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I certify that this Designation does not contain any matters which are irrelevant to this appeal.

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THOMAS J. HOLBROOK, JR., MD

May 11, 2020

Crystal Goodwin, et. al.

vs

Midlands Orthopaedics and Neurosurgery, et. al.

2019-CP-40-04185

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2019-CP-40-04185

REPORTER: Laura DeCillis

ORIGINAL

STATE OF SOUTH CAROLINA) IN THE COURT OF COMMON PLEAS
) C.A. NO.: 2019-CP-40-04185
COUNTY OF RICHLAND)

Crystal Goodwin and James Goodwin,

Plaintiffs,

vs.

Midlands Orthopaedics and Neurosurgery, Thomas J. Holbrook, Jr., M.D., Carolina Anesthesiology Associates, P.A., Jennifer R. Root, M.D., and Prisma Health, f/k/a Palmetto Health,

Defendants.

Videotaped Deposition of

Thomas J. Holbrook, Jr., M.D.

May 11, 2020

Videotaped Deposition on oral examination of Thomas J. Holbrook, Jr., M.D., reported by Laura S. DeCillis, Certified Court Reporter and Notary Public in and for the State of South Carolina; said deposition taken at the offices of Garber Reporting Service, 1226 Pickens Street, Columbia, South Carolina, on Monday, the 11th day of May 2010, scheduled for 10:00 a.m. and commencing at the hour of 10:26 a.m.

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Also present:

Catherine Matthews

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This deposition is taken in accordance with the South Carolina Rules of Civil Procedure.

It is agreed and stipulated by the deponent and respective counsel that the reading and signing of the deposition by the deponent is expressly waived.

VIDEOGRAPHER: This is the beginning of Media I. Today is May 11th, 2020. We're on the record at 10:26 a.m. My name is Nathan Railey, Legal Videographer, with Garber Reporting. I'm familiar with Rule 38 pertaining to videotaped depositions. In accordance with Rule 38, the witness has a right to be shown the videotaped deposition unless waived by the witness and parties.

Laura DeCillis is a notary and court reporter. We are engaged by counsel for the Plaintiffs taking the deposition of Thomas J. Holbrook, Jr., M.D., with the deposition being held at Garber Reporting, 1226 Pickens Street, Suite 206, Columbia, South Carolina, 29201, in the matter of Crystal Goodwin and James Goodwin versus Midlands Orthopaedic and Neurosurgery, Thomas J. Holbrook, Jr., M.D., Carolina Anesthesiology Associates, Jennifer R. Root, M.D., and Prisma Health, formerly known as Palmetto Health, in the Court of Common Pleas, Civil Action number 2019-CP-40-04185, in the State of South Carolina, County of Richland.

Will counsel please introduce yourselves for the record, after which the court reporter will swear in the witness.

MR. GOINGS: Rober Goings for the Plaintiff.

MR. HINSON: Francis Brink Hinson for the Plaintiffs.

MR. DAVIS: Ashby Davis for Dr. Holbrook.

MR. TODD: Monty Todd for Prisma Health.

MR. ROBINSON: I'm John Robinson for Dr. Root and Carolina Anesthesiology.

Whereupon:

Thomas J. Holbrook, Jr., M.D., having been duly sworn and cautioned to speak the truth, the whole truth and nothing but the truth, testified as follows:

EXAMINATION BY MR. HINSON:

Q. Dr. Holbrook, please state your full name.

A. Thomas J. Holbrook.

Q. And J stands for?

A. Jefferson.

Q. Dr. Holbrook, you've had the occasion to give a deposition before?

A. Yes.

Q. And you may be familiar with this process but the rules suggest I should go over a few things before we really get underway. If at any point, Dr. Holbrook, you

need to take a break, please let me know and I'll be happy to --

MR. HINSON: I hear a terrible echo.

MR. GOINGS: It sounds like it's coming through something.

MR. HINSON: Like there's a speaker over there --

VIDEOGRAPHER: I'll try that.

BY MR. HINSON:

Q. I'd be happy to accommodate a break. I may ask you to finish the question we're on or even the topic, but we can certainly in short order take a break if you need to for any reason. And, Dr. Holbrook, you may from time to time have questions about or be uncertain about what I've asked. I'm sure at some point throughout today I will ask a poorly-worded question or a question that is confusing. If you would, please, just let me know and I'll be happy to rephrase or repeat whatever needs to be done. Will you agree to let me know if you are unsure about my question?

A. Yes, sir.

Q. All right. Dr. Holbrook, there may be objections regarding my questions from time to time. Unless you're instructed by your counsel not to answer, if you would please answer the question in spite of the objection; do you understand?

A. Yes.

Q. And, Dr. Holbrook, you're welcome to make gestures. We're video recording this and typically people often nod their head or shrug their shoulders, too. And you're welcome to do all that, but if you're answering a question, if you would answer out loud as well as a gesture because our court reporter needs to take down what's being said today; do you understand?

A. Yes, sir.

Q. All right. And, Dr. Holbrook, if at any point I cut you off, that's not my intention, it's actually the opposite. I very much want to hear what you have to say today and so if at any point I don't let you finish your question, please understand that it wasn't intentional. If you would, just let me know that you had additional testimony to give and I'll be happy to let you continue on with your answer.

Dr. Holbrook, what's your date of birth?

A. 2/27/55.

Q. And what is your current address?

A. 1205 R L Coward Road.

Q. And how long have you lived at that address?

A. About five years.

Q. And that was the address you lived at in July of 2016?

A. Or thereabouts.
Q. All right. Well, then what address did you live at prior to the 1205 R L Coward Road?
A. Woodley Road.
Q. And what was the full address?
A. 4219.
Q. And that's in Columbia?
A. Yes.
Q. And in Richland County?
A. Yes.
Q. And your current address is in Richland County as well?
A. Yes.
Q. Dr. Holbrook, I don't want to in any way inquire about the substance of conversations you've had with your counsel. So excluding the substance of conversations, tell me what you've done to prepare for this deposition today.
A. I've read over the records.
Q. And you're speaking of the records for Mrs. Crystal Goodwin?
A. Yes.
Q. Have you read over the records from your office?
A. Yes.
Q. And have you read over the records from Palmetto Health?

A. Yes.

Q. Have you looked at any imaging studies, like the actual images themselves?

A. Yes.

Q. Do you review and interpret imaging in your practice?

A. I do look at imaging, yes.

Q. And do you review it and interpret it?

A. The official interpretation is done by the radiologist.

Q. And so if there was a question as to what was shown in imaging, would you defer to a radiologist?

A. Not necessarily.

Q. You would, in that case, have a consultation with the radiologist and discuss your differing opinions?

A. Possibly.

Q. In your review -- well, you said you reviewed the records from your office, you reviewed the records from Palmetto Health and you reviewed neuro imaging in preparation for today?

A. Yes.

Q. Approximately when did you review those records?

A. I've reviewed them from time to time since this process started.

Q. Okay. When was the most recent time you looked

at those records?

A. In the last few days.

Q. In your review of the records did you come across anything that you believe had been recorded incorrectly?

A. I believe I think there were some transcription errors.

Q. Transcription errors with regard to what document or documents?

A. I think there was one in the last, one of the last Op notes and there may have been another one, I can't remember.

Q. Now, when you say transcription errors, do you mean something that you had said that was then transcribed incorrectly?

A. Well, I don't know if -- I don't know where the error occurred.

Q. Okay. But you're speaking of something in the notes you made in the chart?

A. In the operative record.

Q. Okay. And when you say, the operative record, you're speaking of the operative report?

A. Yes.

Q. Okay. And you're speaking of operative reports that you made?

A. That I dictated.

Q. And after dictating those records you would have then reviewed them, correct?

A. In a manner, yes, sir.

Q. Well, what do you mean by, in a manner?

A. I may not have read every word in every report.

Q. But then after reviewing them, as you put it, in a manner, you would electronically sign and verify those operative reports, correct?

A. Yes.

Q. So if there was a transcription error in one of those operative reports, you would have had an opportunity to review and correct that transcription error; is that fair?

A. If I had picked it up, yes.

Q. With the exception of potentially a transcription error in the operative reports you dictated, did you come across anything else that you believe may have been incorrect in Crystal Goodwin's medical records?

A. I haven't read every word in the entire medical record.

Q. But sitting here today, is there any other thing you could point to that you believe may be incorrect in the medical record?

A. I can't think of anything right offhand.

Q. Okay. Dr. Holbrook, in your review of the medical records was there anything that you failed to see that you would have expected to be there? Is there anything you believe that may be missing?
A. Like what?
Q. Well, that's hard to say. I'm just asking you, from your review did you expect to see something that you couldn't find?
A. I don't recall anything right offhand.
Q. Okay. Besides the records from your office, the records from Palmetto Health and imaging studies, were there any other records or documents that you reviewed in preparation for today?
A. I don't believe there were any others.
Q. Okay. Did you review any of Mrs. Goodwin's more recent records, her therapy records, her physical therapy records, things like that?
A. Not since she left our practice.
Q. And when you say, our practice, you're speaking of Midlands Orthopaedics and Neurosurgery, correct?
A. Yes.
Q. Are you still a practicing physician with that group?
A. No.
Q. And when did you retire or otherwise leave that

group?

A. May the 1st.

Q. Of 2020?

A. Yes.

Q. So you retired approximately ten days ago?

A. Correct.

Q. Dr. Holbrook, were you treating patients earlier this year?

A. Yes.

Q. When was the last time you saw and treated a patient?

A. Probably about a few days before I retired.

Q. So sometime in April?

A. Yes.

Q. When was the last time you performed a surgery?

A. April.

Q. Of 2010?

A. Yes.

Q. And how long at the time of your retirement on May 1st of this year, how long had you been practicing medicine?

A. I've been here in Columbia since 1987.

Q. And, Dr. Holbrook, did any particular thing bring about, a reason bring about your retirement?

A. I turned 65.

Q. Dr. Holbrook, I'll show you what we can mark as Exhibit 1.

MR. TODD: Is it his C.V.?

