct.
THE COURT: Okay. Then ask the question, but --
MS. BIELAK: Okay.
THE COURT: Go ahead. Yeah. Go ahead --
MS. BIELAK: I'll ask -- I'll ask it --
THE COURT: -- and ask the question.
MS. BIELAK: -- that way, Judge.
BY MS. BIELAK:
Q Dr. Scheller, can you summarize your findings for D.J.?
A Sure. Children who are abused often have the number of -- they have indicia or indications that they've been abused, fractured bones, neck injury, bruises, internal organ injuries. D.J. didn't have any of that. D.J. had a very small acute subdural hematoma, which in theory would be an indication of a traumatic event but he had no evidence of trauma.

THE COURT: One second.
A He didn't have evidence -- I'm sorry.
THE COURT: Aren't we dealing with a trial issue here? Credibility issue? One diagnosis versus another?
MS. BIELAK: No, Your Honor.
THE COURT: I'm -- isn't this hearing -- aren't the hearings to determine whether or not the shaking baby syndrome is a diagnosis that should be allowed in this trail and whether or not the people who are going to testify to it are quall enough -- qualified to deal with it and not necessarily the factual issue. The factual conclusion or the medical opinion that this baby suffered from it, isn't that a -- that -- that -- isn't that a trial issue?
MS. RUE: Well, Judge, I think this is being offered -- or the premise is that the State's expert has testified that she considered all possible alternatives, as she's required to under Frye to make the diagnosis that she did.
THE COURT: Okay.
MS. RUE: The expert of -- Dr. Scheller and Dr. Mack are -- have proposed in their reports alternatives that are not remotely mentioned in Dr. Mean -- Dr. Medina's report. So they're not that this

is -- this is what it was, as opposed to this, which I understand that's what Your Honor is asking.
THE COURT: But that's exactly what he's talking about here.
MS. RUE: Understood.
THE COURT: That --
MS. RUE: But at the -- the -- what we're arguing is that Dr. Medina never actually considered appropriately what alternative causes there may have been and ruled them out and provided no explanation about why they were ruled out. So that -- that's why this testimony is being offered, Judge.
THE COURT: Well, I'll -- I'll hear the doctors about, you know, how they themselves go about making this analysis or refuting this analysis. But I'm quite certain I don't need to hear at this hearing that -- right now that this baby did not suffer from shaking head syndrome because that does nothing for me with regards to determining whether or not this shaking baby head -- I'm going to SBS or adult -- look at this --
MS. CRAVEIRO: Abusive head trauma.
THE WITNESS: Head trauma.
THE COURT: Head trauma. This -- I'll call it the trauma, the head trauma diagnosis, I have to

determine whether that's in or not. Okay. Not whether or not this baby actually suffered from it. I have to know how these doctors go about analyzing these particular injuries and what it means to them and what are their causes or -- and effects and, you know, how they play or don't play into the decision-making.
But -- and thank -- Doctor, thank you very much for this answer.
But he's give -- you asked him a question that's the resulted in this answer was a trial issue for the jury to decide.
MS. BIELAK: All right.
THE COURT: So, and the same thing with Dr. Medina, but nobody's object -- nobody's objecting when they share it. So I -- you know, keep me on whether or not these -- this diagnosis is valid and should be part of this trial. Okay. Whether or not the baby suffered from it or not, that's for the jury to determine, whether or not they believe these doctors based on what they hear.
MS. RUE: Judge, I think what we're doing is challenging the reliability of the diagnosis specifically in this case, as well.
THE COURT: Right. So he can talk about how he goes about doing it from his perspective based on

his training and experience.
MS. RUE: Right.
THE COURT: Okay. But the -- the facts -- the conclusion that this baby suffered from something I don't think is going to be -- that I'm interested in right now because I have to determine whether or not the way he went up -- about making this conclusion is valid. His process to get that conclusion. You know, he can say he's made a conclusion, it's different from Dr. Medina.
MS. RUE: Right.
THE COURT: But I need to know about how he went about making it.
MS. RUE: Right.
THE COURT: What he considers. Whether or not he has the requisite background to be able to talk about it credibly based on his review of the journals, his medical training, his professional ex -- that kind of stuff. Just like I did with Dr. Medina. So, I mean, I -- you handle -- you handle it however you want, but I'm just saying this is -- this is what I think is important for me in -- in this case.
MS. BIELAK: Right. I understand, Judge.
THE COURT: As far as what you -- as far as what you filed the motion for.

