will give you the oath.

(Witness Duly Sworn)

THE COURT: Thank you. You may have a seat.

MARCELLA DONARUMA,

having been first duly sworn, testified as follows:

DIRECT EXAMINATION

Q. ***(BY MS. BYRNE)*** Could you please introduce yourself to the jury?

A. Good morning. No, good afternoon. My name is Marcella Donaruma.

Q. How are you employed?

A. I work for Baylor College of Medicine and Texas Children's Hospital.

Q. And what is your title or your job over at Texas Children's Hospital and Baylor College of Medicine?

A. I am the assistant professor of pediatrics, I am the fellowship director for the child abuse pediatrics program, and I am the child abuse pediatrician.

Q. Can you tell us about your background and training and your education that lead you to become a medical doctor and pediatric child abuse doctor?

A. Yes. I went to undergraduate at Texas A&M,

just up the road; and then I went to Baylor College of Medicine for my medical school training. And then I went away to St. Louis at Washington University and St. Louis Children's Hospital for pediatrics internship and pediatric residency. I was asked to stay and be chief resident. So, I did.

And then after that year, I was a -- at that time it was called child abuse and child protection and forensic pediatrics fellow. And then after my fellowship, I came here in 2006.

Q. So, you have been in your current position for a little under 10 years?

A. That's right. It will be eight, I think, in July.

Q. Okay. In addition to your fellowship training and your degrees and school, what other educational background and training do you have in the field of -- I don't want to say it wrong. Is it child abuse pediatrician?

A. Yes, ma'am.

Q. Okay.

A. So, I have done my pediatric board. So, I sat for my boards, passed my boards first time around. And then the American Board of Pediatrics recognized child abuse pediatrics as a subspecialty.

MS. WILLIAMS: Objection, nonresponsive.

THE COURT: Sustained. Just answer in a sentence or two, and then you have to wait for the next question. Thank you, Doctor.

THE WITNESS: Okay.

Q. ***(BY MS. BYRNE)*** What other additional training in the area have you had?

A. I have -- I am board certified in the subspecialty of child abuse pediatrics in the first round of those boards that were offered.

Q. And is child abuse pediatrics a recognized science in the medical community?

A. Yes, it's a recognized subspecialty.

Q. Okay. Do you also teach in this area?

A. Yes, I do.

Q. Can you give us some examples of that?

A. Oh, yes. I'm a fellowship director. So, I'm training new pediatricians in my field. I teach residents in pediatrics, pediatrics -- in emergency medicine and in family practice and in gynecology. I teach other medical students from Baylor and other medical schools -- what else -- firefighters, nurses, Child Protective Services workers. I probably give between two and four lectures a month, plus clinical

training.

Q. And without going into naming all of them, have you published articles in this area?

A. Yes, a couple. Yes, ma'am.

Q. Okay. Do you belong to professional organizations in this field?

A. Yes, ma'am, I do.

Q. Okay. Few or many?

A. I guess it is many. Probably more than three.

Q. Okay. Have you ever testified as an expert witness in the area of child abuse pediatrics?

A. Yes, ma'am, I have.

Q. Would that be on few or many occasions?

A. Many. This is my 50th subpoena, I think, for the year.

Q. And would that include expert testimony in Harris County, Texas?

A. Yes.

Q. Okay. Now, what exactly is, generally, child abuse pediatrics?

A. So, child abuse pediatrics is a branch of pediatrics that is devoted to the assessment of children who are suspected victims of child maltreatment in the form of physical abuse, sexual

abuse, neglect, or medical child abuse, and also addressing advocacy to help prevent the situations.

MS. WILLIAMS: Judge, I --

THE COURT: Yes, ma'am.

MS. WILLIAMS: I hate to interrupt, but I'm having trouble hearing the witness.

THE COURT: You have kind of a soft voice. Is the microphone on? Can you --

THE WITNESS: I also have a little laryngitis, Your Honor.

THE COURT: Okay. Do you need some water or anything?

THE WITNESS: That would be so great.

THE COURT: So, we will see if someone can get her some water.

THE BAILIFF: Yes, ma'am.

THE WITNESS: This is about as close as -- okay. I will do my best, Your Honor.

THE COURT: Okay.

Q. ***(BY MS. BYRNE)*** A child abuse pediatric, what are you normally doing day in and day out at the hospital?

A. My time is divided in half. I spend half my time doing inpatient consults, which means in the hospital. When children are sleeping in the hospital

or the emergency room, they call me with questions; and I come see patients who are inpatient. And then also we have an outpatient clinic. So, people walk in and then walk home to be assessed.

The other half of the time I spend at the Children's Assessment Center of Houston, where I see only suspected victims of sexual abuse.

Q. Have you seen a patient known to you as Josiah Fisher?

A. Yes, ma'am, I have.

Q. Okay. And when did you see Josiah Fisher?

A. I saw him on March 28, 2013.

Q. In addition to personally evaluating Josiah Fisher, have you reviewed all of the medical records from Texas Children's Hospital in regards to Josiah?

A. Yes, ma'am.

Q. Okay. And have you also reviewed medical records from the University of Texas Medical Branch in Galveston?

A. Yes, ma'am.

Q. Okay. Have you consulted with neurologists and neurosurgeons that have treated Josiah?

A. Yes, ma'am. I specifically consulted with the neurosurgeons. I don't remember if I spoke to a neurologist or not a year ago.

Q. Okay. Have you also reviewed birth records from Conroe Regional Medical Hospital personal to Josiah Fisher and his mother, Tegan Shows?

A. Yes, ma'am.

Q. In addition, have you reviewed medical records from the Montgomery County Jail involving his mother, Tegan Shows?

A. Yes, ma'am.

MS. BYRNE: At this time I would offer State's Exhibits 63, 64, 65, 66, 66A, 66B, 67, 69, 70, 71, and 72 into evidence. All have been on file prior to trial with business records affidavit. And I tender to Defense for inspection.

MS. WILLIAMS: I had an opportunity to review them. I have no objection to them being admitted.

THE COURT: Thank you. May I see counsel at the bench?

(At the Bench)

THE COURT: Are there some redactions?

MS. BYRNE: They have been made; and I discussed them with Ms. Williams this morning, yes.

THE COURT: Do I need to instruct the jury about that?

MS. WILLIAMS: I'm sorry. I didn't

hear.

THE COURT: Do you want me to tell the jury there are some redactions because the records --

MS. WILLIAMS: Oh, yes.

THE COURT: -- contained things that are inadmissible? Is that all right with the State?

MS. BYRNE: Yes.

THE COURT: Is that all right with the Defense?

MS. WILLIAMS: Yes. That you're going to make that statement? Yes.

THE COURT: What did she say?

MS. BYRNE: She said that's all right, if that's how you want to do it.

THE COURT: Okay. Thank you.

(End of Bench Discussion)

THE COURT: Thank you. Members of the jury, the medical records contain some information which was not admissible; and so, that information has been redacted. So, I want you to understand when that -- when you see that, that was done by agreement of the parties and order of the Court. Thank you.

Q. (BY MS. BYRNE) Would you agree with me, Dr. Donaruma, that State's Exhibits 66A and 66B, the record from Texas Children's Hospital, there is over

3,000 pages?

A. Yes, ma'am. That sounds about right.

Q. Okay. And in your personal evaluation and treatment of Josiah and all of his medical records and your consultation with some of the physicians or medical professionals that have treated him, have you been able to form an expert opinion and testify as to the causes of Josiah's injuries from February 8, 2013?

A. Yes, ma'am.

THE COURT: Thank you. At this time the law requires us to have a hearing outside your presence. So, I will have to ask that you step back to the jury room.

(Jury released)

THE COURT: Thank you. Please have a seat. You may go ahead.

MS. BYRNE: Your Honor, I would reoffer all of the testimony that this witness has just testified to in regards to how she is employed, how long she has worked there, her training and experience, all of her background and qualifications, and what she does on a day-to-day basis as well as State's Exhibit 74 for purposes of the hearing, this witness' curriculum vitae, that would detail her

expertise and experience in order to testify as an expert in this court as to child abuse pediatrics and the patient, Josiah Fisher.

THE COURT: Thank you. Any objection to 74 as an exhibit outside the presence of the jury?

MS. WILLIAMS: No, Your Honor.

THE COURT: That's admitted. And I will write at the top "Do not send to jury."

Are you contesting her qualifications, Ms. Williams, or just the opinion --

MS. WILLIAMS: Your Honor, just --

THE COURT: Wait. Let me finish my sentence -- and the underlying data? Are you contesting her qualifications?

MS. WILLIAMS: Just in one area -- area, Your Honor.

THE COURT: All right. Then let's take that up first. Is that all right? We'll do it issue by issue. So --

MS. BYRNE: I'm not sure.

THE COURT: Had you finished, or do you have more?

MS. BYRNE: Well, I'm not sure what particular area she is talking about. So, I wouldn't know which direction to go.

THE COURT: I was going to say do you want to pass on that issue?

MS. BYRNE: Pass on that issue.

THE COURT: Okay. Thank you.

CROSS-EXAMINATION

Q. ***(BY MS. WILLIAMS)*** Dr. Donaruma, my name is Clyde Williams; and I represent Mr. Fisher. And, specifically, you're going to testify as to causation of Josiah Fisher's injuries; is that correct?

A. Yes, ma'am.

Q. And I know that there are medical records that obviously have just been introduced. Did you do any of the imaging in reference to Josiah Fisher?

A. Did I --

Q. Specifically, did you perform --

A. Oh, heavens, no.

Q. -- any of the MRIs or CT scans or x-rays?

A. None. That's performed by our diagnostic imaging tech.

THE COURT: You know what, I can't even hear you.

THE WITNESS: Really?

MS. WILLIAMS: I --

THE COURT: I can --

A. That's done by the diagnostic imaging

technicians. No doctors perform those studies.

Q. ***(By Ms. Williams)*** Okay. And the -- are you a radiologist that -- are you an expert in radiology, as well?

A. No, I am not a board certified radiologist.

Q. Okay. And would you be testifying based on some of the imaging in this case?

A. Yes.

Q. Okay. And prior to -- prior to the plans for Josiah Fisher to be released from the hospital, you didn't actually treat him?

A. That is correct.

Q. You're here as a consultant?

A. No.

Q. Okay.

A. I can elaborate, if that's okay.

Q. Please.

A. I saw him in follow-up clinic. So, I was a physician who was his attending in my outpatient clinic. So, I believe I referred -- took care of him independently after his discharge.

Q. No. I think my question, though, dealt with before his discharge.

A. I never saw him.

Q. And did you personally speak with the

radiologists that -- or the radiologist that gave his impressions of the imaging?

A. Yes. It is my policy to review side by side all imaging with the attending pediatricians and radiologists of the cases I see.

Q. And who was that in this case?

A. Oh, beats me. I have to go back and look through the records; but it's my policy in every case of imaging, I always review with a neuro, a N-E-U-R-O -- radiologist.

THE COURT: You always review what?

THE WITNESS: In any case with abnormal imaging on head CT, MRI, CT spine, head CT, other cervical spine and I always go down to the department and I review what I think side by side with the attending pediatric neuroradiologist every time it's abnormal. So, I know I do it every time.

THE COURT: Just so I understand, so there is not a report from the radiologist in the records. It's just an oral conversation you had with the radiologist.

THE WITNESS: No. There is -- they always generate a report. And I look at the images myself and then I go to them and I discuss the contents of their report, my questions, and

perceptions.

THE COURT: I see. Thank you.

Q. (BY MS. WILLIAMS) And are -- how many child abuse pediatricians are there in the state of Texas?

A. I need to count. I believe there are 11 currently in the state of Texas. The new board results just came out, and I haven't checked. So, there is at least 11; and there may be 14 or 15 by now.

Q. Okay. And this is a new subspecialty, and you are -- is your work funded by the Medicare grant --

A. No.

Q. -- here in Texas?

A. No, ma'am, I am not funded by the Medicare grant. My position comes through several institutions donating for me, but Medicare funds other aspects of my program, but not --

Q. Not you?

A. Not me.

Q. Okay. So, in your training as a child abuse physician, did you study the -- how you determine how much force is used?

THE COURT: Well, she -- let's see. She hasn't given her opinion yet.

MS. WILLIAMS: No.

THE COURT: Why don't -- I wonder if we need to pass her back and find out what the opinion is and what it's based on and then you can have cross.

MS. WILLIAMS: Thank you.

THE COURT: Okay.

MS. BYRNE: Judge, would you like me to go through every single injury and how the force was caused or overall her impressions, her determination of child abuse, and the amount of force used?

THE COURT: Do you need each individual opinion?

MS. WILLIAMS: No, Your Honor, I do not.

THE COURT: Okay.

REDIRECT EXAMINATION

Q. ***(BY MS. BYRNE)*** Overall, can you tell us the trauma that you observed or the categories or types of trauma that you observed on Josiah?

A. Yes, ma'am. He had abusive head trauma.

Q. Okay.

A. He had abusive skeletal trauma, and he had abusive cutaneous trauma.

Q. Now, in regards to the abusive head trauma, what are we looking at?

A. Okay. So, he had a massive left side skull fracture. Over the top of that, he had a large scalp hematoma. So, a blood collection. Underneath that he had a subdural blood collection that was fresh. So that means under the skull, over the brain, within the lining under the skull. Then he had a subarachnoid blood which was on top of the brain, and then his whole brain was swelling and dying.