MR. HINSON: Yeah.

(Plaintiffs' Exh. #1, Curriculum Vitae, was marked for identification.)

BY MR. HINSON:

Q. Dr. Holbrook, could you identify what we have marked as Exhibit 1?

A. It says Curriculum Vitae.

Q. Is this your C.V.?

A. Yes.

Q. And, Doctor, it doesn't, at least -- is this the entirety of your C.V.?

A. I believe so.

Q. Okay. And so at the top it says present position and current address and it says Midlands Orthopaedics and Neurosurgery. You've currently retired from holding a position with that group, correct?

A. Correct.

Q. All right. And the C.V. does not, as I see it at least, include your work history. If you could, take us through your work background.

A. I started here in 1987 and have been here since with the same group up until we merged with Midlands

Orthopaedics about five years ago.

Q. So when you came in 1987 to the Columbia area what group were you with?

A. Columbia Neurosurgical Associates is the group that they changed their name to.

Q. Okay. And prior to 1987 where were you?

A. Vanderbilt Hospital.

Q. Okay. So upon completion of your residency you came here to Columbia?

A. Correct.

Q. And, Dr. Holbrook, what brought you to Columbia?

A. A job.

Q. Did you have any family connections in the area?

A. No.

Q. Are there any other publications besides what's listed here at the bottom of your bibliography? Are there any other publications you've been involved in during your career?

A. No.

Q. Dr. Holbrook, I'm going to shift gears to Crystal Goodwin and your involvement with her. Tell me, do you have a specific recollection of Mrs. Goodwin?

A. Yes.

Q. And, Dr. Holbrook, as we talk about Crystal's care and treatment, I'd like to differentiate a few things

as best we can because at times, obviously, we're going to be speaking about what you remember and as well as what you believe you would have done based off of your habit, custom and practice. And to the best of your ability, I would like to try to differentiate between those two and the example I would give -- and maybe it's not an eloquent one but it's the best I have at the moment -- would be getting a cup of coffee. And, that is, I can remember this morning at my house getting my cup of coffee. I can remember what flavor coffee I put in the Keurig, I can remember what coffee mug I got. And I can tell you I got a cup of coffee this morning but I cannot and do not have a specific memory of that from last Monday, but I can tell you I did it because I get a cup of coffee every morning.

So to the best of your ability, I would like, as we go through this I may ask you, do you specifically remember that or do you think that's what you would have done based off your habit, custom and practice. Do you understand the difference I'm trying to draw there?

A. Yes, sir.

Q. Thank you. Mrs. Goodwin was a patient of yours for a number of years; is that fair?

A. Yes.

Q. And tell me the first time you remember meeting her.

A. I believe that was 2009.

Q. And what was the occasion that brought her to your office in 2009?

A. She was first seen in the hospital in 2009.

Q. And what was the reason you saw her?

A. Her legs had become progressively weak over a six-month period and she had collapsed and fallen and could no longer stand or bear weight.

Q. All right. And what did you do for her with regard to that issue?

A. She was admitted to the hospital where I saw her and she was evaluated and found to have stenosis in her thoracic spine, compressing her spinal cord as a cause of her problems. She underwent surgery to decompress that, immediately got better and over the several months with therapy and so on was able to pretty much go about her normal activities.

Q. Okay. And you performed that surgery, correct?

A. Correct.

Q. And generally in layman's terms, how would you describe stenosis?

A. A narrowing of the spinal canal.

Q. What causes that condition?

A. In this case it was degenerative changes.

Q. It was nothing she did or didn't do to cause

that?

A. No, sir.

Q. Do you have a specific recollection of her from that time period?

A. I remember her.

Q. Was she, to the best of your recollection, a compliant patient?

A. Yes.

Q. Was she pleasant?

A. Yes.

Q. Dr. Holbrook, what's the next occasion where you provided medical treatment to Mrs. Goodwin?

A. I would have seen her in follow-up in the office after that admission.

Q. And during those follow-up visits was she pleasant?

A. Yes.

Q. And was she compliant?

A. Yes.

Q. And, Dr. Holbrook, you mentioned that you had reviewed medical records. If at any point you need to take a look at the medical records to refresh your recollection, I want you to feel free to do so. Right here in my computer I've got a full copy of all of the medical records that have been exchanged in this case and if you need to take a minute

to look through them -- I know there's quite a number of pages, but if you need to take some time to look through it to make certain your answer -- to refresh your recollection, I want you to feel free to ask to do so, okay?

A. Yes, sir.

Q. All right. As a surgeon you create operative notes; is that a fair statement?

A. Yes.

Q. All right. And earlier we talked about an operative note that you created for Mrs. Goodwin. Do you have a -- well, would you agree that it is important to write -- well, what is the purpose for writing operative notes? Why do surgeons do that?

A. To make a history of the operation.

Q. You recognize and agree that it's important to write complete, truthful and accurate operative notes; do you agree?

A. Well, it's a summary.

Q. And that summary should include a description of any important actions or events that occur during the surgery; do you agree?

A. It would be a summary of the main events of the surgery.

Q. And if there was an event -- well, an operative note describes what occurred and summarizes what occurs

during a surgery; is that fair?

A. Yes.

Q. And if there was an event during a surgery that would be outside of the norm, that event should be described in the operative report; would you agree?

A. If there was a significant event.

Q. Describing and including significant events in an operative report are important to ensure that a patient has a complete and accurate medical record; do you recognize that?

A. Well, I think it's mainly in order to be reviewed in case there were any other issues with a patient's care, if they came back to see a different physician at a later time, would like to know what was done previously. I think that's the main reason for the medical record.

Q. Subsequent medical providers may look at that record to have a better understanding of the patient's medical history?

A. They may.

Q. And do you sometimes look at medical records that you, yourself, created to refresh your recollection of a medical history?

A. Yes.

Q. And the care that a physician provides a patient

may be impacted by his or her medical history reflected in the medical record?

A. It could be.

Q. And it's important to include any significant events in an operative report?

A. Anything that you felt was significant would be recorded.

Q. And, Dr. Holbrook, you, yourself, are a neurosurgeon; is that correct?

A. Correct.

Q. How many surgeries in your career would you estimate -- well, how many surgeries in general would you estimate you have done/performed?

A. Several thousand.

Q. How many spine surgeries would you estimate you've performed?

A. Probably a few thousand.

Q. When you say a few thousand, are we talking eleven to twelve or one to two? What's your best estimate?

A. I would guess maybe two, three thousand, maybe.

Q. When you are performing a -- well, when you're performing a spine surgery, you're not the only person in the operating room, fair?

A. Correct.

Q. You've got a team of folks in there?

A. Correct.
Q. And among those people in the operating room when you're performing spine surgery would be the anesthesia team; is that fair?
A. Yes.
Q. What is the role of the anesthesia team during the surgery?
A. They put the patient to sleep and monitor the patient during surgery and they wake them up, is basically what they do.
Q. And when you say that they monitor the patient during surgery, what is the anesthesia team monitoring?
A. Vital signs would be one of the things they monitor.
Q. And during the surgery it is the anesthesia team's job to monitor vital signs throughout the surgery?
A. They monitor vital signs during the surgery.
Q. As a neurosurgeon performing a spine surgery, generally you're not monitoring the vital signs from minute to minute. You're relying on the anesthesia team to do that; is that fair?
A. Correct.
Q. Among the vital signs -- well, what are the vital signs that the anesthesia team would monitor?
A. Blood pressure, pulse, oxygen level, would be

some of the things that they monitor.

Q. The anesthesia team monitors those things to ensure the safety of the patient during the operation?

MR. TODD: Objection.

BY MR. HINSON:

Q. You can answer.

A. They routinely monitor those things.

Q. The purpose of monitoring is for the patient's safety?

A. Or to see if there's any abnormalities that may need to be corrected.

Q. For instance, if the patient's pulse got too high or too low, that type of thing?

A. It could be.

Q. If the patient's blood pressure got too high or too low, that type of thing?

A. Could be.

Q. And do you recognize and agree that there are dangers associated with a patient becoming hypertensive during surgery?

MR. TODD: Objection.

MR. ROBINSON: Objection.

MR. DAVIS: Objection to the form of the question. You can answer.

BY MR. HINSON:

A. And what's your question?

Q. Do you agree that there are dangers associated with a patient becoming hypertensive during surgery?

A. It's possible.

Q. What are some of the dangers that are associated with a patient becoming hypertensive during an operation?

A. Hypertensive? You know, they could injure some of their organs.

Q. Any other dangers or risks that come to mind?

A. Like what did you have in mind?

Q. Well, I'm asking. I'm not a neurosurgeon, Dr. Holbrook.

A. Well, that's one of the things. I'm sure there are others.

Q. Do you agree there are dangers associated with a patient becoming hypotensive during a surgery?

MR. DAVIS: Objection to the form of the question.

BY MR. HINSON:

A. There could be. But Crystal Goodwin did not have any hypotension.

Q. Do you agree that there are dangers associated with a patient becoming hypotensive during surgery?

MR. DAVIS: The same objection.

BY MR. HINSON:

A. It's possible.

Q. What are some of the dangers associated with a patient becoming hypotensive during a surgery?

A. A lack of profusion.

Q. Does that lack of profusion include lack of profusion to the spinal cord?

A. To various body parts, including the spinal cord.

Q. And so if a patient becomes hypotensive during a surgery, there could be a lack of profusion to the spinal cord?

MR. TODD: Objection.