MS. RUE: Right. This isn't a matter of whether you believe Dr. Scheller's, you know --
THE COURT: Right.
MS. RUE: -- ultimate conclusion versus Dr. Medina's. It's -- right.
THE COURT: He tells me the baby suffered from it or the baby didn't suffer from it. For me, what I want to know is how he got there and whether he's qualified enough -- whether he's legit. enough to talk -- to talk about it in front of a jury. And he's got to believe them. He's got to tell them what his medical opinion is, that -- so.
MS. RUE: Well, Judge, I -- I -- maybe there's a little confusion because we are arguing that Dr. Scheller should be considered as an alternative to Dr. Medina. This is about whether the science that the State is relying upon in Dr. Medina's report is appropriate to come before a jury. So we have experts being called not to provide an -- to provide an alternative explanation, but more so --
THE COURT: Right.
MS. RUE: -- to say what Dr. Medina did not do in coming to her conclusion, the things that she did not consider. So not that -- that Dr. Scheller should be considered by the Court, the validity of his

testimony is in relationship to Dr. Medina's, not whether he independently has appropriately come to the conclusions that he did.

THE COURT: Right. We're saying the same thing.

MS. RUE: Okay.

MS. BIELAK: Okay.

MS. RUE: I just want to make sure.

THE COURT: We're saying the same thing.

MS. RUE: Okay.

THE COURT: I just -- you know, whether he says the baby suffered from it or not, it's of no moment to me. I want to know why, how he came to that.

MS. RUE: Okay.

THE COURT: So, because that's important. Because I have to determine whether or not this is a legit. science or not.

MS. BIELAK: Exactly.

THE COURT: Okay. And whether or not -- no offense, Doctor, but these doctors are legit. people to be able to testify to it or not.

MS. RUE: Right.

THE COURT: So that -- that's what I need.

MS. RUE: Understood.

THE COURT: All right.

MS. CRAVEIRO: Judge, I could speak on that issue, but I don't -- I mean.

THE COURT: I'm sorry, anything you want to say or -- I don't know what direction they're going to go now because -- you can continue with the question. I don't know which direction you're going to go based on what I've said.

But what -- what do you want to say, Miss Craveiro, because --

MS. CRAVEIRO: Yes, Judge. I'm -- obviously, I've come into this case late. I reviewed all the briefs as far as it goes. I only went into -- I don't know if you want to have the doctor here during this, but --

THE COURT: I'll tell you what. I said what I said. Okay? And let's see where you go from there. If there's an objection to be raised, we'll handle it.

MS. CRAVEIRO: That's fine.

THE COURT: Not a problem.

MS. CRAVEIRO: Okay.

THE COURT: All right, Mr. Bielak? The floor is yours.

MS. BIELAK: I'm all -- I am almost finished, Judge. If I could just confer --

THE COURT: Okay.

MS. BIELAK: -- with my co-counsel for a second.
THE COURT: Okay.
(Counsel conferring)
BY MS. BIELAK:
Q Doctor, I actually have to just backtrack real quick because I realized we missed something earlier when we were talking about MRIs.
Is neck in -- is neck injury detectable on an MRI?
A Yes.
Q Was there a neck injury in this case?
A Not from the MRI of the head, which are a part of the neck. They didn't do a dedicated neck MRI, which might have showed it, but (inaudible) was not an issue.
Q Okay. In your medical opinion, was D.J. the victim of abusive head trauma?
A He was not.
Q Why not?
A May I use an analogy?
Q Sure.
A I consider where Dr. Medina is as second base. So a person in baseball is only allowed to get to second base once they've touched first base. Me and other doctors who consider other options, we're all on first

base. You can't get past first base to second base unless you dealt with what's at first base.
So I'm at first base saying that D.J. has another condition that is mimic -- that mimics abusive head trauma. So I don't -- from my point of view, Dr. Medina hasn't reached second base because she hasn't considered what's on first base.
Q Dr. Scheller, have you made all of your findings today to a reasonable degree of scientific certainty?
A Yes, I have.
MS. BIELAK: Just one moment, Judge.
That's all my questions, Judge.
THE COURT: All right. Miss Craveiro, it's 3:56. So I have to stop at four. We'll have to continue tomorrow. We'll continue tomorrow. Right? Everybody was --
MS. CRAVEIRO: That's fine.
THE COURT: -- on notice --
MS. CRAVEIRO: Yes.
THE COURT: -- we're continuing tomorrow?
MS. CRAVEIRO: Yes.
THE COURT: Okay.
MS. BIELAK: Dr. Scheller won't be here in person tomorrow, but we could Zoom him in maybe.