Q. Okay. Based on your training and experience, are you able to make or, I guess, come to an expert opinion about how those injuries were caused?

A. Yes.

Q. Okay. And what is that opinion?

A. Physical abuse.

Q. Okay. And specifically how would that skull fracture have been caused?

A. The skull fracture was caused due to blunt force impact of an object to his skull or his skull to an object.

Q. Does your training and experience allow you to make an expert opinion about the amount of force that would have had to have been used in order to

cause that skull fracture or to equate it to some sort of example that would demonstrate the amount of force necessary to cause that skull fracture?

A. Yes.

Q. Okay. How -- how do you -- how are you qualified to that, or how do you do that?

A. In the course of my experience and training, I am obligated to continue my medical education. I don't get to stop reading once I graduate. And so, I attend yearly conferences, usually more than one; and I am involved in ongoing reading in the area of my subspecialty.

So, in the course of doing this reading and attending these conferences, I have read studies and heard speakers discuss these situations. And there are studies of accidental injuries that are witnessed and measured where you can calculate the forces, and they describe the findings under those circumstances.

And so, I can say things like in a head-to-head football collision, that force may result in concussions. The child clearly had a concussion. So, he had an equivalent force of a head to head football collision.

Q. Okay. In addition to blunt force trauma,

what other cause do you have -- what is your other opinion as to how some of Josiah's injuries were caused?

A. In addition to the outside of his abusive head trauma, that helped me with that. So, I believe that in addition to the impact that had to have occurred to rupture his skull, he was also subjected to violent whiplashing forces of his head on his neck because of the brain damage that he sustained as well as the injury to the spine in the area of his neck.

Q. And how are you able to determine or to give an opinion as to the amount of force that would be necessary in order to cause that whiplash trauma that would lead to those brain injuries that Josiah sustained?

A. That whiplash trauma is more difficult to equate to a number or physical activity because it's more rare. And so, I rely on evaluations of people who have described what they are doing and people who were videotaped, not related to caretakers hurting children. And in those descriptions of the witnessed events and in the descriptions from the perpetrators themselves, it is stated repeatedly that it is obvious to the person it's excessive force that's greater than what you need to move a child through

their daily activities and they see the child's head flop back and forth and things of that nature.

Q. And these studies and these lectures and these conferences that you attend, the papers that you read, are they accepted in the medical community?

A. Yes, ma'am.

Q. Okay. And based on all that, you're comfortable giving an opinion based on your training and expertise as to what you believe the force needed to cause these injuries would be?

A. Yes, ma'am.

MS. BYRNE: I pass the witness.

THE COURT: Thank you.

Ms. Williams?

MS. WILLIAMS: Thank you.

THE COURT: And just as a reminder, this has to do with whether or not the underlying data, if it's inadmissible, should be allowed as a basis for her opinion. So, the part of the data that's already in evidence, of course, we won't have to worry about, only what might be inadmissible.

What are you challenging is inadmissible?

MS. WILLIAMS: Well, specifically, she has testified that it's abusive head trauma and

that's what you have been taught when you were in your training to be a child abuse pediatrician and what you described regarding --

THE COURT: Wait just a minute.

MS. WILLIAMS: Sorry.

THE COURT: The purpose of the hearing -- so we're all on the same page, the purpose of the hearing under the Rules of Evidence is so I can perform a balancing test. I think we're all in agreement she is qualified as an expert, right? You're not really challenging that?

MS. WILLIAMS: Yes, I don't know her medical knowledge. What I'm challenging is her opinion that it's abusive head trauma.

THE COURT: I see. So, you're not --

MS. WILLIAMS: The fact that it was a whiplash injury, if she is going to say anything about shaking.

THE COURT: Okay. So, there is nothing about her underlying data you're trying to keep out?

MS. WILLIAMS: Yes. Her -- oh, are you talking about the medical records?

THE COURT: Well, she said there were oral conversations, that she read articles, she has

been to seminars. So, you don't have any problem with that coming in. Your only challenge is to the accuracy or scientific basis for her opinion?

MS. WILLIAMS: Yes, ma'am.

THE COURT: So, I don't have to worry about data.

MS. WILLIAMS: For the -- for the scientific basis in regards to timing of injuries as well as the force used and the abusiveness, the abusive issue, abusive head trauma, and also the intentional versus accidental injury because that cannot be determined.

THE COURT: So, are you claiming this is junk science? I mean --

MS. WILLIAMS: Yes, Your Honor.

THE COURT: That's the basis you're challenging?

MS. WILLIAMS: Yes, Your Honor.

THE COURT: Okay. Thank you. Okay. I don't want to hear the whole cross, just the relevant points for admissibility. Okay. Thank you. In other words, I don't want to spend two hours on this.

MS. WILLIAMS: No.

THE COURT: Okay.

MS. WILLIAMS: But --

THE COURT: She passed the witness. You may question her. I just want to understand what point we're focusing on so we can narrow the scope.

MS. WILLIAMS: Okay.

Q. (BY MS. WILLIAMS) Dr. Donaruma, what you were speaking of, I think, in answer to the last question, you are really talking about hearsay, what people had said, perpetrators, different people had said about how injuries occurred and the force used and the movement that resulted from the injury.

Are there any scientific studies that you're aware of with human infants using --

A. Where they would shake babies? You're not serious, right? I'm sorry. I interrupted you. I beg your pardon.

THE COURT: So, is the answer no?

A. Is the question am I aware of any scientific studies where they shake human infants? Really?

Q. (BY MS. WILLIAMS) No, of striking in infants.

A. No, ma'am, I'm not aware of any studies in which babies are shaken or struck.

Q. Are you aware of any studies regarding the

force that's necessary to cause injury to the cervical spine?

A. There are studies that, of course, are not done in children because no institutional ethical review board would allow the shaking of a baby. For instance, some studies are being done in Japan, APRIA model in which adults are asked -- trained because they don't do this usually very well -- trained to shake a baby dummy. I'm not familiar with the output. I don't know that the studies have been published yet.

And then they are also studying head forces with the same technology in -- I think it's high school football players. But, again, I'm not aware that's been published yet.

Q. And with the high school football players, they weren't able to get the G forces that would cause injury; is that correct?

A. Yes. Well, it depends on the type of collision. So, head to body, not so much. Head to head was pretty bad. And then there is older data with like head injury criterion that are -- have been performed to estimate those forces, and head injury criteria of things like head-to-head collisions in football players is above the known threshold for a

concussion.

Q. Are you familiar with static loading?

A. Yes.

Q. And what do you consider it to be?

A. A static load is a load where a child is subjected to force over a long period of time; but long period isn't long, like if I paused for 5 seconds. It's measured in milliseconds. But the static load allows -- because it is comparatively slower than a dynamic load, which would be something like whiplash. The static load allows for better distribution of the force throughout the tissue. You get more focal force, depending on whether it stops, and compared to dynamic load, which is more rapid applications of force and damage, happens more diffusely, not quickly.

Q. I'm sure you're familiar with the Caffey and Ommaya studies. C A-F-F-E-Y, O-M-M-A-Y-A. I'm sure you're familiar with that study that was done approximately 30 years ago?

A. Yes, on the monkeys.

Q. Yes. On the Rhesus monkeys?

A. Yes, on also --

Q. And that was kind of the origin of this shaken baby syndrome?

A. I don't agree with that statement.

Q. You don't agree with that statement?

A. No, ma'am. Those were monkeys that were shot with a piston already attached to their head helmet and anesthetized. So, it was a one-time impulse versus repetitive loading. So, it's a nice basis; but it's not really origin of a shaking.

Q. Well, it was after that that it came into the literature as -- as a scientific fact --

A. Yes.

Q. -- versus a scientific theory?

A. Yes, but I think to say that's related to shaking is an overstatement because it was a one-time impulse. Just trying to be clear that I'm not over interpreting that study.

Q. Okay. And the -- are you -- will your testimony also cover retinal hemorrhages?

A. Yes, he had retinal hemorrhages.

Q. I beg your pardon?

A. Yes, ma'am, he had terrible retinal hemorrhages.

Q. Yes. And are you -- is it going to be your testimony that the cause of the retinal hemorrhages is abusive head trauma?

A. Yes.

Q. Okay. You're aware, I'm sure, that lack of oxygen is -- is the cause of retinal hemorrhage?

A. I am aware it is a cause of retinal hemorrhage and different location and distribution in Josiah. I do not agree that it's the cause of his type distribution and the retinal hemorrhages.

Q. ***(BY MS. BYRNE)*** But there --

MS. BYRNE: Your Honor, at this point I object. This appears to be more cross-examination of the witness' opinion than her qualification to testify in the first place.

MS. WILLIAMS: Okay. I will get more on point on the force and the abuse.

THE COURT: If your theory is that it's inadmissible because it's junk science, that's basically your theory, then you may explore that, but I'm hoping this isn't going to take a real long time.

MS. WILLIAMS: Okay.

THE COURT: But there has already been testimony that this is accepted in her field.

MS. WILLIAMS: Right.

THE COURT: So, I guess the real issue is: Do you have something to counter that it's accepted?

MS. WILLIAMS: Well, Judge, I think

the question is: Is it evidence-based medicine?

THE COURT: Okay. Well, you can explore that.

MS. WILLIAMS: Okay.

THE COURT: I just want to move through it pretty quickly.

Q. ***(BY MS. WILLIAMS)*** So, there -- there -- are there -- you have testified, as I understand it, that there are no scientific studies performed on children regarding abusive head trauma or shaking, anything like that?

A. I'm saying those would be unethical. So, absolutely no studies available.

Q. Right. So, we don't have any scientific basis for your stating that this injury in Josiah's case is abusive head trauma or that it's whiplash injury or that -- or the timing of the two injuries that you have referenced, the skull fracture and the hemorrhaging in the brain, the subdural hematoma, and the subarachnoid hematoma, as well as the skull fracture -- I think -- I'm not sure if I said that or not.

A. I believe that is flawed conclusion, and I do not agree.

Q. Okay. And that's your belief?

A. No. No. I think that you are not referencing the vast load of literature done on animals that we can extrapolate in part to children. So, I think the fact that nobody's ever shaken a baby on purpose to see what would happen is not what is required to be able to address Josiah. So, I think you're neglecting a large body of -- I think you're neglecting a large body of peer-reviewed articles.

Q. And those are articles. They are not scientific studies; is that correct?

A. That is not correct. They are studies on lambs, pigs, puppies, monkeys that are out there. The monkeys, we have talked about. So, I think that you are overlooking those and over generalizing to reach a flawed conclusion.

Q. Are you familiar with the work of Dr. Plunkett?

A. Oh, yeah. I'm sorry. Yes, I am.

Q. You disagree with it, obviously?

A. I believe that his methods are also flawed and a bit sloppy.

THE COURT: Flawed and what?

THE WITNESS: A bit sloppy.

THE COURT: Thank you.

Q. ***(BY MS. WILLIAMS)*** Okay. And Dr. Plunkett,

Dr. Goldsmith, and many others have challenged the abusive head trauma, identification of it by the subdural hematoma, the sub -- the hemorrhaging, and the skull fracture?

A. Not precisely. Those gentlemen -- they dispute the diagnosis of, quote, shaken baby syndrome based on quota triad. When asked, none of them denied that shaking a baby can kill a baby. They have made a career about creating reasonable doubt in regards to specific children across the country.

MS. BYRNE: Your Honor, at this time I would object. This appears to be cross-examination or something that could be brought out through the use of an expert to dispute her expert testimony but not to disqualify her -- her ability to testify to the child's injuries.

THE COURT: I'm going to allow her to build a record but to a limited extent. So, focus on your studies. Okay?

MS. WILLIAMS: Okay.

THE COURT: Will you be bringing in an expert at this hearing?

MS. WILLIAMS: I could.

THE COURT: Do you have a --

MS. WILLIAMS: I'd like to. I don't

have one right -- I don't have one on stand by, but I'd like to consider -- for the Court to consider it when the expert testifies.

THE COURT: Okay. So -- but, I mean, you're not bringing in an expert for this hearing to challenge her opinion. Are you presenting a witness?

MS. WILLIAMS: Later, not today. My witness is not available today.

THE COURT: Okay. Okay.

MS. WILLIAMS: Okay.

THE COURT: You're just saying your witness will testify in your case?

MS. WILLIAMS: Yes.

THE COURT: Okay.

MS. WILLIAMS: Yes, Your Honor.

THE COURT: Okay.

MS. BYRNE: And, Your Honor, not to prevent her from building a record; but I want to remind the Court that this witness will be out of town starting tomorrow through next Wednesday. So, we need to get done with her today if we want -- unless we want to start up next Thursday.

THE COURT: Okay. So, we will try and let her be real thorough.

And when are you leaving town?

THE WITNESS: I'm leaving town tomorrow and then I will be back for Thursday and I'm gone Friday, Saturday, Sunday.

THE COURT: What time are you leaving tomorrow?

THE WITNESS: Tomorrow my flight is at 7:55.