MR. ROBINSON: Object to the form.

MR. DAVIS: The same objection.

BY MR. HINSON:

A. So is that possible? That's possible.

Q. And when we talk about profusion you're speaking of profusion of blood, correct?

A. Correct.

Q. And if there is a lack of profusion of blood to the spinal cord, what could result?

A. Well, you would think if it affected the spinal cord it would also affect multiple other organs, which is more common. It could cause -- if it affected the spinal cord it could injure the spinal cord.

Q. If a patient becomes hypotensive during surgery, does that increase the patient's risk of an infarction?

MR. ROBINSON: Object to the form.

BY MR. HINSON:

A. Infarction of what?

Q. Of suffering an infarction in the body.

A. Could that ever happen? That's possible.

Q. So the question I was asking, Dr. Holbrook, is, if a patient becomes hypotensive, if their blood pressure becomes too low, does that increase their risk of suffering an infarction?

MR. TODD: Objection.

MR. ROBINSON: Object to the form.

MR. DAVIS: The same objection.

BY MR. HINSON:

A. If they had significant hypotension it would be much more common for them to affect other organs than an isolated injury just to the spinal cord. That would be very uncommon.

Q. It's a little different than my question, though. My question is if hypotension during surgery increases the risk of an infarction.

A. It could.

Q. What's the physiology behind that? How does hypotension increase the risk potentially of an infarction?

MR. ROBINSON: Object to the form.

BY MR. HINSON:

A. Decreased blood flow.

Q. Increases the risk of a clot forming?

A. Not necessarily.

Q. But it could?

A. Could it? I don't normally associate low blood pressure with the formation of blood clots during surgery.

Q. But how would low blood pressure increase the risk of a blood clot forming? How could it?

A. How could it? I would think there would have to be some other associated issue that would make it more likely for the blood to clot.

Q. What type of associated issue could do that?

A. Inflammation, infection could make it more likely.

Q. Do you agree that during a spine surgery under anesthesia, a patient's intraoperative blood pressure should be kept within a certain range of his or her baseline blood pressure?

A. It should be kept at a reasonable level.

Q. And what's a reasonable level for one patient may differ to another patient; is that fair?

A. No. The point at which they may have symptoms from an abnormality may be different in different patients.

Q. One should consider the patient's baseline blood pressure when determining what blood pressure to keep the patient during a surgery?

A. We look at the baseline blood pressure.

Q. So a patient who has been historically hypertensive might need a higher blood pressure maintained during surgery than another patient who had normal blood pressure historically?

MR. ROBINSON: Object to the form.

BY MR. HINSON:

A. Do you mean, is that ever possible --

Q. Well --

A. -- in any situation? Could it ever happen? Yes, it's possible.

Q. Do you agree that when determining where to keep a patient's blood pressure during anesthesia, the patient's historical baseline blood pressure should be considered?

MR. ROBINSON: Object to the form.

BY MR. HINSON:

A. It is considered.

Q. And it should be considered?

A. It is considered. I mean, that's just a normal part of the process. Every patient's baseline blood pressure is observed before the surgery.

Q. How far would one go back to look at baseline

blood pressure?

A. I don't know.

Q. Whose job is that?

A. Is it to look at the blood pressure?

Q. To determine the baseline blood pressure.

A. To determine the baseline blood pressure? I think that's something that everybody -- everybody knows what the baseline blood pressure is.

Q. Is that something you consider prior to a surgery?

A. Yes.

Q. Is that something the anesthesiologist should consider prior to a surgery?

MR. DAVIS: Object to the form of the question. It's outside his field of expertise.

BY MR. HINSON:

A. I'm not an expert in anesthesia, but they do look at the baseline blood pressure.

Q. You, as the surgeon, would expect and anticipate that an anesthesiologist would look at the baseline blood pressure?

A. They look at the blood pressure and they monitor it throughout the case.

Q. And in order for the blood pressure during the surgery to have -- well, strike that.

You expect the anesthesiologist and the anesthesiology team to monitor the blood pressure during the surgery?

A. They do that, yes.

Q. And you, as the surgeon, expect the anesthesiology team to do that during the surgery you're performing, correct?

A. To monitor the blood pressure? Yes.

Q. And in monitoring the patient's blood pressure during the surgery do you, as the surgeon, have an expectation that the anesthesia team will take into consideration what the patient's baseline blood pressure has been pre-operatively?

A. During the surgery I think if they had an issue with the blood pressure they would let me know.

Q. A little different than my question, Dr. Holbrook. Do you expect during the surgery that the anesthesia team will take into consideration the patient's baseline blood pressure pre-operatively?

A. I think they've already looked at the baseline blood pressure.

Q. And you would expect them to consider that baseline blood pressure that they have, as you've put it, already looked at and take that information and consider it during the course of the surgery?

A. They may.

Q. But you don't have that expectation?

A. That they would -- that they would look at the blood -- I think they would have that in mind as to what it was.

Q. Okay. So during the course of the surgery you would expect that the anesthesia team would have in mind what the pre-operative baseline blood pressure was?

A. Yes. They have that information.

Q. As a surgeon preparing to perform a spine surgery, what would you look at to determine the patient's pre-operative blood pressure?

A. The numbers of the blood pressure.

Q. You would look at the patient's chart, correct?

A. Yes.

Q. And you would look at the recordings of blood pressure in previous appointments and visits, correct?

A. We record the blood pressure at our visits, yes.

Q. And you would look at that prior to performing the surgery?

A. Yes. We look at the blood pressure before the surgery.

Q. And you would look at the patient's blood pressure in prior visits before performing the surgery?

A. I wouldn't look at every blood pressure with

every visit that she's had with every doctor. No, that's not customary.

Q. So how far back would you go?

A. I would look at her existing blood pressure, her history of hypertension and, based on her history, try to determine if there were any issues with that that needed to be dealt with preoperatively.

Q. How might a history of hypertension need to be dealt with preoperatively?

A. That would be up to her primary care physician or whoever was treating her blood pressure.

Q. If you reviewed a patient's chart and found that they had a history of elevated blood pressures, you would take that into consideration going into the operating room; is that fair?

A. I would consider that.

Q. Would a patient having a history of high blood pressures potentially need to have their blood pressures maintained at a higher level during the operation as opposed to patients who have blood pressure within the normal range?

A. Not necessarily.

Q. Why not?

A. It may not be necessary.

Q. For some is it necessary?

A. Is it possible it could be? I mean, it's

possible.

Q. Have you in your career had the occasion where a patient -- where you operated on a patient who had a history of high blood pressure?

A. Yes.

Q. And in your career have you operated on a patient with a history of high blood pressure and, as a result, determined that it would be safest for the patient to keep their blood pressure elevated more than what one might keep the average patient?

A. Well, what's your question?

Q. Sure. Dr. Holbrook, in your career as a neurosurgeon you said you've had the occasion to operate on patients with high blood pressure, correct?

A. Yes.

Q. And in operating on patients with high blood pressure have you had the occasion where, in going into the surgery, you made a determination that the patient's intraoperative blood pressure should be maintained slightly higher than that of someone who had a normal blood pressure?

A. It's possible that you would maintain their blood pressure based on their history rather than basing everybody's treatment off of what a normal blood pressure would be. So that's where the baseline blood pressure might be used.

Q. So for the intraoperative blood pressure, it's not a one-size-fits-all type thing, is it?

A. No.

Q. One has to consider the patient's history and history of blood pressure?

A. I consider their blood pressure history.

Q. Because what's safe for one patient, an intraoperative blood pressure for one patient may not be a safe intraoperative blood pressure for another patient?

A. Do you have an example of that?

Q. Well, my question is, do you agree that if you have a patient with a chronically high blood pressure, what would be a safe intraoperative blood pressure for that patient would likely be different than a patient with a historically healthy, normal blood pressure?

A. Not necessarily.

Q. But it could be, correct?

A. Could it possibly ever be? Maybe. It's possible.

Q. Have you in your career, Dr. Holbrook, had the occasion where you were performing surgery on a patient with chronically high blood pressure and the understanding during the operation was that the patient's blood pressure should be maintained at a rate or at a level higher than the average patient's?

MR. TODD: Objection.

BY MR. HINSON:

A. It depends on what you're doing surgically.

Q. I'm not asking about what you're doing. Have you had the occasion where that occurred?

A. In the spine? No.

Q. So in your career you've never had the occasion where you were performing a spine surgery and you made a determination that the patient's blood pressure, because of chronic high blood pressure, should be maintained slightly higher than the average person?

A. Well, I would say that it should be maintained in accordance with that particular patient. We wouldn't maintain their blood pressure based off what's normal for some other patient. That's not how we do that.

Q. You maintain blood pressure based off the patient?

A. We use the patient's history, yes, sir.

Q. And what do you try to maintain? Is there a range you try to maintain from the historical blood pressure?

A. A range? Well, if you'd give me an example.

Q. Do you look at their mean arterial pressures or do you look at just their systolic and diastolic alone?

A. Both.

Q. Do you calculate the patient's average mean arterial pressure prior to surgery?

A. I think that's part of the record, I think.

Q. Is that something you would look at prior to surgery?

A. Prior to surgery, the mean? I probably would look at the systolic and the diastolic, would be the main numbers we would use.

Q. Okay. And when you look at the systolic and diastolic, do you make a determination based off the patient's history of a range of the systolic and diastolic that you would like it to be maintained during the course of the surgery?

A. Yeah. Usually, the monitoring of the blood pressure and the range is something that anesthesia monitors.

Q. Okay. A little different than my question, though, Dr. Holbrook. Do you make a determination prior to the surgery as to where a patient's blood pressure should be maintained, a range of where it should be maintained?