THE COURT: Doctor, are you coming in by way of Zoom, virtual?
THE WITNESS: I just have to see if it -- is it the morning?
THE COURT: Oh. Yeah. And I'll pick this up at nine o'clock and keep going with it. But --
THE WITNESS: Well, I --
THE COURT: -- is there a better time for you?
THE WITNESS: -- can Zoom. Is that okay?
THE COURT: Emily, I'll need to -- yeah. Doc, we'll send you a Zoom link, if -- if nobody has a problem.
MS. CRAVEIRO: Judge, my --
MS. BIELAK: That's fine.
MS. CRAVEIRO: I'm not going to hold this hearing up, but, clearly, we waited all the way until now because the defense had an objection that they wanted everyone to come in and do it in person. And now we've got two of their witnesses who are appearing through Zoom.
THE COURT: Well, wait a minute. Wait. That's right. Wait a minute.
You -- you -- you appeared live for the defense. Are you -- are you -- do you want -- do you

need him live because he -- he appeared live for the defense or --
MS. CRAVEIRO: Judge, obviously, it would be easier with the paperwork, all the articles and everything.
THE COURT: Doctor, I'm going to need to have you come in you -- I'm going to need to have you come in live so that I can assess you on cross-examination at -- just as I've assessed you on direct examination.
Now you have an issue with coming in tomorrow, a scheduling problem?
THE WITNESS: My wife does 100 percent of my scheduling. I could try to get her on the phone now and if she says I'm free tomorrow, I'm here. But if she says I got something else, I --
THE COURT: And who -- you have another person coming in tomorrow. Right?
MS. RUE: Dr. Mack is -- is appearing by Zoom.
THE COURT: For both -- but, see, that will be for both parties.
MS. RUE: That's correct, Judge. And she just doesn't have --
MS. BIELAK: Yes.
MS. RUE: -- permission to travel.

THE COURT: All right. Doctor, can you give your wife a call and see what the situation is?
THE WITNESS: Sure. What time to what time would the -- would they need me?
THE COURT: I'd like to accommodate you early. I'll get you in at nine and get you out as soon as possible.
MS. RUE: Dr. Scheller is traveling up from Maryland, Judge, so he has to take the train back and forth.
THE COURT: Oh.
MS. RUE: Yeah. So we'd have to get the --
MS. CRAVEIRO: Well, Judge, I have no objection to starting with their second witness first and having him go in the afternoon.
THE COURT: Well, let's see if he can even come back at all tomorrow. Okay?
THE WITNESS: I'm sorry. It's just taking me a minute to --
THE COURT: Not a problem.
Okay. I'm going to -- I'm going to adjourn right now --
MS. CRAVEIRO: Okay.
THE COURT: -- this hearing for today. I'm going to leave it -- Doctor, I'm going to leave it in

the hands of your trusted counsel to determine whether or not you can be back tomorrow or at nine or in the afternoon, either way we'll have you. And then just let Miss Craveiro know before you leave so she knows exactly what the schedule is going to be.
The one thing I know for certain is that tomorrow at nine o'clock -- right, Emily, nine? Right? Tomorrow is Wednesday. Right?
MS. RUE: If we could do 9:30.
MS. CRAVEIRO: Yes.
MS. RUE: Could we do 9:30 --
MS. BIELAK: Yes.
MS. RUE: -- Judge, just because --
THE COURT: All right.
THE CLERK: Nine a.m., Judge.
THE COURT: Nine a.m.
THE CLERK: You have one or two small things you --
THE COURT: I'll be here.
THE CLERK: -- have to address first.
THE COURT: I'll be here.
THE CLERK: We can start soon afternoon.
THE COURT: Ignore what she said. Those -- those things are minor. Two things minor, in and out. And we can get them in before you get here.

MS. RUE: Okay. Perfect. Yeah. I will get here as soon as possible.
THE COURT: We'll be here in the morning to continue with this hearing. Okay?
MS. RUE: Yeah.
THE COURT: All right. Thank you, everyone. I appreciate it.
MS. CRAVEIRO: Thank you, Judge.
MS. RUE: Thank you, Judge.
MS. BIELAK: Thank you, Judge.
THE COURT: Okay. And we're shutting down and picking up at nine. Okay?
(Proceedings concluded at 3:59 p.m.)

CERTIFICATION

I, MARISSA McGILL, the assigned transcriber, do hereby certify the foregoing transcript of proceedings on CourtSmart, Index No. from 10:07:11 a.m. to 11:23:01 a.m., 11:42:06 a.m. to 11:48:35 a.m., and 11:51:58 a.m. to 12:12:46 p.m., is prepared to the best of my ability and in full compliance with the current Transcript Format for Judicial Proceedings and is a true and accurate compressed transcript of the proceedings, as recorded.

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