THE COURT: P.m.?

THE WITNESS: P.m. I haven't seen my children in five days. I hope I'm not here tomorrow.

THE COURT: Well, I just -- you know this is an important case.

THE WITNESS: Yes.

THE COURT: I hope you don't have to come back tomorrow, too.

Q. (BY MS. WILLIAMS) Doctor, there is a body of literature back from 30 years or more in the medical profession that supports doctors making a decision as to whether something is abusive or accidental, the timing on an injury, the onset of the injury, as well as the amount of force.

Can -- can you give us a number as to the force that was necessary in this case to cause -- cause the skull fracture --

A. No.

Q. -- of Josiah?

A. Like in foot, pounds, or --

Q. Yes, in NGs.

A. No.

Q. Okay. And there is a science, though, that can do that; and that's biomechanics, isn't it?

A. Yes.

Q. Because you didn't weigh the infant's head?

A. Take his head off and weigh it, no.

Q. No.

THE COURT: Ma'am, could you just answer the questions rather than being humorous.

THE WITNESS: I'm sorry.

THE COURT: Thank you.

Q. ***(BY MS. WILLIAMS)*** And you have a general idea of how much the -- Josiah weighed at that time, correct?

A. Yes.

Q. But all the statistics of his bodily measurements, you don't have that, do you?

A. No.

Q. Okay. So, you really can't tell how much force is used because you weren't there, correct?

A. No. That's not correct.

Q. I beg your pardon?

A. No, you are not correct. No, you are not correct.

I can tell you the force that was used to break his skull was greater than what you need to move a child through the course of their daily activities. That's what I can tell you.

Q. Okay. And is that what you will be testifying to?

A. Yes. Yes, ma'am.

Q. Okay. The timing of the injury, will you be testifying to the timing of the onset of the injury?

A. I can testify to a window of timing. I cannot testify to a specific time in reference to a clock.

Q. And would you agree that no one can definitely tell the onset of an injury?

A. The abuser knows.

Q. I beg your pardon?

A. The abuser knows.

Q. Nobody else?

A. That's right.

Q. I'm talking about even the window of time?

A. The window of time can be generally discussed based on studies of known timed accidental

injuries.

Q. But --

A. So, there is --

THE COURT: Let her finish her answer, please.

A. So, there is a window of time that can be referenced. A specific time, I think would be neither responsible nor accurate.

Q. ***(BY MS. WILLIAMS)*** And a window of time, what scientific studies support the window of time for the onset of injuries?

A. There are studies that have been done in car accident victims specifically and look into change on their head CTs and how early some findings show up on head CT and how soon fresh findings appear, quote, older on head CT. They are few, but they are allowed for a window to be assigned. Many people will reference adult data, which is not useful in children.

Q. Do you know of any pediatric data on timing of injuries that is scientifically based --

A. Yes.

Q. -- on studies?

You do?

A. Yes, ma'am.

Q. And whose work would that be?

A. I believe it came from Mark Dias, when he was in -- I think before he went to Hershey. I think when he was in New York. I think it's from Dias.

And then there might be some addition data from Matthew Vinchon in France. And -- but we -- but I can't recall all the authors of the papers. There a few that I can think of, at least one specifically I used the most to rely on.

Q. Are these public scientific papers?

A. Yes.

Q. And do you have access to them?

A. Now? Right immediately?

Q. Yes.

A. I do not.

Q. But -- but you can give us the titles later?

A. I can probably find them. I -- I mean, they are incorporated into textbooks and things like that. So, I -- I don't carry them with me.

Q. Do you know how these scientific studies were performed?

A. The one I'm considering is the car accident study where an institution took a look at children and adolescents who came in in accidents where the

timing was documented, objectively; and they observed the findings on head CT in relation to the times since the accident. And that was how they assigned some windows.

Q. And are these studies -- are the injuries comparable to the injuries on Josiah?

A. Yes, in some cases.

Q. Approximately how many cases?

A. I don't remember.

Q. Are you taught how to tie injuries in a window or time frame in your studies as a child abuse pediatrician?

A. Yes, I have. In my experience, as well as in my training, we have -- we discuss that with radiologists regularly; and, yes, it's part of your training.

Q. Okay. Do you also study the actual scientific studies that have any relevance to that?

A. I don't understand the question.

Q. Okay. In -- besides talking to the radiologists and practice, do you have any scientific studies that support that training or what you're taught?

A. Yes, ma'am. I discussed specifically the one paper on accidents, and there are others who --

authors I do not immediately recall.

Q. Okay. But Josiah Fisher wasn't involved in an accident; is that correct?

A. That is correct.

THE COURT: Ms. Williams, let's skip the rhetorical questions.

MS. WILLIAMS: Okay.

Q. ***(BY MS. WILLIAMS)*** Car accidents is what I mean.

THE COURT: It's 20 till. I'm hoping we can finish this by a quarter till. Okay.

Q. ***(BY MS. WILLIAMS)*** And are you a psychologist or a psychiatrist in addition to being a pediatrician?

A. No.

Q. Okay. Can you tell a person' intent --

THE COURT: Clyde, Ms. Williams, I don't want to hear those kinds of questions.

MS. WILLIAMS: Yes, ma'am.

THE COURT: Those are for the jury. Do you have anything else about her underlying data or qualifications or whether or not this is generally accepted science?

Q. ***(BY MS. WILLIAMS)*** Well, a closing sort of question. Doctor, the things that we have talked

about are definitely challenged by scientific studies. There is a group of people that see it one way, and then there are new studies that challenge the theories that we talked about?

A. I submit to you, ma'am, that there is no controversy outside of a courtroom. There is not a scientific controversy. It is all fabricated for the purposes of creating reasonable doubt. That science is based on people's very hysterically communicated opinions, and it is not science. It's things that have been published.

Q. Are you aware that Canada has had a lot of wrongful convictions overturned on the basis of some of this testimony?

A. Those are based on pathologists. That is from pathologists and their practice. That is not related to child abuse pediatricians using bad science. That is a pathologist issue that happened in Canada.

Q. Well, the pathologist obviously looks at the tissue in the brain.

A. I'm not a pathologist, ma'am.

Q. And when someone's alive, you don't have that opportunity, do you?

A. I hope not.

MS. WILLIAMS: Judge, the qualification --

THE COURT: Excuse me. You pass the witness?

MS. WILLIAMS: Yes.

THE COURT: Okay. Any questions?

MS. BYRNE: No questions, Judge.

THE COURT: Okay. Does that conclude the testimony then? Are you ready for argument on the motion, or is there anything else?

MS. WILLIAMS: Yes, Your Honor.

THE COURT: Okay. Thank you.

ARGUMENTS

MS. WILLIAMS: My argument would be that this witness is not qualified to testify regarding the force used against Josiah Fisher. She was unable to determine the G forces operating on Josiah Fisher at the time he sustained the skull fracture and the cervical spinal injury. There is no scientific basis for the window timing of the onset of the injuries or symptoms.

Determining that something is abusive when it could be accidental, you know -- and there is no witness, no recording, no knife, no gun, holes in the body. There is -- there is no basis for that

kind of a theory. And causation as to intent or as to, you know, unintentional, that's for the jury. All of these are questions for the jury that we have talked about.

As well as the retinal hemorrhaging, because retinal hemorrhaging is caused by many different things, depending on the amount of oxygen loss because the eyes are part of the brain. That concludes my argument.

THE COURT: Thank you.

Does the State have argument?

ARGUMENTS

MS. BYRNE: I would just state that this witness has more than explained her educational background, her training, her experience, her knowledge and awareness of numerous studies in this field that are accepted in the medical community, that qualifies her to testify as an expert.

And any concerns or cross-examination points that Ms. Williams wants to make can be done, just that, in cross-examination or through her own expert witness. But this witness has demonstrated the ability to be qualified to testify in this case.

THE COURT: Thank you. I find that the witness is qualified, and she may render her

expert opinions. Is she giving one on time, also; or she is not?

MS. BYRNE: She is rendering an opinion based on the baby's injuries and where he was at -- the level that he was at in the hospital, and the amount of blood that was present in his brain, as to a time frame of when those injuries would have occurred in order for him to still be alive upon entrance to the hospital.

THE COURT: Can you get that opinion from her?

MS. BYRNE: Sure.

Q. ***(BY MS. BYRNE)*** From what you saw on Josiah Fisher, looking at the CT scans that were done sometime shortly after admittance to the hospital on February 8, 2013, the hemorrhaging that you observed to the brain and diffuse brain trauma that was causing lack of oxygen and things like that in the brain, do you have an expert opinion as to a range of time in which those injuries would have had to have occurred in order for him to become -- to be alive when he entered the hospital?

A. Yes, I do.

Q. Okay. And what is that opinion?

A. I believe it was roughly a 12-hour window.

THE COURT: Thank you. Is that all of her opinions?

MS. BYRNE: Yes, Judge.

THE COURT: Okay. All right. Thank you.

MS. WILLIAMS: Judge, may I ask one more question about that range?

THE COURT: Okay. Thank you.

RECROSS-EXAMINATION

Q. ***(BY MS. WILLIAMS)*** How did you arrive at that range?

A. Based on the appearance of his blood on -- sorry.

Based on the appearance of the blood inside of his head, based on the lack of -- based on the blackness of his brain, based on his rapid decompensation in the emergency room leading to emergency intubation, those things I believe contribute to the time frame.

Q. Actually, that time frame could be larger?

A. Yes. It's roughly --

Q. Twelve hours --

THE COURT: Sorry. You're both talking at the same time. Would you ask your question again, please?

MS. WILLIAMS: Yes, Your Honor.

Q. (BY MS. WILLIAMS) That time frame could be larger?

A. Yes. It is a rough window. It's not exact. I can't look at a watch and tell you. That would not be responsible.

Q. And --

MS. WILLIAMS: I pass the witness.

THE COURT: Okay. Have you now covered all of her opinions?

MS. BYRNE: I believe so, Judge.

THE COURT: Okay. Do you have any argument on the final point? The new point? I will let you reopen if you do.

MS. WILLIAMS: I think the witness has said that that really can't be established specifically; and because of that, I think that should be inadmissible.

THE COURT: Thank you. Your objection is overruled. She may testify as to that opinion.

Ms. Williams, you may have liberal cross-examination on that point.

MS. WILLIAMS: Okay.

THE COURT: Okay. So, I specifically find the witness is qualified. I specifically find

that her opinion has a basis in science. And I specifically find that the underlying data may come in, that this is not more prejudicial than probative. And, therefore, it will be allowed. Thank you.

While the jury is out, why don't we take a five-minute break. Thank you.

(Recess taken)

THE COURT: Yes, ma'am.

MS. WILLIAMS: Judge, instead of hopping up like a bunny rabbit, can I have just a running objection in those areas of causation, the time frame, and the ones that I argued on the motion?

THE COURT: You may.

MS. WILLIAMS: Thank you.

THE COURT: Doctor, the defendant has the right to have the witnesses cross-examined by his attorney. That's guaranteed under the Sixth Amendment to the U.S. Constitution. You are a very important witness in this case, and it's a very important right for his lawyer to ask you questions. So -- and, also, I think if you're going to be a child abuse specialist, you have to expect to spend some time in court; and we went through a lot of trouble starting the trial early every morning to try and get you on the stand before you leave town.

THE WITNESS: I apologize for my unprofessional comment.

THE COURT: I just hope you won't reflect a lack of respect for the lawyer's right to ask you questions when it's her turn for cross-examination.

THE WITNESS: No, Your Honor, I will not.

THE COURT: Thank you.

All rise, please, for the jury.

(Jury enters the courtroom)

THE COURT: Thank you. Please be seated. Thank you.

Ms. Byrne, you may continue.

MS. BYRNE: Thank you Judge.

DIRECT EXAMINATION (CONTINUED)

Q. (BY MS. BYRNE) I believe we left off, Dr. Donaruma, where based on your personal interaction and treatment of Josiah, as well as your review of all of his medical records and consultation with other medical professionals that have seen Josiah, and your training and experience as a child abuse pediatrician, are you -- are you able to provide an expert opinion as to the cause of Josiah's injury?

A. Yes, ma'am, I am.

Q. And in preparation for your testimony today, did you assist in making some slides that have images belonging to Josiah and certain diagrams that would be helpful to the jury in understanding your testimony here today?

A. Yes, ma'am, I did.

MS. BYRNE: At this time I would offer State's Exhibit No. 75, tender to Defense for inspection, which has previously been shown to Defense. And I would -- I showed you. And I would ask to publish to the jury during this witness' testimony.

MS. WILLIAMS: No objection, Your Honor.

THE COURT: Admitted.

Q. ***(BY MS. BYRNE)*** Before we talk about Josiah's injuries from February -- from his admittance February 8, 2013, have you had the opportunity to review Josiah's birth records as well as those of his mother from Conroe Regional Medical Hospital in the Montgomery County Jail?

A. Yes, I have.

Q. Okay. And can you tell us what your opinion is as to the circumstances surrounding

Josiah's birth?