A. I don't come up with an exact number of where I think it should be. I don't think that's necessary.

Q. Do you come up with a general concept?

A. I don't come up with a range of numbers for a particular patient prior to surgery, no.

Q. Do you in any way make a determination about the intraoperative blood pressure prior to surgery?

A. I'll see what it is at the start, anesthesia monitors it during the case and if there's an issue with the blood pressure then they'll let me know.

Q. Do you expect anesthesia to have a range where they would like to keep the patient's blood pressure?

A. I think it's an individual thing.

Q. Individual to the patient or individual to the anesthesia team?

A. To the patient.

Q. Okay. So for each patient there may be a different range for where the blood pressure should be maintained by the anesthesia team?

A. Could there be? Yes.

Q. Is that something you typically discuss with the anesthesia team prior to surgery?

A. What? What their blood pressure is? If there's an issue with it.

Q. Do you recall if you ever discussed Crystal Goodwin's baseline and historical blood pressure prior to the surgery performed on July 28th, 2016?

A. I don't believe that was necessary with this case.

Q. Do you recall if you ever discussed Crystal

Goodwin's blood pressure prior to the surgery performed on July 28th, 2016?

A. I believe her blood pressure, by history, was well controlled and I did not discuss it preoperatively with anesthesia.

Q. Prior to the surgery performed on the morning of July 28th, 2016, you did not have a discussion with anesthesia regarding Crystal Goodwin's historical blood pressure, correct?

A. I do not recall a discussion with them at that time.

Q. You've seen nothing in the records to reflect a discussion with anesthesia regarding her blood pressure prior to the surgery performed on the morning of July 28th, 2016?

A. Not that I can recall right offhand. I recall that her blood pressure was well controlled and that there was no ongoing issue with it at that time.

Q. When you say it was well controlled, it was well controlled intraoperatively or preoperatively for which you are speaking?

A. Preoperatively.

Q. How would you define well-controlled blood pressure?

A. Not out of control. I can't give you an exact

number.

Q. Would a blood pressure of 160 over 99 be well controlled in your mind?

A. If there was a blood pressure issue such as that, I would defer that to her treating physician to determine whether that was something in a range that needed further treatment or not.

Q. Would you, as a physician, consider blood pressure of 160 over 99 to be well controlled?

A. I would defer treatment of that and the issue of whether or not she needed any further treatment of that to her treating physician.

Q. That's a little different than my question, Dr. Holbrook. I asked if you would consider that to be well-controlled blood pressure if a patient had blood pressure of 160 over 99.

A. Well, it's possible that it could be for certain patients. That may be the best they can do.

Q. Is that an elevated blood pressure, Dr. Holbrook, 160 over 99?

A. Over what you would normally expect, yes.

Q. As I understand, you don't have a particular range where you try to maintain a patient's -- strike that and let me start it again.

As I understand, Dr. Holbrook, you don't have a

particular range from a patient's baseline blood pressure where you try to maintain the blood pressure during the surgery --

MR. ROBINSON: Object to the form.

BY MR. HINSON:

Q. -- is that correct?

A. I, personally, don't have a specific number.

Q. Would you agree that if a patient's blood pressure intraoperatively drops well below their baseline blood pressure during a surgery, that could put them at risk for a vascular event?

MR. TODD: Objection.

MR. ROBINSON: Object to the form.

BY MR. HINSON:

A. How much of a drop are you talking about?

Q. Well, Doctor, how much of a drop from baseline would it take to put a patient at an increased risk for a vascular event?

MR. ROBINSON: Object to the form.

BY MR. HINSON:

A. That would be various for different patients.

Q. For Crystal Goodwin.

A. I can't give you an exact number.

Q. Can you give me a range?

A. I don't think that's something that you can

definitely determine, at what blood pressure she would have a problem.

Q. And because one can't definitely determine the exact number at which a patient would have a problem, would you agree it's important to maintain a blood pressure that is consistent with the patient's baseline historically?

A. Can you give me a blood pressure that you're specifically concerned about?

Q. Well, that's a little different than my question, Doctor. There's no magic number at which a patient will have a vascular problem -- strike that.

There's no magic blood pressure number with which one would have a vascular problem during surgery, correct?

A. I think that would be an individual thing.

Q. And because one can't know with certainty the exact blood pressure figures or measurements where one would have a vascular problem, do you agree it's important to maintain blood pressure in a way that is consistent with the patient's historical blood pressure --

MR. ROBINSON: Object to the form.

BY MR. HINSON:

Q. -- preoperatively?

A. I think the blood pressure should be managed in a reasonable manner.

Q. And that management is done by the anesthesia team?

A. They manage the blood pressure, yes, sir.

Q. Not you as the surgeon?

A. Anesthesia monitors the blood pressure during the surgery.

Q. And manages the blood pressure during the surgery?

A. Yes.

Q. Is it anesthesia's job to make a determination of the safe range to maintain the patient's blood pressure during surgery?

A. Is it what, now?

Q. Is it the job of the anesthesia team to make a determination as to the safe range to maintain the patient's blood pressure during surgery?

MR. DAVIS: Objection to the use of the word safe. You can answer the question.

BY MR. HINSON:

A. I think they monitor the blood pressure and they may do some treatments and modify their anesthesia based on a blood pressure reading.

Q. How is blood pressure maintained during surgery? What types of things are done?

A. Well, sometimes they don't need to do anything.

Q. When they do, what types of things are done?

A. Well, it might be a fluid issue, it might be a medicine issue.

Q. So what can they do, Dr. Holbrook?

A. Well, I'm not an expert in anesthesia.

Q. You've sat through thousands of surgeries, correct?

A. Correct.

Q. And you've seen occasion where a patient's blood pressure had to be brought up or brought down, correct?

A. Correct.

Q. And do you understand what types of things the anesthesia team did?

A. Just the ones I just explained to you, either fluids or medical management.

Q. And what would medical management entail?

A. Medicine.

Q. What types of medicine, Dr. Holbrook?

A. Well, medicines to either make their blood pressure go up or to try and get the blood pressure down.

Q. What types of medicines can they give? What are the names of those medicines?

A. I mean, there's various different medicines. It depends on the patient. I think that's an individualized thing. Or they might give more of the anesthesia and not

necessarily a blood pressure medicine.

Q. If a patient's blood pressure needs to be elevated, what medications can be given during surgery to bring the patient's blood pressure up?

A. That would be a determination of the anesthesia as to what they would use for that.

Q. You are unaware of what medicines can be given?

A. Well, it might be an epinephrine-based medicine could make it go up.

Q. There are means and mechanisms by which to control a patient's blood pressure during surgery; is that a fair statement?

A. Yes.

Q. If Crystal Goodwin's pre-surgery, preoperative blood pressures were 152 over 112, 129 over 81, 156 over 99 and 160 over 99, where would you, as the surgeon, what range would you like to keep her blood pressure during the surgery?

MR. ROBINSON: Object to the form.

BY MR. HINSON:

A. I mean, is that a -- I mean, a one or two-time individual readings, over what period of time is that? I think that would be -- as determining her blood pressure and what it needed to be on a long-term basis would be up to her treating physician for her blood pressure.

Q. I'm not asking about her blood pressure over a long-term basis, Dr. Holbrook. I'm asking about during surgery performed on the morning of July 28th, 2016.

A. I don't think you can give a specific number as to what it needs to be.

Q. Could you not give a range?

A. For?

Q. Where you would like to maintain her blood pressure during the surgery.

A. I would leave that up to anesthesia.

Q. Okay. So --

A. I would not tell them where to keep the blood pressure unless it was related to something specifically to what I was doing.

Q. So if one looks at Crystal Goodwin's blood pressure readings preoperatively, you would leave it up to the anesthesia team to make the determination of a range of where to keep her blood pressure during the surgery; is that fair?

A. For this particular type of surgery, yes.

Q. Okay. So for Crystal Goodwin, with regard to the surgery performed on July 28th, 2016, you would defer to the anesthesia team as to the range with which to attempt to keep her blood pressure?

A. During the surgery? Yes.

Q. All right. Just so we're clear, with regard to Crystal Goodwin's surgery on July 28th, 2016, you would defer to the anesthesia team as to the range to keep her intraoperative blood pressure?

MR. DAVIS: Objection, asked and answered. He's already answered that question. Let's move on.

BY MR. HINSON:

A. I would defer to them to monitor the blood pressure and treat it as they saw fit.

Q. And you would --

A. That pretty much answers that.

Q. Dr. Holbrook, do you have a recollection of this surgery performed on July 28th, 2016?

A. Yes.

Q. Do you understand that following that surgery -- well, strike that.

There was neuromonitoring being done during the surgery; is that correct?

A. Yes.

Q. What's the purpose of the neuromonitoring?

A. To monitor the nervous system.

Q. And what type of neuromonitoring was being done?

A. Evoked potentials.

Q. In layman's terms, what does that mean?

A. Checking the electrical conductants through the

nervous system.

Q. And there were two types being done, right? SSEPs and MEPs?

A. Correct.

Q. How do those differ? What's the difference between a SSEP and a MEP?

A. One monitors the sensory system and one monitors a motor system.

Q. And neuromonitoring is being done intraoperatively in an effort to timely identify any injury or potential injury to the spinal cord; is that fair?

A. We are doing it to monitor the nervous system to see if there are abnormalities, significant abnormalities from the baseline.

Q. And the reason you'd like to know if there are abnormalities or significant abnormalities from the baseline is so that you can take action during the surgery to address anything that may occur to have caused those abnormalities?

A. Well, we would consider what we were doing during the surgery at the time there was a change or a significant change and decide whether we needed to modify what we were doing.