A. Yes.

Q. Okay. Can you tell us how long was his mother in labor?

A. I think she was in labor for 43 hours.

Q. And when somebody is in labor for a period of time, such as 43 hours, what is the concern or what -- is there a risk?

A. The concern is that the baby is exposed to the outside world and the bacteria in the vagina, and there is a risk of ascending infection coming up the birth canal and affecting the baby in the amniotic fluid and make the child sick or what we call sepsis, meaning blood stream infection with bacteria which is a dangerous bacteria.

Q. So, there would have been a concern for sepsis?

A. Yes.

Q. Did Josiah have a sepsis workup? Was he tested for any infection?

A. Yes, ma'am, he was.

Q. Okay. And what, if anything, was found?

A. Nothing was found. It turns out he was not sepsis. He had no infection.

Q. Okay. What is meconium aspiration?

A. Meconium is the stool that comes out of the fetus for a brand new baby. "Aspiration" means you inhale that meconium into the lungs. And the syndrome describes that circumstance.

Q. Now, did Josiah have any meconium in his mouth when he was born?

A. Yes, he did.

Q. Okay. What is the concern -- or what would cause Josiah to have meconium in his mouth?

A. He had a very stressful and prolonged -- the labor was stressful because it was so long. You can imagine. And so, with that stress, the child's stool -- he pooped inside the amniotic fluid. So, when he was born, the fluid in his mouth was stained with meconium, with stool. And that leads to the concern that he could open his mouth and breathe and pull that stool down deep into his lungs.

Q. Okay. Now, although Josiah had some meconium in his mouth, what was the real concern?

A. The concern is that the meconium, that stool, could get below the vocal cords and so actually be involved in the airway and the lungs and affect the ability of the lungs to exchange oxygen appropriately.

Q. Was there any meconium that went into or

past Josiah's vocal cords?

A. No, ma'am, there was not.

Q. Okay. So, when he was actually born, he had some meconium in his mouth; but right after he was born, what was his breathing or resuscitation or ability to breathe?

A. His ability to breathe was not good when he was born, again, likely due to the stresses of labor.

Q. Okay. And from the time he was born, how long did it take him to perk up?

A. It took him about five minutes --

Q. Okay.

A. -- to perk up.

Q. And was that with extensive resuscitations or anything like that?

A. It was with resuscitation. I would not call it extensive.

Q. Okay. Now, what is the Apgar score?

A. The Apgar score was invented by a doctor whose last name is Apgar, A-P-G-A-R. It stands for points on the scale. It's a 10-point scale. Rarely does everybody ever get a 10. And it measures five things for A, P, G, A, and R.

Q. Okay. Initially, due to the meconium issue, where was Josiah on the Apgar score?

A. I think he was a 2.

Q. Okay. And did it rise rather quickly?

A. Yes. So, at birth he was a 2. By five minutes, he was a 7.

Q. Okay. Based on that, where was he placed?

A. He was placed into the NICU. I think he went to the Neonatal Intensive Care unit for observation.

Q. Okay. And was there anything noted about his time in the Neonatal Care of concern?

A. No. He was -- he was fussy. And so, there was some concern for what is called neonatal abstinence syndrome, meaning there was a concern he was exposed to some kind of drug and then he was withdrawing from it because he was no longer attached to the mother who was possibly supplying him with some kind of drug through the bloodstream. So, there was that fussiness that got an evaluation, but no drugs were found. And other than that, he did very well, indeed.

Q. So, for his five days there, what was his condition?

A. So, his condition was stable; and he was on room air the entire time. So, if you really have meconium in your lungs and somehow the doctor missed

it or didn't see it or pushed it in while trying to pull it out -- your lung can't tolerate stool inside. It disrupts the membranes that exchange air across them, and the child can't tolerate room air and breathes badly without support. He had none of those problems.

Q. And, in fact, did they provide him a full 7 days of medication out of concern for infection?

A. No.

Q. Okay. So, there was no infection due to birth?

A. That's correct.

Q. Okay. Now, in fact, on his fourth day of life, what did they take an ultrasound of?

A. He had an ultrasound of his head on the fourth day of life presumably due to the continued fuzziness.

Q. Okay. And what, if anything, was noted about the ultrasound of the brain?

A. Nothing. It was fine.

Q. Okay. Did he have any signs of neonatal stroke?

A. None.

Q. Okay. Upon release from the hospital, was Josiah a healthy infant?

A. Yes, ma'am.

Q. Is there anything about his birth or anything about the labor that would have caused any of the injuries or the trauma noted from February 8, 2013?

A. Oh, no, ma'am. That's not possible.

Q. And why is it not?

A. Based on the appearance of the bleeding and based on the child's clinical condition and based on the lack of any of the multiple bruises seen on the child in the emergency room at Texas Children's being mentioned in his discharge summary.

Q. Okay. And what do you mean the appearance of the bleeding?

A. So, the blood inside of his head had a very characteristic appearance on the head CT. Fresh blood is white. If a child is bleeding right now -- like I'm taking this, I'm looking at the CT while the image is being taken and blood is coming out, it comes out black. But once it stays still, it's white; and over time, as the red blood cells die and they burst, the color changes on the CT scan. So, we know white blood is fresh blood.

Q. So, the CT scans that would have been reviewed that would have been done on February 8,

2013, what did the blood appear like?

A. It was fresh blood.

Q. Okay. So, let's -- let's talk about February 8, 2013. What three categories can we place all of Josiah's injuries into?

A. So, I broke them down into abusive head trauma, abusive skeletal trauma, and abusive cutaneous trauma.

Q. Okay. And based on your training and experience, when you have head trauma, skeletal trauma -- and I guess cutaneous, is that a fancy word for bruising?

A. Yes, it is.

Q. Okay. When you're looking at all three of these categories, what does that indicate to you as the child abuse pediatrician?

A. That this child has been a victim of physical abuse.

Q. Okay. Well, let's break down all of Josiah's injuries. Let's start with the abusive head trama, particularly the skull fracture. What are we looking at here?

A. So, that is a 3D reconstruction of his CAT scan. So, I can give you the basics because that's what I know about how the CT machine works. But when

it takes the pictures, it takes the pictures in a rotating motion, with a child laying on the bed, with a nose pointing up and toes pointing out, and rotates and collects data as it shoots the beams into the child. Because it is a study with radiation.

After it collects all that data, the machine filters out -- and, again, it's algorithm. That's math that I don't get, but that algorithm recreates just the bony densities so that we get the reconstruction of the skull, the bony structures in 3D.

Q. Now, this -- which side of the skull are we looking at here?

A. We are looking at the right side of his skull in this picture.

Q. And this would be considered the healthy side of Josiah's skull?

A. Yes. There is separations you can see that look unusual to most people who think of the Halloween skeleton when they see this picture. And those separations are actually the sutures, the areas that have opportunity for growth between the separate bones of the skull.

Q. So, that would be normal in the skull of a baby to have those sutures, room for growth?

A. Yes. His are too widely separated. So, they look like canyons rather than connections; but the presence of those separations is expected in all infants.

Q. Okay. And what are we looking at here?

A. That's a face-on view of the baby's skull. So, you can see the soft spot, that diamond shape here that goes down to his forehead and up in the center. You can see the eye sockets, kind of as a marker.

Q. Now, let's take a look at the left side of the 3D reconstruction of Josiah's skull. What are we observing there?

A. So, here, you can see that we have a really beautiful lineup of the sutures overlapping each other. But then here in this largest bone called the perinatal bone, where if you sort of place your hand above your ear and just point up to the top of your head, that bone has a V-shaped fracture that is kind of occupying most of the length of the parietal bone and also has the edges widely separated.

Q. There was the diagnosis here?

A. That was a left parietal bone fracture that was called somewhat diastatic, meaning the edges are more separated than the usual fracture.

Q. We see it kind of pushing up in this 3D imaging. What would cause it to push up like that?

A. There are two things. One is that the initial force that split the bone pushed one area down lower and the other up higher versus the fact that the pressure of the brain swelling and dying inside of the skull is causing additional separation.

Q. Okay. Okay. So, when you see a skull fracture like this in a baby or an infant, tell us a little bit generally about their skull and the pliability of a baby's skull.

A. Well, the baby's skull -- this little man, he was only 15 days old when he came in. So, he was just born. So, his skull was still adapted to survive the birth canal and the change in shape that's necessary to get an oval out of a circle. So, it has very soft characteristics. And the best illustration I can give you is a bit graphic, but I think it makes a clear point.

So, at autopsy on an infant, they make a cut to take off the top of the skull so that the brain can be viewed without being disturbed. And so, when it came out the top of the skull, if you hold the skull cap, it would actually be possible to turn that skull cap that came off the top inside out like

a baseball hat and have the outside round and the inside concave and then back out again because it's really that soft.

And when I see that, it's sort of like I picture it like a kind of rupture of the skull. If you dropped a melon on the ground, it just splits.

Q. Okay. So, in order to have a skull fracture like that on Josiah, what would have to be the cause?

A. This is a result of blunt force trauma to his head. Either his head hitting something very fast and hard, or something hitting his head very fast and hard.

Q. Okay. So, would this be consistent with potentially a hand striking the baby's head?

A. It would be possible. I would -- it would possible. I would think of something perhaps longer and larger and firmer, but I can't say no.

Q. So, you think this would be more consistent with maybe Josiah --

MS. WILLIAMS: Objection to the leading.

Q. ***(BY MS. BYRNE)*** -- would be --

THE COURT: Sustained.

Q. ***(BY MS. BYRNE)*** Would this be consistent

with striking Josiah's skull with an unknown object?

A. Yes, ma'am.

Q. Okay. Or would it be consistent with striking Josiah's head against an unknown object?

A. Yes, ma'am.

Q. Okay. Now, what about if Josiah was on a bed or rolled off the bed onto the ground? Is that something that could cause a skull fracture like this?

A. No, ma'am.

Q. Okay. Why not?

A. Typically, most beds are between, at the very highest, 3 and a half to 4 feet high. I'm sorry. And so, what we see in a typical household fall -- we call that a straight fall, where you just sort of rolled and you flop and something gives. We see something that is a linear fracture because what happens is that that curve at the parietal bone just bends in and splits and it splits in a nice straight line and it doesn't have that kind of separation involved or that difference in elevation of the bone pieces, if it was to result in a fracture at all, which most often it doesn't.

Q. Based on your training and experience, can you give us an example of the amount of force that

would have to be used in order to cause a skull fracture like this in Josiah?

A. It's difficult to give you a number of force because we aren't allowed to study hurting a baby on purpose to see how much it takes. What we know is the type of force that it requires to result in this type of damage is more than necessary to move a child through the course of daily activities.

Q. Is it your opinion that this is not consistent with rolling off a bed?

A. Yes, that is my opinion. It is not consistent.

Q. What about if the baby was being bathed in a sink, and his head, I guess, fell, hit the side of the sink?

A. No, ma'am. That is not consistent.

Q. What about accidentally being dropped from about 3 or 4 feet?

A. No, ma'am.

Q. Okay. If you have an opinion, how far of a fall would Josiah have to sustain in order to have this injury?

A. In general, the literature defines long falls and short falls. A long fall is greater than 5 feet. So, I say this appears to be more consistent

with a long fall --

Q. Okay.

A. -- if anything.

Q. Okay. And you say "if anything." What do you mean by that?

A. Meaning if it was a fall, it would have to be one of significant height. I believe that is less consistent with a fall and more consistent with an impact of an object to the head or head to an object. That is not the floor.

Q. Okay. And in part because of the --

A. Separation and elevation.

Q. Okay. And not a clean line, more of a jagged or V shaped?

A. Correct. Yes, ma'am.

Q. Okay. Now, in addition to the skull fracture, Josiah had a scalp hematoma. What is that?

A. A scalp hematoma is a collection of blood that usually people call like a goose egg. And it collects fresh blood over the area where the fracture disturbs the blood vessels running under the scalp.

Q. What -- what is the cause of a scalp hematoma in Josiah?

A. Trauma.

Q. And what type of trama?

A. Blunt force trauma to his head.

Q. Okay. And would that be from either striking an unknown object into the baby or striking the baby against an unknown object?

A. Yes, ma'am.

Q. Okay. Are these injuries, the scalp hematoma and the skull fracture, are they -- are they related to each other?

A. Yes. I suspect they came from the same injury event.

Q. Okay. So, possibly from the same blunt force event would have caused the fracture and the hematoma?

A. Yes, I believe that is likely.

Q. Okay. Let's talk about the bleeding of Josiah's brain. Can you tell us a little bit about that?

A. Yes, ma'am. He had two different types of bleeding inside of his head that were fresh. He had fresh blood on the subdural space. The dura is a membrane. And if you consider like -- if the brain is like an egg, the skull is like the shell, yolk is like the brain, and white is like the fluid. There is a membrane that lines the shell to separate the white and the yolk. So, if you think of that

membrane like the dura membrane, what happens is that the brain's more complicated than an egg. So, it has blood vessels going through the yolk, through the shell to drain, and towards the shell to drain. Sorry.

So, when there is trauma to that area, the blood vessel breaks at the point. It goes through the membrane and bleeds and separates the membrane into halves and collects there. So, the subdural blood is collecting underneath his skull over his brain.

He also has a subarachnoid hemorrhage. Okay. So, that subarachnoid membrane was disturbed by something that hit fast and hard, and it ruptured. The blood collected there and sort of gathered in the crannies and nooks of the brain fields.