Q. Was there a significant abnormality signaled during the surgery performed on Crystal Goodwin on July 28th, 2016?

A. Yes.

Q. What type of signal abnormality occurred?

A. They lost the signal.

Q. What do you mean by, they lost the signal?

A. There was a normal signal and then suddenly there was no signal.

Q. Do you believe that was an equipment error?

A. Initially that's what I thought.

Q. When you say, initially, what do you mean by that? Until what point?

A. When it first occurred I felt that it was unusual, because nothing was occurring during the surgical procedure itself that I would have thought would have had any chance of affecting them. And so I initially thought it was a problem with the equipment which does happen sometimes.

Q. When did you determine it may not be a problem with the equipment?

A. In the recovery room.

Q. So at the time you completed the surgery on the morning of July 28th, 2016, you believe that the loss of signal of the SSEPs was an equipment problem?

A. I thought that it could be. It was either an equipment problem or it was some issue with the spinal cord. I couldn't be certain whether it -- which it was at that

time.

Q. Sitting here today, which do you believe it was?

A. It was an injury to the spinal cord.

Q. During the surgery when the SSEPs stopped signaling, what did you do?

A. Well, I stopped and, you know, I asked the technician to check their equipment because we weren't doing anything surgically that should have caused that, then inspected the wound at the same time to see if we saw any abnormalities or any issues there that we thought might be related to that. There were none.

Q. And then you continued on with the surgery?

A. At that time we finished up the surgery, there was one area of scar tissue, I believe at the T9 level on the left, which had almost completely been dissected. But it did not appear to be causing any pressure on the spinal cord and I felt that at that time that it was best to go ahead and finish the surgery and close in order to find out which, in case if there was an issue with the spinal cord something that we needed to address in a timely manner that was not apparent on direct inspection.

Q. When this SSEP signal was lost did you ask the anesthesiologist to come to the room?

A. Anesthesia was already in the room.

Q. Dr. Root was in the room at the time?

A. I don't know if Dr. Root was in the room.

Q. Sitting here today, you don't recall if Dr. Root was present at the time the signal was lost?

A. I don't recall.

Q. And you don't recall if she was called to the room?

A. I can't remember right offhand.

Q. Should she have been called?

A. Not necessarily.

Q. In this situation should she have been called?

A. That would be up to the anesthetist to determine if there was any issue with the anesthesia that they thought they might need to call her for.

Q. You would defer to the nurse anesthetist whether or not to call the anesthesiologist?

A. Well, this was an issue with the neuromonitoring, okay? Which is not -- it's not an anesthesia issue. I think if all of her other anesthesia monitoring was satisfactory they may not necessarily have called her, I don't know.

Q. If the loss of signal, SSEP signal during the surgery had been the result of an occlusion, how can that be addressed intraoperatively?

A. Occlusion of what?

Q. Blood vessels to the spinal cord.

A. We wouldn't know that during the surgery. There's no way to determine that during the surgery.

Q. If you suspected that it was an occlusion to the spinal cord, is there anything that can be done intraoperatively to address it?

MR. TODD: Objection.

BY MR. HINSON:

A. There would be nothing else that I would have done at that time other than what I did.

Q. Is there anything that can be done to address it? Do you know of any techniques in medicine designed to address an occlusion to a blood vessel to the spinal cord during surgery?

A. Not under these circumstances that presented with Crystal Goodwin at that time.

Q. What about these circumstances would have prevented you from taking measures to address an occlusion?

A. Are you asking a hypothetical question or something pertaining to --

Q. I'm asking -- well, other patients, what measures can be done to address an occlusion?

A. It depends on what types of occlusion.

Q. What types of occlusions are there?

A. Well, what were you talking about? A vascular occlusion? Is that your question?

Q. Yes.

A. Well, sometimes there's things you can do about it and sometimes not.

Q. How do you make a determination if there's something that can be done about it or not?

A. On what's there, where it's occluded, what's occluding it, all things that there's no way for us to know during the surgery.

Q. What are the types of things that might be done for an occlusion?

A. Anticoagulants.

Q. You raise the patient's blood pressure?

A. For an occlusion? If a vessel is completely occluded, I don't think the blood pressure is going to force blood through that vessel. I would not necessarily raise the blood pressure. Any time you do any treatment, you know, there's some risk versus benefit to it. I don't think raising the blood pressure intraoperatively, you know, to a significant dangerous level would be of benefit to her. I think it would have been more likely to cause bleeding within the wound and more problems.

Q. What about simply raising her blood pressure without raising it to, as you put it, a dangerous level?

A. I don't think that would have been a benefit in this case.

Q. Why do you feel that way?
A. I think it would have been more likely to cause harm than good.
Q. What harm would it have caused?
A. It could have caused bleeding, for one thing, which could have caused further injury to the spinal cord.
Q. Did you consider giving anticoagulants?
A. Anticoagulants would also, I think, needlessly increase the risk of bleeding and was not an option in this case.
Q. What time did the signal stop?
A. I think it was around 10:00 o'clock.
Q. What's the Stagnara wake-up test?
A. I'm not familiar with that.
Q. Are you familiar with different wake-up tests that can be done?
A. I've heard of waking people up to test them.
Q. Have you ever performed that?
A. Not for this particular type of procedure.
Q. In other procedures?
A. Yes.
Q. What were some of the occasions where you had to do that?
A. These were spinal cord stimulator cases to determine where the stimulators were affecting the patient.

Q. Was that part of the plan in any way, to wake them up?

A. Yes.

Q. Have you ever woken a patient up during a surgery in an unplanned manner where you thought there may have been an injury?

A. Do you mean to wake them up during surgery with the plan of continuing surgery after that? No.

Q. When the SSEP signal was lost did you inquire with the anesthesia team about Crystal's blood pressure?

A. We looked at the vital signs.

Q. Including blood pressure?

A. Yes.

Q. Did you make any changes to the blood pressure following that review?

A. I don't recall whether they made any blood pressure changes. As I recall, there was not an issue with the blood pressure that needed to be changed.

Q. Dr. Holbrook --

MR. HINSON: We can mark this as Exhibit 2.

(Plaintiffs' Exh. #2, Operative Report, was marked for identification.)

BY MR. HINSON:

Q. Dr. Holbrook, can you identify what we've marked as Exhibit 2?

A. Operative Report, 7/28/2016.

Q. And there's two operative reports in this document, correct?

A. (Views documents). Yes.

Q. All right. And these are your two operative reports from the surgery performed on Crystal -- surgeries performed on Crystal Goodwin on July 28th, 2016, correct?

A. Yes.

Q. And you dictated these reports, correct?

A. Yes.

Q. And then after dictating them you signed and verified them, correct?

A. I signed them, yes.

Q. You signed and verified them, correct?

A. Well, I signed them. I did not read every word in both of these reports.

Q. Okay. So where I'm looking at the second page of Exhibit 2 it says, electronically signed and verified on 7/30/2016, 13:34; do you see that?

A. Yes.

Q. So the verified part is incorrect? You did not, in fact, verify this?

A. I verified that I dictated the report, yes.

Q. But you did not read it for completeness and accuracy?

A. I didn't read every word in it, no, sir.

Q. Okay. There's a couple of blanks on this report; do you see those?

A. Yes.

Q. Why would there be blanks on it?

A. Maybe the transcriptionist couldn't make out what was said or there was some technical issue with it.

Q. And part of the reason for electronically -- well, reviewing it and electronically signing operative reports is to have the opportunity to correct or fill in places where the transcriptionist had difficulty; is that fair?

A. Yes.

Q. All right. And you did not fill in these two places where the transcriptionist was unsure what was said?

A. No, I did not.

Q. All right. Can you, sitting here today, fill in what those two blanks are?

A. The first blank would be sensory evoked potentials and the second would be --

MR. ROBINSON: I'm sorry. Could you repeat it?

MR. HINSON: Sensory of evoked potentials.

MR. ROBINSON: Thank you.

THE WITNESS: Or evoked potentials.

BY MR. HINSON:

A. And the second one would be lamina and brought out.

Q. Dr. Holbrook, in this operative report you don't describe what took place in response to the SSEPs stopping signal, do you?

A. Let's see here. (Views document). What's your question, now?

Q. Do you describe what you did in response to the SSEPs losing signal?

A. And I just told you what I did.

Q. Okay. It's not included, or what you just told me is not included in this report, is it?

A. Well, no specific cause, surgical cause, was identified and there was -- so there was nothing else that we did other than to inspect the wound.

Q. The second operative report, Dr. Holbrook, there's some blanks in that as well; do you see that?

A. Yes.

Q. What's the first blank? What should be there?

A. I believe that would be at the T9-10 level.

Q. The same for the second blank?

A. Yes.

Q. And what about the third blank?

A. Where is that?

Q. It's here in the Description of Procedure, the

sentence that reads: On inspection of the superior portion of the laminectomy site showed partially calcified scar tissue was encountered on the left -- and then there's a blank.

A. That's T9-10. I thought -- that was the only two I saw. Where's the other one?

Q. At the top. Sorry.

A. Oh. (Views document). Probably thoracic. The one at the top, thoracic.

Q. Okay. So just to be clear, I'm looking at the very bottom of Bates stamp Prisma Health Baptist 715, I'm looking down here. There's a blank.

A. Which page is that?

Q. Well, it's Bates stamped 715, which is this little number right here at the bottom right-hand corner.

A. Okay. Thoracic.

Q. Okay. And then if you flip the page there's another blank and that should be --

A. We did that one.

Q. Okay. That's the thoracic as well?

A. Yes, sir.

Q. All right. And then about two-thirds down the page, what goes in that blank?

A. T9-10 level.

Q. Okay. That's what goes in between left and the

canal?

A. Encountered at the left at the T9-10 level. Probably don't need the canal on the left side. I think they maybe transcribed that twice.

Q. Then it says: Further dissection was done in this area, blank, the scar tissue. What goes in that blank?

A. Well, further dissection was done in this area. That area would be the T9-10 level. And the scar was dissected free from the thecal sac.

Q. It's difficult to determine what belongs in that blank now, isn't it?

A. No.

Q. Okay. So what belongs in that blank?

A. I believe a description of the T9-10 level is what it's referring to.

Q. You didn't correct this at the time you signed and verified this document, did you?

A. No.

Q. And why not, Dr. Holbrook?

A. I didn't read the entire report.

Q. Should these blanks have been filled in before signing?

A. Theoretically they should be, yes. I didn't catch them at the time.

Q. Your report from the second surgery performed on

July 28th doesn't make any mention of the SSEP stopping in the earlier surgery, does it?

A. No.

Q. Why does it make no mention of that?

A. Why would you mention that in the second surgery?

Q. When going in to look and determine why Crystal had no feeling and sensation in her lower extremities, you didn't think it was relevant that the SSEP stopped signaling during the first surgery?

A. That had already occurred during the first surgery. That really didn't have an influence on the second surgery.

Q. You write, Indications: In recovering from anesthesia from the initial surgery the patient had no voluntary movement in the lower extremities. Do you see that?

A. Where is that?

Q. Under Indications.

A. Which page?

Q. It's in the second operative report Bates stamped Prisma Health Baptist 716.

A. (Views document). Okay. I see that.

Q. All right. You made no mention that SSEPs had lost signal in the first surgery, did you?

A. That's in the first surgery.

Q. You made no mention in this report that SSEPs lost signal in the first surgery, did you?

A. That was not -- we didn't use SSEPs in the second surgery. There was no need to mention evoked potentials for the second surgery.

Q. The fact that she lost signal during the first surgery was not part of the indication for performing this procedure? This is in the Indication section we're looking at, Doctor.

A. The indication is based on the MRI scan, not on SSEPs.

Q. Okay. The SSEPs losing signal in the first surgery would indicate that something happened to her spinal cord around 10:00 a.m., would it not?

A. In this particular case, as it turned out, yes. Initially we thought it may have been a problem with the equipment, but as it turned out it was an injury to the spinal cord.

Q. Your initial belief was that it was something wrong with the equipment, correct?

A. Correct.

Q. What led you to determine it was, in fact, not an equipment issue but something that occurred in the spinal cord?

A. Well, when we examined her in the recovery room she had significant weakness in her legs. We performed an MRI scan which showed this area of increased signal intensity within the cord.

Q. When the SSEP stopped giving signal around 10:00 a.m., how long would you anticipate you looked to determine a cause before continuing on with the surgery?

A. Well, we immediately looked to see if we could find a cause. But, first of all, we looked at the equipment, had them check the equipment at the same time I was inspecting the wound.

Q. And so how long did that --

A. That didn't take very long.

Q. All right. Help me with --

A. I don't know. Maybe a minute or two.

Q. And after that you continued on with the surgery?

A. We finished the -- we finished the surgery, closed and made a determination as to what we thought was best at that time and proceeded.

Q. Did the neuromonitoring folks ever tell you that they thought it might be an equipment error?

A. They checked their equipment and they said they could not find an error in their equipment.

Q. Who made the determination that it may be an

equipment error that was causing the SSEPs to lose signal?

A. Well, I initially thought that that was the cause because there was nothing being done during the surgery which I felt would be -- that would have caused that.

Q. So, as I understand, what made you believe it was likely an equipment error was because at the time the signal was lost, you didn't believe you were doing anything that would have caused an injury to the spinal cord; is that a fair summary?

A. I was not doing anything that I felt would be injurious to the spinal cord. There was no hematoma and no other issue that we could identify on a direct visual inspection which would have caused that.

Q. Did you consider it might be a vascular issue?

A. Yes.

Q. And what did you do to determine it wasn't a vascular issue?

A. Well, at that time we finished what we were doing, took her to the recovery room and made the MRI scan in order to try and determine what the cause was.

Q. Okay. So addressing the potential for a vascular issue --

MR. ROBINSON: Object. I'd like for him to finish his answer.

THE WITNESS: That was it.

BY MR. HINSON:

Q. So in determining whether or not it was a vascular issue, that was done after the surgery taking her to MRI?

A. Well, we didn't have a cause, okay? When we took her to the recovery room. That's why we made the MRI scan was to try and determine what the cause was.

Q. Sitting here today, what do you believe the cause of the injury to Crystal Goodwin's spinal cord to have been?

A. Well, none of the things that we did, either the direct inspection of the wound demonstrated a cause, even the very sensitive MRI scanning did not demonstrate a cause. It demonstrated a probable ischemic area in the cord but it did not demonstrate a cause.

Q. It's a little different than my question, Doctor. Sitting here today, what do you believe was the most likely cause of the injury to Crystal Goodwin's spinal cord?

A. Despite direct inspection and the sensitive MRI scanning, we were not able to determine a cause.

Q. Do you believe it was something during the course of the surgery that irritated one of the blood vessels?

A. I believe it was something that occurred during the surgery, but I can't tell you exactly what it was, I don't know. No exact cause was ever determined.

Q. Did you tell Crystal Goodwin it was something during the course of the surgery that irritated one of the blood vessels, or that sort of thing, and caused it to occlude and restrict blood flow in that area of the spinal cord?

A. I told her that it was something that occurred during the surgery, but I couldn't tell her exactly what it was that caused it.

Q. Do you deny then that you told Crystal Goodwin it was something that occurred during the course of the surgery that irritated one of those blood vessels, or that sort of thing, and caused it to occlude and restrict the blood flow to that area of the spinal cord?

A. My recollection is that I told her that it was something that occurred during the surgery but that I could not determine exactly what it was.

Q. So you don't think you told her that it was something that irritated one of the blood vessels and caused it to occlude?

A. I don't recall telling her that.

MR. DAVIS: This would be a good time to take a break. It's been about an hour-and-a half. I need to take

a break.

MR. HINSON: We'll take one in just one second.

MR. DAVIS: No. We'll take one right now.

VIDEOGRAPHER: The time is now 11:52 a.m. We are off the record. This is the end of Media I.

(Recess from 11:52 a.m. to 12:11 p.m.)

VIDEOGRAPHER: This is the beginning of Media II in the deposition of Thomas J. Holbrook, Jr., M.D. The time is now 12:11 p.m. We are back on the record.

BY MR. HINSON:

Q. Dr. Holbrook, do you agree that Crystal Goodwin suffered a neurologic injury during the surgery performed on the morning of July 28th, 2016?

A. Yes.

Q. How would you describe the injury that she suffered?

A. The MRI showed what is consistent with an ischemic injury.

Q. And in layman's terms, what do you mean by ischemic injury when you're speaking of the spinal cord?

A. A stroke.

Q. And at what level did the ischemic injury occur?

A. It was at about the T9 level.

Q. Is the T9 level, was that within the watershed region of the spine?

A. What do you mean by that?

Q. Are you familiar with the term watershed region?

A. Yeah, somewhat. Why don't you tell me exactly what you're referring to.

Q. Is there an area of the spine that in medicine sometimes is referred to as the watershed region?

A. As far as what?

Q. As far as --

A. Water?

Q. Well, as far as blood flow.

A. As far as blood flow? Yes, sir.

Q. So there's an area of the spine that in medicine is sometimes referred to as the watershed region which is speaking to blood flow, not water, of course; is that correct?

A. Yes. So what's your question?

Q. Is the T9 level, is that within the watershed region?

A. That's an area where there is usually a good blood flow, a good blood supply.

Q. T9 is?

A. Yes.

Q. But is that within the watershed region?

A. That's not an area that I would think would be more susceptible. I think that area would be less

susceptible to ischemia than other areas.

Q. T9?

A. Yes.

Q. What about the watershed region? Where is the watershed region?

A. Well, the watershed region would be an area where there was relatively less blood supply.

Q. And what areas of the spinal cord are considered to be in the watershed region?

A. Well, I don't really -- I don't really use that term.

Q. Okay. What term would you use?

A. For what?

Q. For areas of the spinal cord that have less blood flow.

A. Well, I think all areas are well profused.

Q. Are there areas of the spinal cord that are susceptible, that are more susceptible than other areas of the spinal cord to a vascular incident?

A. Well, I guess it would depend on the circumstance.

Q. Are there areas of the spinal cord that are more susceptible to others to having poor profusion?

A. I think the T9 level has good profusion.

Q. Are there areas of the spinal cord that are more

susceptible to others to having poor profusion?

A. Could be.

Q. What areas are those?

A. Further away from a major supply.

Q. Where would that be?

A. I would say probably in the upper -- the upper thoracic would be one of the areas.

Q. And you do not believe the T9 level to be an area that would be more susceptible to lesser profusion?

A. That's an area that typically has a more robust blood supply.

Q. So you testified earlier you believe that Crystal Goodwin suffered an ischemic event at the T9 level, correct?

A. Her MRI was consistent with that.

Q. Well, do you believe more likely than not she suffered an ischemic event at the T9 level?

A. Yes.

Q. Do you agree that this ischemic event at the T9 level most likely occurred during the morning surgery of July 28th?

A. Yes.

Q. Do you agree that this ischemic event around the T9 level most likely occurred at the time the SSEP stopped signaling?

A. Yes.

Q. What do you believe caused this ischemic event?

A. We looked in a number of different ways and could not find a reason. Sometimes in medicine, despite all the sophisticated tests and things we have to investigate, diseases and patients' conditions, we don't always find a reason.