Q. Okay. Now, the subdural hemorrhaging, what is your opinion as to the cause of the subdural hemorrhaging?

A. Two possible causes for the subdural hemorrhaging.

Q. Okay.

A. One is direct trauma that broke the skull and made the scalp bleed versus a possible whiplash sort of acceleration/deceleration activity that the

head went through that caused those veins that drain the blue blood out of the brain towards the venous draining system to pop and rupture and bleed.

Q. Now, was -- the bleeding on Josiah's brain, I mean, was it just a few places? I mean, where all was it observed?

A. It was located in several places. The most obvious of which was on the left side of his head underneath the fracture. There was also some collection in between the two halfs of his brain and some more collecting underneath the thinking part of the brain under the cortex and over the cerebellum, the two bulbs that coordinate movement.

Q. Okay. In viewing an MRI of his brain, did anyplace really appear to be normal at that point in time?

A. He had the CT first and then the MRI, and it never looked normal --

Q. Okay.

A. -- anywhere.

Q. So, would there have been some sort -- was there evidence of some sort of changes in all areas of his brain?

A. Yes.

Q. Okay. And that would include the area of

brain where you think?

A. Yes, ma'am.

Q. Coordination?

A. Yes, ma'am.

Q. Your brainstem?

A. Yes, ma'am.

Q. Okay. What was going on with the cells in Josiah's brain?

A. The cells in his brain were swelling and dying. Inside the cells there is what's called a cytotoxic cascade, which means the cell, in an effort to stop the damage, actually causes more damage. So, in -- a brain can't repair itself like skin or liver. It just -- it just gets hurt and then dies. And so, the tissue tries to stop what is happening; and no effort to stop what happened actually caused more harm because of all of the bad regulation going on inside the cells. So, each cell is swelling and then dying; and that hurts its neighbors.

Q. Why are the cells not working properly?

A. Well, it's likely a combination of factors. There has clearly been medical trauma to his head; and if you have a whiplash type of motion, that can affect the brain cells themselves. They -- they have different levels of insulation. So, if you imagine

like a flower on a stem with roots. That's what every nerve cell looks like. And the stem is coated with a little jacket. Not as much on an infant as an adult, but there is a little on there. And they're different types of density, like one is a little heavier than the other.

And so, if they're whiplashing, then they're moving at slightly different speeds. And so, they stretch; and they pop. So, it could be from the whiplash and the stress; and it could be from the direct trauma that had to happen to break his skull.

And then there is what we call secondary injury; and that means that because of the stress of the whiplash, the spinal cord in the neck gets stressed and strained. And that's where your breathing centers are. If your breathing centers get affected and you have less effective breathing or less frequent breathing, your oxygen level will go down in your bloodstream; and that affects your brain.

And so, the second injury that happens is the affect of the stretching on the spinal cord that then cuts down on your respiratory ability to deprive your brain of oxygen. So, it's a very complicated picture that he presents.

Q. Okay. Now, you indicated that the subdural hemorrhaging could be caused from direct trauma and/or whiplash?

A. Yes, ma'am.

Q. And subarachnoid hemorrhaging, that would be from blunt force?

A. Or also whiplash. That would be profound.

Q. Okay. Now, I want to take a look at Josiah's head. What are we looking at here?

A. So, what we're looking at is the top of his head. When I described him laying on the little surfboard that you put him into the machine on, the images take pictures. And this one is sort of -- like if you can imagine slicing like a loaf of bread are the pictures of his head. This is like the top of his head, and this is a slice right around here that's taking and turned 90 degrees. So, you're kind of looking through the top of his head down a little bit at his brain.

Q. And what, if anything, did you note or did you observe about this CT scan?

A. The CT -- this image is profoundly abnormal.

Q. How so?

A. Well, we can start with the bones. I'm

going to point --

Q. You can actually touch it, and it will make a mark on there.

A. Okay.

Q. So, if you look here on the normal side, you see how that whole left side appears -- my hands are so cold. That whole left side is like a nice white C. Okay. If you look on the opposite side, then the bone is not a nice white C. So, here is the line of suture that we talked about. Here, this C is broken up into pieces. Okay. All of that area is fractured.

Okay. That did not make it better. I'm sorry. Okay. So, not going to touch it. So, we have got those two areas of bone. One that's normal. One that is fractured. And then we look at the inside. So, here is the line that divides the left and right half of the brain. This is the right half, and this is the left half and here's his nose pointing up here (indicating.)

MS. BYRNE: May I approach for just a moment, Judge?

THE COURT: Yes, ma'am.

THE WITNESS:

A. I do that to my iPhone, too. My hands are

just really cold.

Q. (BY MS. BYRNE) All right. Well, I guess we just won't touch it anymore. Go ahead. What were you describing about the right side?

A. So, if we look at the inside here on the right side, there is a little -- between the right and left there is a division. There is a membrane here. This membrane is very thick because it is being surrounded by blood. So, this -- see up here how you can't really appreciate much of a division, even though we know it's divided all the way through.

Here -- here, we have a collection of blood. Okay. Here, if we look at the brain, babies do not have a great deal of the jacket of the myelons. So, their gray matter and white matter are not very well outlined, even when they're healthy. But usually you can tell the leaves of the white matter and gray matter separating each other.

When you look at his, there is terrible separation. We call that lack of differentiation of the gray/white matter junction. And what that means is that they are damaged, that the swelling has taken over. And the most obvious thing we can see is the swelling. So, they are all black, not gray, not white, not variation, just all

black.

And you can see that it's called homogeneity, meaning all the same. So, this looks sort of like -- if you looked in a bowl of oatmeal, it's all the same color without any areas duplicated where the gray should be and white should be.

Q. Okay.

A. And, finally, here under the fracture -- oh, shoot.

Q. If you want, can you step down and point to the television right here?

A. Oh, yes. Okay.

So, the other thing that's important to note is this white blood here, okay, underneath the fracture area. That is the subdural blood. The subarachnoid is not very well shown on this picture, but I wanted to make sure that you could see the skull fracture and subdural hemorrhage next to each other. But there are some few little areas of nook and crannies in the brain that have not yet swollen tight to the skull.

So, this area would be where you would find a little bit of white blood diving deeply into the fissures in the brain that usually exist. His are full and puffy because the swelling. And it's

not visible in this particular slide I offered to Ms. Byrne.

Q. What are we looking at here?

A. That is a normal head CT scan of a child who I believe is roughly 5 weeks old.

Q. Okay. Now, let's compare a normal head CT scan to Josiah's CT scan from 5 months later. What do we notice?

A. So, what we're seeing here on the left, you can tell that -- that leaflike pattern, that white/gray matter differentiation, you can trace it like a child's maze, very nicely and clearly. On the right-hand side, Josiah's 5-month head CT out from his injury, there is really just -- there is no brain in there anymore. What we are seeing is that ribbon of gray tissue and then big black lakes of spinal fluid.

And what has happened is all the brain that was swelling and dying at the time has basically broken up into little component parts and either been digested by the body in the immune system or reabsorbed and excreted by the body.

And so, what's left is what we would call like a cortical ribbon. Here, just sort of a ribbon and tissue down the center and around the

side. And then here is a little island hand of spinal fluid. There is just very little brain left, and a great deal of his brain has similar appearance in the slices.

Q. The bleeding that you were talking about, could it have been caused by a stroke?

A. No, ma'am.

Q. Okay. What was the bleeding in Josiah's brain caused by?

A. His bleeding was caused by trauma.

Q. Okay. And, specifically, what kind of trauma?

A. By, I believe, a combination of blunt force trauma and then whiplash-type injury.

Q. Okay. In order to cause a whiplash injury to a child, could that be caused by grabbing and shaking a child with a hand?

A. Yes.

Q. Okay. Now, you mentioned the spine. Did Josiah have any type of a cervical spine injury?

A. Yes, he did.

Q. Can you please explain to the jury what was observed?

A. So, he had -- I have to give a little anatomy background. He had a dislocation of the

upper most portion of his spine from his head. So, the first two vertebrae -- one is called the atlas. That's C1, cervical 1, and one is called the access and it is C2. And it has like a tooth that the atlas sits around like a ring on a hook. It's mostly cartilage in a kid that age.

And then on top of that kind of washer and hook sits the skull. And there is a hole in the skull to fit on top. So, his was dislocated at the axis, at the atlas, and at the head. And so, the way I conceive of these in the spectrum of injury to the neck is like just when you pull your neck like an actual whiplash from a car accident, kind of pulling ligaments and then an internal decapitation syndrome, along that spectrum, where the top of his head was separated from his first vertebra and second vertebra. And there was inflammation and swelling in those areas, and the neurosurgeons treated that very seriously.

Q. And what -- what is your opinion as to what caused that cervical spine injury to Josiah?

A. From whiplash.

Q. And would that be consistent with grabbing and shaking a baby with a hand or hands?

A. Yes, ma'am.

Q. Okay. And because of the separation from his skull and his spinal column, what did Josiah have to -- did he have to wear a brace?

A. Well, he was too little for surgery and for the usual halo that older kids get, because his bones were too thin to support the hardware; the screws and -- I don't know if they're called bolts -- and washers that have to hold it on. So, he had what's called a Minerva jacket. Minerva, I'm not sure if that is the company or person who invented it. We just call them the Minerva. But it's a custom made device that is used to hold the child in a neutral position so the ligament and cervical spine can heal without stretching and restabilize his cervical spine.

So, the little guy was in the jacket that went like a life jacket around his waist up his chest over his arms and then had a collar that went up here to keep him in a neutral position.

Q. How long -- approximately how long was Josiah in that Minerva jacket?

A. He was in that until May of 2013. So, two and a half months, three. A little bit less than three months.

Q. Okay. Now, when you say "whiplash," what

type of force are you describing?

A. I'm describing the kind of force that we see in a high speed motor vehicle collision where the chins slams forward into the head and then the brain keeps moving or the skull has stopped because it's stopped by the chest, but the brain goes forward and hits the inside of the skull. Or something backwards where the back of the head hits between the shoulder blades and skull stops moving and brain catches up and hits the back of the skull, a mild disruption of the tissue.

Q. Okay. In addition to his cervical spine injury, what was noted?

A. Josiah's eyes or his retinas. So, he had external injury to the eye; but he also had internal injury to the eye. The eye is sort of an extension of the central nervous system. And then the ophthalmologist would say it is the window to the brain. And we always look for problems in the eye when you have problems in the brain, specifically bleeding issues. Josiah's retinas were full of hemorrhage.

Typically, ophthalmologists will divide the retina into four quadrans; and because the retina is like that thick coat of paint that goes

from the nerve -- the optic nerve in the back of the eye to the globe, and it goes all the way around and starts back at the color part of the eye on the inside.

So, you can't see it looking at a person in the face. You have to look through the black pupil of the eye, and then there is a special lens they have to move the eye around so they can get a view all the way around the curvature of the inside of the globe of the eye.

Q. Now, what was the cause of all of the retinal hemorrhaging in Josiah's eyes?

A. A whiplash type of activity.

Q. And would that be consistent with grabbing and shaking a baby with a hand or hands?

A. Yes, ma'am.

Q. Okay. And let's talk about the abusive skull trauma that you observed on Josiah. I believe we have already -- that would include the skull fracture, correct?

A. Yes, ma'am.

Q. Okay. And you said that would have been caused by blunt force trauma?

A. Yes, ma'am.

Q. Now, what about -- were there any rib

fractures noted?

A. Yes, ma'am.

Q. Okay. And what was observed?

A. He had a fracture of his left seventh rib around the back, not exactly next to the spine but near the spine.

Q. What is that indicative of? What does that tell you?

A. So, that's indicative of forceful compression of the chest. We usually see that there is pressure delivered to the back of the ribs and the spine of the vertebrae where the ribs arch over them act as sort of the full thrust on the teeter-totter to take the pressure, and that's where the rib snaps.

Q. Alone, would the rib fracture constitute serious bodily injury; or like would a rib fracture cause death or permanent loss of something?

A. It would be unlikely for a single rib fracture to cause that.

Q. What does the rib fracture in conjunction with all of the abusive head trauma observed on Josiah tell you?

A. It adds to the complete clinical picture; physical abuse, specifically physical abuse of a child with a grip around the chest.

Q. Okay. Now, let's talk about the abusive cutaneous trauma. And, again, when we say "cutaneous," what are we really meaning here?

A. It's the word I use for skin. "Cutaneous" means skin.

Q. Okay. What all was noted -- what abusive trauma was noted on Josiah's body?

A. So, I broke down his bruising into facial bruising, trunk bruising, and extremity bruising.

Q. Okay. Let's start with the facial bruising. Where was the bruising noted on his face?

A. He had facial bruising on both eyelids. So, I write down upper and lower eyelids, OU, which means both eyes, concentrated along tarsal, T-A-R-S-A-L, plate. And the tarsal plate is where the eyelashes come out.

Q. Okay. State's Exhibit No. 53, can you see the bruising and trauma that you're discussing on Josiah's eye?

A. Yes, ma'am. That's his left eye, and that red violet discoloration on the top lid and center and then the bottom lid towards the inner aspect of the eye, the nasal -- near the hose area of the eye.

Q. Okay. And does it appear to be swollen?

A. It does look a bit swollen.

Q. Okay. And looking at his other eye, in State's Exhibit No. 47, what do you observe there?

A. You see similar bruising. It's a bit tougher. The lighting is not good. But there is similar bruising in the middle, the right upper eyelid, and then also at the crease -- at the top of the globe under the eye, there is some red violet discoloration. And there was a good concentration in the center of the lower eyelid, also.

Q. State's Exhibit No. 39, what all bruising do you observe on State's Exhibit No. 39?

A. So, here we have three areas that are of concern. You can see on the left jaw, same in a bit. On the left jaw, up under the jaw by the angle of the jaw, sort of where the cartoon characters have that big squared-off jaw, he has some bruising on the underside and also in front of the left ear. And if you can see above the little C, color portion there, inside of his ear, there is also bruising.

Q. Okay. Well, let's start with the bruising on the neck area. How would a baby of 15 days old have bruising on the neck area?

A. It would be -- sorry?

Q. What is it consistent with?

A. It's consistent with excessive force

applied to his little face.

Q. Okay. Would -- could somebody be grabbing the baby?

A. Yes. We see that often with frustration with feeding.

Q. So, for example, if somebody was frustrated trying to feed their child and they might grab the face and neck area?

A. Yes, ma'am.

Q. And would that be a common occurrence in cases like that that you have seen?

A. Yes, ma'am.

Q. And then what about above -- near the ear?

A. So, this is -- this is a patch of red violet bruising present in front of his ear, and it's in line with the bruising inside of the pinna of the floppy part of the ear.

Q. Okay. Well, let's talk about that, that bruising inside of the ear. What's the ear made of?

A. The ear is completely cartilage.

Q. Okay. How do you get bruising on cartilage?

A. It's really quite a challenge. You can grab your own ear and just twist it as fast and hard as you can; and you can hardly make it hurt, let

alone make an injury. And that's because it diffuses the force very, very nicely and quickly through the flexible tissue.

Here, this is just implicative of just something so fast and so hard that the tissue didn't have time to bend and diffuse, disperse, the force through the related tissue. It just ruptured the blood vessels. So, ear injuries in and of themself, much like a posterior rib fracture, are highly specific for an inflicted type of injury.

Q. Okay. Now, I want to look at some of the pictures. State's Exhibit 55, what are we looking at here?

A. That's his shoulder. That looks like his right shoulder. So, that -- the silver dot with the clamp on it is a lead for the electrical monitor for his heart. Then the center of the picture is his armpit.

Q. Okay.

MS. BYRNE: Permission to approach the witness?

THE COURT: Yes, ma'am.

Q. ***(BY MS. BYRNE)*** Dr. Donaruma, I'm going to show you what has been marked as State's Exhibit No. 77. Now, clearly, this is not the baby in

question in this case. But is this baby similar in size to Josiah? And do you think that using this would help demonstrate to the jury the injuries and the possible causes of the injuries?

A. Yes, I believe it probably could.

Q. Okay. Now, looking at State's Exhibit No. 55, you see bruising on the armpits and shoulders. Was there similar bruising on the other side of Josiah's arms?

A. Yes, ma'am.

Q. Okay. So, would that be consistent with somebody grabbing a baby either under the armpits and squeezing, applying pressure?

A. Yes, ma'am.

Q. Okay. Would it also be consistent with possibly grabbing and squeezing the baby in a manner over its shoulder?

A. Yes, ma'am.

Q. Okay. And where also was bruising observed on Josiah?

A. There was also bruising on his right chest, down in this area (indicating.) And then he had bruising on his arm. So, he had a line of bruising along the right forearm.

Q. Okay. Now, I want to use the baby and let

me say in the offset, demonstrating with the baby can sometimes be a little upsetting because you're talking about a child. Would that be fair to say?

A. Yes.

THE COURT: Just for the record, what she is referring to as a baby is a doll, of course.

MS. BYRNE: Yes, it's clearly a doll, used to demonstrate.

Q. ***(BY MS. BYRNE)*** Looking at all of these injuries, particularly the abusive head trauma that you observed in Josiah, I want to do some demonstration.

Would the injuries, the skull fracture and the bleeding in Josiah's brain, would it be consistent with somebody holding a baby and then dropping it onto the floor?

A. No, ma'am. It would not.

Q. Okay. Why not?

A. Because the constellation of injuries he has reflect far more force than we see in that type of short fall.

Q. Okay. Now, if I were holding the baby over a sink or corner of the counter and I accidentally stumbled and hit the baby into it, would that be consistent with the injuries observed in Josiah?

A. No, ma'am, it would not.

Q. Okay. What if I was changing the baby and I was holding him and he fell back like that (indicating)? Would that be consistent with the injuries?

A. No, ma'am. That's not sufficient.

Q. Okay. What about that (indicating)?

A. Well, yes. That would be more forceful and could be responsible for the head trauma.

Q. Okay. The whiplash that you noted that would have caused the spinal injury and perhaps the bleeding in the areas of the brain, would that be consistent with somebody holding a baby like this (indicating), maybe stop crying, or shaking, holding baby a little too rough, bouncing the baby like this (indicating)?

A. No. People handle children like that all the time and don't get those type injuries. That's not reasonable.

Q. What about, you know, burping the baby a little too hard (indicating), would that be consistent?

A. No, ma'am, it would not be.

Q. What has to happen to the neck? What has to occur in order to cause that whiplash injury?

A. So, it needs to be a forceful and violent acceleration and deceleration, a sudden start and stop of the head where the tissue moves, usually more than one direction, over the shoulders and not in a perfectly straight line.

Q. Would it be consistent with shaking the baby in a forceful manner?

A. Yes, ma'am.

Q. Okay. Could a 6-year-old have caused these injuries?

A. No.

Q. And why not?

A. A 6-year-old is not able to -- a 6-year-old would not have the strength and coordination to sustain that kind of force to cause that kind of injury to a child.

Q. And looking at the blood and how Josiah presented at the hospital, when he was admitted at approximately -- I think it was 6:00, would the bleeding observed or the injuries sustained be consistent with some sort of birth complication from January 24, 2013?

A. No, ma'am. That is not possible.

Q. And why is that not possible?

A. Because he has a full constellation of

findings that is reflecting of trauma more resent than 15 days prior. And, in addition, he had a five-day observed stay in a medical care unit where he was seen by doctors and nurses around the clock. It's not possible for the injuries to have gone both without symptoms and without notice.

Q. If Josiah's brain had been bleeding the way that he was bleeding on February 8, 2013, would it -- he ever have even survived to that date?

A. No, ma'am.

Q. Okay. Now, what sort of condition was Josiah in when he checked into the hospital on the 8th?

THE COURT: Excuse me a moment. I'm going to ask the jury to retire briefly so we can take up a scheduling issue.

All rise, please, for the jury.

(Jury released)

THE COURT: Thank you. Have a seat.

Okay. Tell me what your plan is with the scheduling if the doctor is not available until next Wednesday -- is that correct? Is that Wednesday?

THE WITNESS: Thursday.

THE COURT: Thursday. And where are

you going?

THE WITNESS: I'm going to Annapolis, Maryland, for a conference.

THE COURT: I might mention I skipped my conference yesterday to try and get through this. Okay. So, this is taking a lot of time; and it might have been better to put her on before the therapist. So, we could have started earlier. So, when are you expecting the Defense to do their cross-examination? Because it's 5 until 4:00.

And, Cynthia, I know I promised we'd quit at 4:30 for your daughter's prom, but it's looking bleak.

THE REPORTER: It's okay, Judge.

THE COURT: So, you're taking a lot of time and taking your time. Are you expecting Ms. Williams to rush through her cross?

MS. BYRNE: I am not expecting Ms. Williams to rush through her cross.

THE COURT: So, give me your plan on what we're going to do --

MS. BYRNE: Well --

THE COURT: -- with the doctor?

MS. BYRNE: I believe that I'm almost at the end of the doctor's testimony, and I can pass

her to Ms. Williams.

THE COURT: All right. Ms. Williams, can you do your cross-examination in 45 minutes?

MS. WILLIAMS: In 45 minutes? I would think so, Your Honor.

THE COURT: Okay. I'm sorry.

THE WITNESS: That's okay.

THE COURT: Okay. You're going to pass her in 10 minutes?

MS. BYRNE: If not less, Judge.

THE COURT: Okay. Thank you.

(Jury enters the courtroom)

THE COURT: Please be seated.

MS. BYRNE: May I proceed?

THE BAILIFF: We're missing one juror.

MS. BYRNE: Oh, I'm sorry. Okay.

(Brief pause)

(Juror enters)

THE COURT: Thank you. You may continue.

Q. ***(BY MS. BYRNE)*** How grave was Josiah's condition when he checked in on February 8, 2013?

A. He was rapidly critical and unstable.

THE COURT: And what? Sorry.

THE WITNESS: He was rapidly critical

and unstable.

THE COURT: Thank you.

Q. ***(BY MS. BYRNE)*** Without treatment, in that moment, how quickly would -- how likelihood -- how likely would it have been that Josiah would have passed away?

A. 100 percent, he would have died.

Q. Given the nature of his injuries or the amount of fresh blood that was seen on his brain and the critical condition that he was in upon being checked into the hospital at 5:06 p.m., what sort of time frame can you say that these injuries were likely to have occurred in?

A. That this most likely would have happened within a 12-hour window.

Q. Okay. And what are you making -- what are you basing this opinion on?

A. I'm basing that on the child's presentation clinically, just how sick and how rapidly he stopped breathing, as well as the appearance of the bleeding on the brain on the head CT.

Q. Okay. So, roughly, if we're just going to say a time, 5:00 p.m -- let's be generous and say 5:00 p.m., even though CT scans were done a little bit after that. If we were to go back approximately

12 hours, we would be looking at roughly 5:00 a.m.?

A. Roughly.

Q. Okay. Sometime on February -- your expert opinion is sometime on February 8, 2013, these injuries would have occurred?

A. Yes, ma'am.

Q. Okay. Now, since Josiah's injuries, he has routinely had follow-up treatment and other procedures at Texas Children's; is that correct?

A. Yes, ma'am.

Q. Okay. On August 2, 2013, was Josiah diagnosed with hydrocephalus?

A. Yes.

Q. And, briefly, what that is?

A. It means that because of the debris in his head from the dead cells and the blood, the drainage system, sort of -- the fluid as blocked out and the fluid accumulated and caused an increase in his head size.

Q. And what had to be done in order to remedy the swelling and the fluid that was in Josiah's brain?

A. He had a neurosurgical surgical procedure called a V for ventricle, V-E-N-T-R-I-C-L-E, peritoneal, P-E-R-I-T-O-N-E-A-L, which is the cavity

of the abdomen, VP shunt.

Q. And in looking at the scans from August 2, 2013, can we see the tubing in Josiah's brain where the shunt has been placed?

A. Yes, ma'am.

Q. Okay. And, basically, the shunt assists in draining that fluid that Josiah's body -- his own brain is just not capable of draining on its own?

A. Yes, that's right.

Q. Okay. And where does it drain to?

A. It drains out of the right side of his head down the side of his head, down his neck, down the skin of his chest, and into his abdominal cavity.

Q. And will this be a lifelong instrument that Josiah will have in his head?

A. Yes.

Q. Okay. And what are some potential complications?

A. Within the first year, about 40 percent of shunts will fail. So, blockage, vomiting, increase in head pressure, within that two -- within two years about 50 percent will fail. And then every year after that, there is another 5 failure rate of blockage interruption.

Q. Do you have an opinion as to what caused

the hydrocephalus?

A. Yes. It was a consequence of the abusive head trauma.

Q. Okay. Now, in December of 2013, Josiah had something called a G tube placed in his stomach. What is a G tube?

A. G tube. "G" stands for gastric, and it is a tube placed from the outside through the abdominal wall, through the wall of the stomach, and then held -- stapled together with a balloon inflated on one side and then a button on the other so that a tube can deliver nutrition directly into the child's stomach and bypass his mouth.

Q. Briefly, if Josiah was able to eat from a bottle after being discharged from the hospital, why over time would he start rejecting a bottle and refusing to eat?

A. Well, part of that is because a child -- an infant has a suck reflex. Anything you put in their mouth, they suck on it. Young mothers overfeed the baby just by not stopping because they keep sucking. Over time that reflex goes away. It's not necessary anymore because a child can eat other food. With the loss of that suck reflex, Josiah may not know what to do with a bottle anymore because that reflex he

doesn't have to think about is gone.

In addition, he has so little brain left, it's impossible to say if he even feels hunger cues like a regular person does, like if he knows he is hungry or if he knows he is thirsty.

Q. Is that something that Josiah will have for the remainder of his life?

A. Yes. I think that is likely.

Q. And are there risks of infection or complications with the G tube?

A. Yes. After it's placed, the bigger risk of poking something -- you're not supposed to go far. They leak. They come out. They can get infected.

Q. Given your observations about the head trauma and skeletal trauma caused to Josiah, what are some of the life-limiting affects?