Q. I saw a reference to a head repositioning or a repositioning for purposes of breathing in anesthesia; do you recall that?

A. Yes.

Q. Could that have had anything to do with the ischemic event?

A. I don't think so. The evoked potentials remained stable after that.

Q. So this ischemic event would be some sort of clot; is that fair in layman's terms?

A. Not necessarily, no.

Q. What type of thing could it be then?

A. It could have been a pressure issue.

Q. As in too little pressure?

A. Pressure on the spinal cord such as from a blood clot.

Q. Okay. So I want to understand what types of things could cause this ischemic injury. One would be a

blood clot; is that fair?

A. Yes.

Q. What other possibilities would there be, if any?

A. Bleeding, infection, inflammation, ischemia, an ischemic change from a blood -- a vascular issue.

Q. That ischemic change, could it be a drop in blood pressure or a failure to profuse the area?

A. It could be. I have reviewed the anesthetic note and I didn't see any issues with blood pressure recorded on the anesthesia note. If you have some specific blood pressure that you're concerned about, we could discuss that.

Q. Sitting here today, do you believe the most likely cause was a clot?

A. No. I don't know what it was.

Q. You have no --

A. There was no clot demonstrated on the MRI scan.

Q. So does that leave open the possibility of a profusion-related injury?

A. Well, it was an ischemic injury from some cause. I don't know what the cause was. Despite all the testing we did, we could not demonstrate an exact cause for it.

Q. How would a clot show up in the imaging?

A. How would a blood clot? It would look like a blood clot.

Q. And you didn't --

A. They have characteristic signals.

Q. And you didn't see anything like that?

A. No.

Q. Did anybody ever tell you during the surgery that there might be an equipment malfunction?

A. With what equipment?

Q. The SSEPs, the monitoring equipment.

A. No. I specifically asked them that and they checked and said they could not find an abnormality with their check of the system.

Q. And you proceeded with the surgery under the belief that there may nonetheless be an equipment malfunction?

A. I thought that was one of the possibilities. It was either that or there was an issue with the spinal cord. I couldn't be certain at that time.

Q. But you thought, more likely than not, at that time that the issue was with the equipment malfunctioning?

A. Based on what I was seeing in the wound and could not find any evidence of any cause, I thought that that was a likely cause but I wasn't sure.

Q. And you never called anesthesia; is that correct?

A. They were already there.

Q. You never called the anesthesiologist?

A. I didn't? No.

Q. Did you ever consult a -- well, was there a vascular consult available?

A. A vascular consult?

Q. Yes.

A. Could we have called a vascular surgeon?

Q. Yes.

A. Yes. We could have if we felt that was necessary. I don't know what they would have done.

Q. Can a vascular surgeon address issues dealing with a vascular injury to the spinal cord?

A. There was no known vascular injury for him to address. What would they do?

Q. Have you ever discussed -- outside of the presence of counsel or a peer review -- have you ever discussed this surgery with Dr. Root, the anesthesiologist?

A. Have I discussed it with her? No. Other than just, she mentioned one time that the suit had been filed.

Q. But following the morning surgery of July 28th, 2016, you and Dr. Root didn't sit down and look at the records or discuss --

A. Well, I talked to her that day, okay? And I don't -- nothing -- we couldn't determine what it was -- what it was caused -- she didn't have any anesthetic issues

that she felt were a cause.

Q. So you all didn't discuss it that day?

A. That day, yes, sir.

Q. Where did you all talk?

A. In the operating room and around the operating room.

Q. Before the second surgery or after the second surgery?

A. Before.

Q. She was not the anesthesiologist for the second surgery, correct?

A. I don't recall.

Q. To your recollection, Dr. Root had no light to shed on the possible causes of this injury?

A. Not that I know of.

Q. How long would you estimate that conversation lasted with her?

A. A few minutes.

Q. Do you agree that blood pressure getting too low below one's baseline can have the potential to cause a spinal cord injury?

A. In this case or in any case?

Q. Generally speaking, that that is a --

A. Generally --

Q. -- physiological --

A. Generally, is it ever possible? Yes.

Q. So you do not believe that happened in this case, though?

A. In this specific case I have reviewed the anesthesia record and the timeline of the blood pressure. I don't see any issues there that the blood pressure that I think would have contributed to this. If you have one I'd be glad to look at it.

Q. How low would the blood pressure have to get before you would believe it could potentially cause an injury such as this?

A. I can't give you a specific number. And that would vary from patient to patient.

Q. For this patient, how long?

A. For this patient I would have expected much more serious injuries to other organs before the spinal cord. Normally, if it was a hypotensive problem that causes injury to a patient, it would be very unusual to have an isolated injury to the spinal cord.

Q. What organs would you expect to see injured?

A. The liver, kidneys. I think all organs would be affected to some degree, but it would be extremely unusual to have an isolated injury to the spinal cord.

Q. Did Crystal Goodwin have risk factors for a spinal cord ischemia and an infarction?

A. She had spinal stenosis.
Q. Would that put her at greater risk for a spinal cord ischemia and an infarction?
A. Having spinal stenosis? Yes.
Q. Would her diabetes put her at a higher risk for a spinal ischemia and an infarction?
A. I think any disease process would increase the risk of surgery.
Q. Including the risk of spinal cord ischemia and infarction?
A. I think that her -- I don't think that the diabetes that she had to the degree she had contributed to this.
Q. But does that have -- is that a risk factor? Does that increase her risk, was the question.
A. In this particular case? I don't think it had any influence on this particular complication.
Q. So you don't believe it increased the risk? The question is did it increase the risk.
A. Did it increase the risk? I think diabetes increases the risk of having surgical complications.
Q. Diabetes --
A. It can, but not necessarily.
Q. It can increase the risk of spinal cord ischemia and infarction?

A. Could it possibly? Yes. I don't believe that that was a factor in this case.

Q. How long had Mrs. Goodwin had hypertension?

A. I don't know. I can't recall that offhand.

Q. Do you know if she took medication for her hypertension?

A. I believe she did.

Q. Do you know how long she had been taking medication for her hypertension?

A. I can't recall right offhand.

Q. How did you become aware that there was a loss of signal to the SEPs, the SSEPs?

A. The monitoring technician told me.

Q. There's no alarm that goes off or a buzzer or a beep or anything?

A. They may have one. But they just told me verbally that they had lost the signal.

Q. What was your response?

A. My initial response was, you know, how could this happen. We're not doing anything that would cause that. And my first reaction was that it would be -- it was likely an equipment issue.

Q. Tell me what you recall happened next.

A. They checked their equipment.

Q. And what was their response?

A. They said their equipment was fine, they couldn't find any problem with it.

Q. And then what happened?

A. Well, after I had inspected the wound, I made the determination to finish up what we were doing, get her to the recovery room and wake her up and assess things further from there dependent on her condition.

Q. So the alarm went off -- or you were informed -- I'm going to start over.

Dr. Holbrook, you were informed that the SSEPs had quit signaling around 10:00 a.m., correct?

A. It was about that time, yes.

Q. And when did the surgery conclude?

A. I couldn't tell you an exact time.

Q. Approximately how much more was there left in the surgery?

A. That should be in the record there. It tells exactly.

Q. Does around 11:00 -- 11:30/11:45 sound about right?

A. It sounds a little longer than usual.

Q. Where would you look to see when the surgery concluded?

A. Well, if you have the anesthesia record I might could tell from that.

Q. I'll hand that to you.
A. (Views document).
MR. DAVIS: Is this Exhibit 3? Are you marking it 3?
MR. HINSON: It is.
MR. DAVIS: You're marking it? Okay.
BY MR. HINSON:
A. It looks like their last blood pressure recordings are about 11:30.
Q. So would you agree the surgery concluded around 11:30?
A. According to this, yes.
Q. All right. Doctor, I'm looking at the first page of Exhibit 3. Do you see the 10:00 o'clock time there?
A. Is that this one?
Q. Exhibit 3 is the anesthesia record.
A. Yes.
MR. DAVIS: Can we just --
MR. HINSON: Sure. We'll take a minute to put a sticker on it.
MR. DAVIS: Thank you, sir.
(Plaintiffs' Exh. #3, Anesthesia Record, was marked for identification.)
BY MR. HINSON:
Q. All right, Doctor. On Exhibit 3, if you would

look on the first page this little box here kind of towards the top left, that's the recording of the vital signs, correct?

A. Yes.

Q. Do you know if the CRNA does this contemporaneously or does this after the surgery?

A. I think they do it during the surgery, is my understanding.

Q. And they're doing this based off of monitoring equipment and they're writing down what the monitoring equipment is displaying; is that fair?

A. That's my impression.

Q. These little check marks, or I guess they're -- they look like a V. If they're on the top and they look like an upside down V, if they're on the bottom that's the blood pressure reading, correct?

A. I believe that's correct.

Q. All right. So the top one is the systolic and the bottom one, the upside down V, is the diastolic, correct?

A. I think that's correct.

Q. Do you see the 10:00 o'clock time period?

A. Yes.

Q. Do you agree that in the approximate -- do you see the 9:00 o'clock time period?

A. Yes.
Q. Do you agree that between 9:00 and 10:00 o'clock the diastolic pressure for Crystal Goodwin trended down during that hour?
A. It looks like it's about -- 80 is about what it looks like it is.
Q. Well, that's what it is around 9:00 o'clock, isn't it, Doctor?
A. Now, where are you looking at at what time?
Q. I'm looking at -- well, let's start with 9:00 o'clock. Around 9:00 o'clock it's at 80, is it not?
A. In the middle of the 9:00 o'clock hour it looks like it's about 80, yes, sir.
Q. All right. And where is it at around 10:00 o'clock?
A. It looks like it's at about 70.
Q. All right. So it trended down between 9:00 and 10:00, did it not?
A. I don't believe that's a significant change.
Q. It trended down between 9:00 and 10:00; isn't that correct?
A. Slightly. I don't believe that's a significant change.
Q. Okay. If it's at 70 -- if diastolic pressures are at 70, how does that relate to her preoperative

diastolic blood pressure?