A. He will never function like another child of the same age ever. He will be limited not only in his ability to think, things like math, science, art, music; but he won't understand human interaction. Would he be able to recognize that -- when you smile at somebody and they smile back, that feels good. He won't have that.

Q. Okay. And when you personally treated Josiah, did you do any sort of testing to see if he

could have -- had vision?

A. Yes. He seems to respond to light. So, we turn the lights down and shine a light and he looked at the light, but he didn't look at faces very well. And so, I did what's called a threat test. So, with the baby there, I just move my hands toward his face; and a child will blink if something is coming at them. He didn't notice.

Q. Based on everything that you reviewed, your treatment of Josiah and your expertise in child abuse pediatrics, do you have an opinion as to the cause of his injuries?

A. Yes.

Q. And what is that?

A. He is a victim of child abuse.

Q. And based on the extent of Josiah's injuries, particularly the brain hemorrhaging, the lack of oxygen to his brain due to whiplash, and the skull fracture and subsequent bleeding, do you have an opinion as to whether those injuries constituted serious bodily injury?

A. Yes.

Q. Okay.

MS. BYRNE: I pass the witness.

THE COURT: Thank you.

Ms. Williams, on cross?

MS. WILLIAMS: Yes, Your Honor.

May I have just a moment to get --

THE COURT: Yes, ma'am.

CROSS-EXAMINATION

Q. ***(BY MS. WILLIAMS)*** I noticed that when you were testifying, you were looking at a document. Is my assumption correct?

A. Yes, ma'am.

Q. May I have an opportunity to examine it?

A. It's a couple of my notes from the day I saw Josiah.

Q. Okay. Thank you.

A. And these are just written notes.

Q. Okay. Dr. Donaruma, your job is strictly in the area of child abuse; is that correct?

A. Yes, ma'am.

Q. Okay. And then capacity, you -- part of your job, would it be testifying like in court like you are today?

A. Yes, ma'am.

Q. And have you ever been an expert witness for the Defense?

A. Yes, I reviewed cases; but they never wanted me to testify in court.

Q. Have you ever been a testifying expert witness for the Defense in court?

A. No, never in court. They don't like what I say.

THE COURT: Ma'am, please just answer the question that's asked. Don't add anything extra.

THE WITNESS: Yes, Your Honor.

THE COURT: Thank you.

Q. ***(BY MS. WILLIAMS)*** And I think you have testified over 50 times for the Court; is that correct -- or about correct?

A. I am sure that's -- I'm sure that's correct.

Q. And that is definitely part of your job?

A. Yes. The hospital has thought our testimony is a community benefit for education purposes, so they support the time.

Q. I'm sorry. I couldn't hear you.

A. Yes, ma'am. The hospital feels that our testimony serves -- provides a community benefit for education, so they support our time here.

Q. And Texas Children's Hospital gets a special grant to work cooperatively with law enforcement officers, prosecutors, Children's Assessment Center, and other CPS professionals?

A. They do? I'm not familiar with it.

Q. In reference to this case, have you had an occasion to talk with law enforcement officers?

A. I believe there was a police officer present at my first meeting with Ms. Byrne. I don't -- I don't recall specifically having a separate meeting with law enforcement.

Q. And have you met with Ms. Byrne approximately three times or more?

A. I can remember twice, but we have exchanged a lot of emails. I have been in contact with her.

Q. Okay. Now, typically, when you're working -- well, during the hospital stay itself, is it correct that you did not treat Josiah Fisher?

A. Yes, that's correct.

Q. But, subsequently, you have consulted and treated, overseen his treatment; is that correct?

A. Yes, that's correct.

Q. Okay. And that's because you're the child abuse pediatrician?

A. Yes.

Q. Okay. And before today, you and I haven't talked; is that correct?

A. No. No, ma'am, we haven't.

Q. Typically, don't you -- in this instance,

when the physicians were saving Josiah's life, they did so without the benefit of a maternal history or a family history; is that correct?

A. Yes.

Q. And, ideally, you would want a family history of both parents?

A. Yes.

Q. Because that helps you make a decision as to whether, you know, this is an injury or a condition?

A. Yes. Yes.

Q. Were you -- you have -- you looked at the medical records from Montgomery County Regional Medical Center?

A. Yes.

Q. And you --

A. I'm sorry. The Conroe Regional Medical Center.

Q. Oh, thank you. You're absolutely correct. Thanks.

And the records of the mother showed that she had gestational diabetes?

A. Yes. She may have had diabetes but not insulin or hypoglycemic.

Q. Controlled by diet, probably?

A. Yes, ma'am.

Q. And that she was anemic?

A. Oh, probably.

Q. And because most of the women of childbearing are.

And that she had asthma?

A. I don't remember that, but I believe you.

Q. Okay. Now, can -- can a long labor cause delayed birth injuries because of periods of lack of oxygen, like you described with meconium?

A. You mean like a cerebral palsy type of picture? Yes.

Q. Yes.

A. Yes. It's possible.

Q. And -- and other problems as well as cerebral palsy?

A. Like the sepsis that we spoke of, yes. There are complications that can come from prolonged labor.

Q. Well, there is probably a range. Would you agree with that?

A. Yes, ma'am.

Q. Many things. And the onset of the appearance of the injuries can be that?

A. Yes.

Q. Can it be delayed six months?

A. Depending on the condition in question, yes.

Q. Okay. Is there any way that you know of to test for all possibilities in this area?

A. No. I think that timing and regular well child checks are usually where many of the normal things come to life.

Q. But not at birth, there is no checking?

A. Correct. Some -- some conditions are not evidenced at birth. That's correct.

Q. Right. And developed after the child grows?

A. Yes.

Q. Typically, would a child's -- you know, from what you described of the child's head, the actual skull portion being so flexible, I'm assuming also that it's very thin?

A. Yes, it's thinner in infants than it is in, say, a 6-month-old or an adolescent or adult.

Q. Would it be the thickness of this stack of papers?

A. I'd make it a little bit thicker.

Q. A little bit thicker?

A. Probably about three times that.

Q. Three times that?

A. Maybe. Maybe four.

Q. Okay. So, how many millimeters are you -- do you -- would you estimate that to be?

A. I estimate probably between 4 and 6, which is like 4 to 6 times high. Less than 6.

Q. Okay. And you never did meet the mother of Josiah Fisher?

A. No.

Q. Or his father?

A. No. No, neither of them.

Q. Or his grandfather?

A. No, ma'am.

Q. Or his step grandmother?

A. No. I only met the foster family.

Q. Okay. And that was because they brought Josiah in for treatment.

Now, when Josiah was born, it was sort of a precipitous birth?

A. I believe it was.

Q. Well, in that he was born to -- almost immediately as he was received at the hospital?

A. Oh. Oh, yes. Yes, he came out fairly quickly once he got to the right place. Yes.

Q. About four minutes or so?

A. It was pretty -- yes.

Q. And they -- pathology found acute infection in the umbilical cord -- I'm sorry -- cord; is that correct?

A. I thought it was the placenta.

Q. Well, the cord attached to the --

A. Right.

Q. -- to the placenta. And meconium staining on the placenta, the baby's side?

A. Yes.

Q. And infarction?

A. Yes.

Q. And can you tell us what infarction is?

A. It's -- what happens is the placenta gets older. The older placenta gets past term. It starts to fail. And so, you can see stroking in the placenta. And an infarction is a stroke, or myocardial infarction is a heart attack.

Q. And is it possible to get infection through the umbilical cord, for a child to get an acute infection?

A. Yes. That would be quite rare, but I have seen that. It's reported.

Q. And -- and Josiah was given a lot of antibiotics in the event he became septic while he

was at Conroe Regional Medical Center?

A. Yes. He and his mother got --

Q. Sorry?

A. Yes, ma'am. He and his mother got antibiotics.

Q. Okay. Now, there is no doubt in your mind that there is a skull fracture, that Josiah has a skull fracture?

A. Oh, yes, it's not refutable. He has a skull fracture.

Q. And that's in an area of the head that's common to have skull fractures?

A. That's right.

Q. Can you tell us the difference between a broken skull and a fractured skull?

A. Yes. There is no difference.

Q. No difference?

A. No, there is no difference.

Q. Why do they call one a fracture and one a broken skull?

A. I can't explain it. The same reason I say cutaneous when I mean skin. We get trained in a vocabulary, and so we use it.

Q. And on the bruises, some of those bruises looked kind of almost like -- I wouldn't call it

chafing -- chafing. You know, from looking at the pictures, you know, like friction on the skin.

A. I --

Q. Like particularly around here (indicating)

A. I would have to say I don't agree with that interpretation.

Q. Okay. They don't look that way to a professional like yourself?

A. That is correct.

Q. And bruises are kind of -- like trying to time them is kind of an art form, isn't it?

A. We don't time them anymore because we realized we don't know it very well.

Q. Because you can't -- you cannot definitely determine the age of the injury by the color of the injury?

A. That's right.

Q. And are some children more acceptable to bruising than others?

A. Oh, sure.

Q. And Josiah was light skinned and light headed?

A. Yes.

Q. Okay. And I believe in the Texas Children's medical records, he had a tendency to

bleed easily?

A. Well, we can't prove that. I believe what you're referring to is in "review of systems," the father reported the child bleeds easily. That was not something reproduced in the hospital.

Q. Can you -- can -- would you be able later to show me in the medical records, not right now but later after your testimony, where that is in the medical records that the father said he bruises easily?

A. Yes, I can.

Q. Okay.

THE COURT: So, you-all do that this evening after we recess.

MS. WILLIAMS: I beg your pardon?

MS. BYRNE: I can find it right now while she continues on cross, Judge. I know exactly which page it's on.

THE COURT: Thank you.

MS. WILLIAMS: Thank you.

Q. ***(BY MS. WILLIAMS)*** And as a matter of fact, after Josiah got to Texas Children's Hospital, there were a multitude of physicians working on him to save his life?

A. Yes.

Q. Dr. Cara Doughty, I think she was lead physician in the emergency area. And all of those physicians thought and wrote in their records that Josiah would be dead in 24 to 48 hours; is that correct?

A. I don't recall that specifically. It may be part of something they write routinely. If you tell me it's there, I don't think I would argue.

Q. Well, from the records, you do know that he was a -- Josiah was a life gift candidate. Almost immediately life gift came the same night?

A. Yes, ma'am.

Q. Okay. And that meant that he was designated for organ transplant, that kind of thing?

A. Yes.

Q. Immediately?

A. They felt death was imminent. They felt that some of his organs could be salvageable for other children.

Q. And they only do that when they're pretty sure or it's their opinion that that patient is going to pass away?

A. Yes.

Q. And I think -- typically, don't they pass away when the life support is taken from them?

A. Yes. They declare death based on other criteria, and then they are sustained on the ventilator after being declared to maintain the organs for transplant.

Q. Okay. This is a Texas Children's medical record. Some of it's not present because it's been excised, so to speak.

A. Yes.

Q. Is this the area where you think that -- where it says that the -- hematological bruises and bleeds easily?

A. Yes. It says that right there.

Q. Okay. And now -- and it says here, according to the father, he spits up with feeds and has had eight loose diapers to date?

A. Yes, it does.

Q. But this is not the father saying that he bruises and bleeds easily.

A. Well, in fact, it is -- "review of systems" means that you review each organ system with the caretaker in order to affect your diagnoses you're going to consider --

Q. Okay.

A. -- as contributing to his problem.

Q. Okay.

THE COURT: Try not to talk at the same time, please. Ms. Williams, control the pacing please.

MS. WILLIAMS: Thank you for clearing that up.

Q. ***(BY MS. WILLIAMS)*** Now, you talked about him having a sonogram, Josiah having a sonogram at Conroe Regional Medical Center?

A. Yes.

Q. And there were just a few comments about him having symmetrical ventricles in the brain?

A. What I saw was the interpretation from the doctor that said "head ultrasound normal." That's what I know.

Q. Right. And, of course, ultrasound is not the best imaging system. It wouldn't necessarily show a skull fracture?

A. No. A physical exam would show a skull fracture.

Q. And you wouldn't expect it to show a skull fracture; is that correct?

A. No, because you don't get an ultrasound for a skull fracture. You could find it, but that wouldn't make sense medically to do that.

Q. Do they, as a routine practice, always

ultrasound children?

A. No.

Q. Do you know what they did in Josiah's case?

A. Presumably because he was so fussy, that was something they mentioned; and they were worried about his fussiness.

Q. And how long -- do you know how long the fussiness continued?

A. It continued, I believe, through about day four because on day five they felt it had resolved; and he went home.

Q. Okay. On the -- you talked, also, I think about the Apgar; and on a scale of 10, okay, 2 is low. And that was because there was no respiratory effort and no reflex when he was -- when Josiah was initially born?

A. Yes, ma'am.

Q. And when a person sustains blunt trauma, is the swelling immediate?

A. No, it varies from child to child; but it's not instantaneous.

Q. And any time there is a lack -- significant lack of oxygen, is there swelling?

A. Yes.

Q. There -- you are familiar with studies, are

you not, that talk about lethal minor falls from shorter different -- distances?

A. Yes. There are case reports.

Q. Yes. And so, there is some controversy about whether or not a child can sustain serious bodily injury?

A. There is some.

Q. But we go back to the same thing, Josiah had a skull fracture and a broken rib and subdural hemorrhage and a broken rib -- a fractured rib.

A. Yes.

Q. And, presumably, his little ribs would be -- be fragile as well as his whole skeletal.

A. In fact -- no. They are actually far more flexible because they are mostly cartilage. So, they can take more distention and deform more than an adult bone which snaps faster.

Q. Uh-huh (affirmative.) And that wasn't discovered until February the 25th because it wasn't picked up in x-rays due to certain limitations; is that correct?

A. That's not entirely correct. The callus had to form on a fracture because we do miss hairline fractures; but once the bone responds and the healing was apparent, it was diagnosed.

Q. Can -- Doctor, can nutrition also affect how easily bones fracture?

A. In a 15-day-old, I would say no because mostly they're reflecting maternal state and they can suck a mom dry to keep themselves stable. So, in a 15-day-old I would say that is not as accurate as it would be, say, in a 15-month-old.

Q. And when it's in the back part, is that from some pressure pushing down?

A. Yes.

Q. On the front to the back, like if he was laying down on his back?

A. It's less typical in that fashion because that gives you full support to the rib arches. When you have it in insulation like that, it's usually because there is a levering of the rib arc over the spine -- I'm sorry -- the vertebrae processes that arc, gets treated like a point and then it just breaks at the point where the pressure is being delivered.

Q. The blunt trauma is really nonspecific finding in -- in itself; is that correct? Or would you call it a specific finding?

A. I think I would need to understand --

Q. The question --

A. -- what you mean by "blunt trauma." Because there is so many, the bruising and then the head and the skull.

Q. In the skull?

A. The blunt trauma itself is not specific. It's in the context of the other stuff that was also present, plus the absence of any reasonable history that would cause it.

Q. Okay. But the skull fracture itself, that's --

A. Just the skull fracture by itself tells you little.

Q. Little. And you basically -- do you disagree with the studies that indicate short falls can cause serious bodily injury or death?

A. May I first clarify they're not studies, they're case reports. So, there wasn't a question that was experimented on. It is just a description of cases. And so, if we talk about case series, I disagree with the methods.

Q. I see.

A. I think they were not well done. So, I can't find their conclusions believable.

Q. Okay. But --

THE COURT: Can everybody hear okay?

Thank you.

THE WITNESS: Sorry. I will --

THE COURT: You still have water?

THE WITNESS: I am a second cup down.

THE COURT: You need more?

THE WITNESS: No. I think I will be all right. I will try harder, Your Honor.

THE COURT: Thank you.

Q. ***(BY MS. WILLIAMS)*** So, it's your best -- best professional judgment that this was not an accident, that the injuries that Josiah sustained were not accidental?

A. Yes, ma'am. That is my opinion.

Q. And there are no studies that you're aware of using actual infant with shaking or with striking the children?

A. No, ma'am. I'm aware of no studies to experiment on human infants.

Q. But there are case studies of recorded short falls, not -- case -- recorded short falls?

A. Yes.

Q. That result in children's death?

A. They are not short falls. There is a recording of a child who sits on a bar and spins fast and hard. She twirls and spins, rotated about her

pelvis because she is on the bar and she spins and slams her head into a concrete ground. So, it's not a fall. It has a significant acceleration component to it.

Q. You were talking about back acceleration and deceleration injury. Is that -- is a torquing the same kind of movement?

A. No, it's not.

Q. Okay. Just torquing, though, would add more force to a fall or an injury?

A. Yes. By torquing, you mean something that's twisting?

Q. Yes.

A. Yes, that does.

Q. Now, you really aren't here saying who injured this child?

A. I can't say.

Q. Because you don't have any evidence or knowledge of who injured the child?

A. I -- I never spoke to anybody who had care of the child at the time he became -- I only have the medical records.

Q. You -- in your medical opinion, you're saying you don't think it's disease or any kind of disorder, that it's what you said it is?

A. Yes, ma'am. It is child abuse.

Q. And radiologically -- I think you showed us a skull fracture, but there are a multitude of diseases and disorders that cannot be tested due to financial costs in the hospitals?

A. Do you mean disorders that would affect this particular baby?

Q. Well, like the hemorrhaging.

A. Could you -- could you --

Q. Okay.

A. I don't understand.

Q. Well, oxygen, whether it's restricted or cut off or whatever, that's -- is that what causes the hemorrhaging?

A. No. No, ma'am.

Q. Okay. What causes the hemorrhaging?

A. The type of hemorrhaging present in Josiah's body within his eyes and his central nervous system is due to trauma. Like in Josiah's case, a combination of acceleration/deceleration whiplash and blunt force trauma.

Q. Okay. But, generally, hemorrhaging can be caused by a variety of things; is that correct?

A. Yes. A hemorrhage itself, like not in this child but like the concept of hemorrhage --

Q. I'm talking --

A. -- sure, many things make hemorrhage happen.

Q. Okay. And you said that there was a 12-hour window of timing, in your opinion. Are you measuring from the onset of injuries?

A. Yes. Yes. I mean, it's roughly 12 hours to his decompensation looking back is when it could have happened.

Q. And you're -- you're thinking from the time that he was in the hospital. Well, can the onset of something like this be increased fussiness, diarrhea, crying?

A. I believe that can be a trigger for what happened. I don't believe a child with this type of injury would be active and crying like you think of a colicky baby. They might whimper a little and fuss, but they wouldn't be actively screaming. They don't have the consciousness to do that. Diarrhea, I can't speak to.

Q. Well, the child was crying when he came into the emergency room.

A. Like fussy, whimpering type of crying, but not when you think of like a colicky baby with everything drawn up and the skinny face. I don't

think that he could have mustered that.

Q. Okay. And, of course, that's your -- your opinion?

A. Yes.

Q. Right. And you can -- no one can -- no professional can really tell you exactly when an injury occurs?

A. That's right. I think to give a precise time would not be responsible.

Q. And even giving a time frame, that's an estimate?

A. Yes.

Q. Because, indeed, you don't know when that happened?

A. No. I was not there.

Q. Okay. Can you tell us in terms of G forces how much force would it require to have an injury like the skull fracture that Josiah had?

A. I can't tell you in terms of G forces because babies aren't studied in experimental circumstances.

Q. So, medicine and science cannot provide an answer for all of our questions; is that correct?

A. Oh, no. I have the answer for Josiah's questions.

Q. Not talking about Josiah. Like on the timing, obviously, that can't be -- that can't be determined. You can guess at a time frame?

A. Yes.

Q. But you don't know whether you're right or whether you're wrong?

A. That's true.

Q. Just strictly opinion?

A. It's an estimate.

Q. And that's what the doctors were doing when they estimated on February the 8th that Josiah would be dead within 24 to 48 hours?

A. Yes.

MS. WILLIAMS: Pass the witness.

THE COURT: Thank you.

Any redirect?

MS. BYRNE: Briefly, Judge.

REDIRECT EXAMINATION

Q. ***(BY MS. BYRNE)*** Just so that it's clear, how would grabbing and shaking a baby, causing that whiplash trauma, how would that lead to oxygen deprivation?

A. So, you have -- you have that primary injury and then secondary injury. So, we talked about the stretching of the spinal cord. And there

is also sort of a concussion of the brain. When you have a decrease in your mental status and injury in your cervical spine, you worry about that stress on the breathing centers.

And so, the drive to breathe in and of itself is affected. And you have swelling of the dying tissue that also impedes the ability of -- well, it occupies space. When it swells, it grows, like push on all those growth plates and separate. And so, that puts pressure from the outside, like from the spinal column itself, on the breathing centers; and you get diminished ability to breathe even if you wanted to.

Q. And can the lack of oxygen -- what would cause the seizure-like symptoms?

A. Well, for him, the blood touching the brain could cause the symptoms. The damage to the brain could cause the symptoms and the mechanical damage. And then the deprivation of oxygen can cause the symptoms. It's a complex picture.

Q. Okay. Now, would it be fair to say that the blunt force trauma, the striking skull fracture and the whiplash, could have occurred at the same time or over a period of -- I mean, it doesn't have to happen at the exact same time, does it?

A. No, no. It could have been a slamming and a whiplash, and I can't -- I don't know. I wasn't there.

Q. Okay. And this time line that you gave, your expert opinion would be that sometime within 12 hours; and that's not exact science, correct?

A. Correct.

Q. That's just your expert opinion based on the symptoms and everything that was observed, right?

A. Yes, ma'am.

Q. Okay. In addition to just the injuries, when Josiah was checked into the hospital in the grave condition, would it be important to you as a child abuse pediatrician to know whether the baby was eating?

A. Yes, ma'am.

Q. Okay. And why is that?

A. Well, babies do very few things that help us assess their nervous system; but one thing is wake up spontaneously to eat and eat well. So, that's a great assessment of knowing that their central nervous system, as primitive as it is, is in good shape. So, the last time a child wakes and eats prior to his injury is the last time we can say the injury didn't exist.

Q. So, if -- it would be important to know when the baby last ate?

A. Yes, ma'am.

Q. Okay. So, if at the hospital the father reported that after picking up the baby Thursday night he was still eating and drinking well, would that be an indicator to you that the trauma likely occurred after the baby stopped eating?

A. Absolutely.

Q. And it's your expert opinion that this is child abuse?

A. Absolutely.

MS. BYRNE: At this time I offer State's Exhibit No. 78. And I will pass the witness. And tender to Defense counsel.

MS. WILLIAMS: No objection.

THE COURT: Admitted.

MS. WILLIAMS: You pass?

MS. BYRNE: Yes. Pass the witness.

MS. WILLIAMS: Thank you.

RECROSS-EXAMINATION

Q. ***(BY MS. WILLIAMS)*** Doctor, did you author this report?

A. If that is the one you took from my folder, yes, I did.

THE COURT: Try not to talk over each other. Control the pacing, Ms. Williams.

Q. ***(BY MS. WILLIAMS)*** Okay. In here it says he will cry for feeds, dirty diapers, and a pain cry.

A. Yes, it does.

Q. I beg your pardon?

A. Yes, it does say that.

Q. If a pattern of feeding for a child changes based on the child, not on the adult, and the child begins to not take all of its formula, only about half of it, would that be an indication that the child is having some symptoms?

A. Yes, that is -- you're describing symptoms.

Q. So, when that starts, that could be an onset of the symptoms?

A. Yes, that would be the onset of symptoms.

Q. Because it takes times for these, the swelling --

A. Oh, you mean onset of symptoms of his. I -- no, no, no, no. No, a child who suffers this kind of injury is immediately altered in his mental state.

Q. Can -- in an altered mental state, can a child be looking at you but you get the feeling that it's not seeing you or the impression that it's not

seeing you?

A. Yes.

Q. And can it kind of function some of that time and then go into the altered state?

A. With this type of trauma, no, ma'am. Once the trauma happens, they are altered and do not go back to their baseline.

Q. Well, not to their baseline, but like if you consider a seizure an altered state?

A. Yes. As a result of this trauma?

Q. Well, I'm just asking you in general if a seizure is a type of altered state?

A. Yes. It's not entirely comparable to this situation of Josiah's trauma; but, yes, we call seizures altered mental status.

Q. And the layperson can't obvious -- can't necessarily tell a seizure when it's happening unless it's pretty dramatic?

A. Yes, that's true. Sometimes a doctor can't tell either. You need EEGs to tell you.

Q. Okay.

MS. WILLIAMS: Pass the witness.

THE COURT: Thank you.

MS. BYRNE: Nothing further.

THE COURT: Thank you.

Since this witness is leaving town, is she excused for all purposes?

MS. BYRNE: No objection from the State.

MS. WILLIAMS: Judge, I'd like for her to be on call just as a precaution more than --

THE COURT: Okay.

MS. WILLIAMS: -- anything.

THE COURT: All right. And when will you be back?

THE WITNESS: I will be back about 8:00 p.m. on Wednesday night.

THE COURT: All right. Thank you. So, do you have a phone number in case we need to reach you between now and then?

MS. BYRNE: I do, Judge.

THE COURT: Okay. So, at this time you're excused. Hopefully we will not need you back.

THE WITNESS: Thank you, Your Honor.

THE COURT: Thank you. Have a good trip. Thank you.

THE BAILIFF: Excuse me, Judge. You have several people in the hall who are witnesses, and they would like to know can they leave or --

THE COURT: Okay. I think they need

to wait until the lawyer comes out and talks to them.

THE BAILIFF: Yes, ma'am.

THE COURT: Thank you. You're free to go, Doctor.

THE WITNESS: Thank you, Your Honor.

(Witness released)

THE COURT: Yeah. Sir, they need to wait so the lawyer can discuss the scheduling with them on Monday.

THE BAILIFF: Yes, ma'am.

THE COURT: Thank you. Is there something else?

MS. BYRNE: The State rests.

THE COURT: Thank you very much.

Okay. May I see counsel at the bench?

(At the Bench)

THE COURT: Are those your witnesses? Are those your witnesses in the hallway?

MS. WILLIAMS: Some of them are.

THE COURT: So, they can stay and talk to you.

MS. WILLIAMS: Thank you.

THE COURT: So, we will begin your case Monday at 10:00.

MS. WILLIAMS: At 10:00. Thank you,