A. What was her preoperative pressure?

Q. Doctor, are you aware of what her preoperative blood pressures were?

A. Well, you told me earlier but I don't have the specific number. Do you have that?

Q. Let's take a look at those.

MR. HINSON: Let's mark this as Exhibit 4.

MR. TODD: Is this what you said was the --

MR. HINSON: Pre-anesthesia.

MR. TODD: Do you have a Bates number on it?

MR. HINSON: 754.

(Plaintiffs' Exh. #4, Pre-Anesthesia Evaluation, was marked for identification.)

BY MR. HINSON:

Q. Doctor, are you looking at Exhibit 4?

A. Yes.

Q. All right. And this is the pre-anesthesia evaluation, correct?

A. Yes.

Q. And what was Crystal Goodwin's diastolic blood pressure?

A. 99.

Q. And what was her diastolic blood pressure we said around 10:00 o'clock?

A. 70.

Q. Is that a significant change?

A. Well, let's see. At the start of anesthesia it was 90. I mean, that's a change of about 20 points from the start of the anesthesia. That's a change.

Q. At the time she started anesthesia she would have been given different sedatives, correct?

A. She would have been given anesthesia.

Q. So that's a 30-point change, or a 29-point change to be exact, from her pre-anesthesia evaluation, correct?

A. Yes.

Q. Did Crystal Goodwin have a preoperative evaluation?

A. She had a pre-anesthesia evaluation.

Q. Do you recall what her diastolic blood pressure was during the pre-anesthesia evaluation?

A. Here it says 99.

Q. Well, did she have a preoperative evaluation a week before the surgery?

A. This is on 7/28/16.

Q. That's the day of the surgery, Doctor. Did she have a preoperative evaluation a week before the surgery?

A. Do you have that there that I could look at?

Q. Would she typically have had a preoperative

evaluation a week before the surgery?

A. She may have.

Q. Is that --

A. I can't -- I'm not sure exactly what evaluation she had. If you have the record I might could look at it.

Q. Sure.

MR. HINSON: Mark that as Exhibit 5.

MR. TODD: Is that Midlands' records?

MR. HINSON: It's 455.

MR. TODD: All right.

(Plaintiffs' Exh. #5, SN PreOp Assessment, was marked for identification.)

BY MR. HINSON:

Q. Doctor, what was Crystal Goodwin's diastolic blood pressure during her preoperative evaluation a week before the surgery?

A. This is 7/22/16 and the diastolic pressure is 92.

Q. Okay. So that would be a 22-point change at around 10:00 o'clock from her blood pressure a week preoperatively?

A. Yes.

Q. All right. If her diastolic blood pressure was typically running in the 90s, would a diastolic blood pressure of 70 during the surgery be a significant change?

MR. ROBINSON: Object to the form.
BY MR. HINSON:
A. It's a change. I don't think it has any relationship to the complication that she had.
Q. Does it have the potential to cause injury?
A. Well, if you look at the rest of the anesthesia record, there are several other areas where it was -- her diastolic pressure was also 70. She didn't have any problem there so you'd think if that was going to cause a problem, it would have caused it back at 8:30 --
Q. Does it --
A. -- but it didn't.
Q. Does it have the potential to cause injury, was my question, Doctor.
A. At 9:30?
Q. If a person has --
A. Well, if we're looking at the time the injury occurred and her blood pressure diastolic was 70 and she had an injury, if you're saying it was because of that then why didn't it happen earlier in the case when it was 70 at those times, too? So I think it's very unlikely that a diastolic of 70 at 10:00 o'clock is all of a sudden now going to be symptomatic. I don't think that's related to the complication.
Q. Doctor, if the patient's blood pressure was

typically in the, diastolic blood pressure was typically in the 90s, would an intraoperative blood pressure in the 70s have the potential to cause injury?

MR. ROBINSON: Object to the form.

BY MR. HINSON:

A. I've already answered that. I don't think in this case it had the potential to. Because if it was, it would have caused it earlier in the case when it was 70.

Q. Doctor, I'm not asking you about this specific surgery on July 28th. I'm just asking you generally speaking, Doctor. If a patient typically has a blood pressure, diastolic blood pressure in the 90s, would an intraoperative diastolic pressure of 70 had the potential to cause injury?

MR. TODD: Objection.

MR. ROBINSON: Object to the form.

MR. DAVIS: The same objection.

BY MR. HINSON:

A. And could it ever possibly happen in any situation that you could have that you could ever think of? Yes. But in this case apparently not, or it would have caused a problem earlier in the case when it was also 70.

Q. Crystal Goodwin came out of this surgery paralyzed from the waist down, did she not, Doctor?

A. She was not completely paralyzed.

Q. Crystal Goodwin came out of this surgery nearly paralyzed from the waist down, did she not?

A. She had significant weakness, yes.

Q. And by 10:00 o'clock she had had a period, multiple periods of time during this surgery where her blood pressure had been well below its normal; do you agree with that?

MR. ROBINSON: Object to form.

MR. TODD: Objection.

MR. DAVIS: The same objection.

BY MR. HINSON:

A. It had been below what it started at.

Q. Do you not agree with the statement, by 10:00 o'clock a.m. on July 28th, 2016, her intraoperative blood pressures had been below her normal?

MR. ROBINSON: Object to form.

BY MR. HINSON:

A. What is her normal?

Q. Doctor --

A. What are you saying her normal is?

Q. You tell me, Doctor. You said you reviewed her medical record.

A. I don't have all --

Q. What do you believe her normal to have been?

A. I don't have all the records of her blood

pressure.

Q. Okay. Presume with me that her normal would show to have been somewhere in the 90s for her diastolic. Do you agree with me that by 10:00 o'clock her intraoperative blood pressures had been below her normal?

MR. ROBINSON: Object to form.

BY MR. HINSON:

A. They were below the normal, but I don't believe that was significant or related to this complication.

Q. And what's your basis for that belief?

A. Because earlier in the case several times it was also at 70 and she never had a problem then. Can you explain that?

Q. So because she didn't suffer injury earlier, therefore it's your testimony that it wouldn't have caused injury later?

A. Well, it would seem if the circumstances of the blood pressure were the same, okay? That it would be unlikely that that would be the cause.

Q. By 10:00 o'clock, though, Doctor, she had the culmination of all blood pressures earlier in the surgery, did she not?

A. Well, let's see. Her blood pressure -- no. I don't think --

Q. Just generally, by 10:00 o'clock she had the

culmination of all blood pressures that had occurred before.

A. Well, I think the effect is going to occur at that time. You're not going to have a problem at 10:00 o'clock with a blood pressure that you had at 8:00 o'clock that's going to be related to what occurred at that time.

Q. So it's your testimony that because she didn't have a problem when it was 70 at around -- well, around -- let's see. It looks like around nine -- oh, excuse me. At 8:25 her diastolic drops to around 70. Do you see that?

A. Yes.

Q. All right. And so it's your testimony that because it didn't cause her injury at 9:25, therefore a diastolic blood pressure around 70 wouldn't cause her injury around 10:00?

A. I think it makes that much less likely.

Q. And it's your testimony that this wouldn't be a cumulative effect; is that fair?

A. I don't believe -- I don't see anything on this blood pressure record that I think caused this complication in Crystal Goodwin.

Q. Would low blood pressure during the course of the surgery not have some cumulative effect?

A. It would have to be at a significant -- a significant decline, I think, to cause an effect. I don't think she had a significant decline.

Q. But the cumulative nature would be something to consider?

A. I mean, you could consider anything you want. But in considering her blood pressure I don't think that's related to the complication.

Q. You've made that clear but that's not my question, Doctor. When one looks at a blood pressure intraoperatively and whether or not it may cause injury to a patient, would one not look at the cumulative data?

A. I think if it was at a significant -- a level to be significant enough. Over a longer period of time would have been more significant than a shorter period of time. However, I don't see anything in this record that I think is a significant decline in her blood pressure to the point where it had anything to do with this complication.

Q. What would you consider significant for this patient?

A. Something that would have been symptomatic.

Q. So there's not a number. It's simply whether or not she had symptoms?

A. Not necessarily. I mean, you look at the numbers also, but you can't -- I can't give you a specific number for a specific patient. If the anesthesiologist or the anesthesiology team saw a significant decline in her blood pressure that they were concerned about, they would

have said something to me. I don't see anything in this record.

Q. If her blood pressure had been in the 40s, would that have been significant to you or can you not say?

A. If she -- that would have been more concerning.

Q. If her diastolic had been in the 40s?

A. If it had been in the 40s, that's a much -- a much larger change.

Q. Doctor, you don't believe blood pressure played any part in Crystal Goodwin's injury?

A. Can you show me an area that you think caused it? I don't see one. I don't think hypotension caused her injury.

Q. Do you believe hypotension played any part in her injury?

A. No.

Q. If blood pressure didn't cause or play a part in the injury, do you have a belief as to what did?

A. Despite all of the testing that we did, including the very sensitive MRI scanning, we were never able to come up with a specific reason for this.

Q. And sitting here today, you don't have a belief --

A. Despite all the testing capabilities that we have in modern medicine, we don't always find a cause for

every condition.

Q. Okay. And that holds true for this. Sitting here today, you don't have a belief as to what caused the injury?

A. I don't know.

Q. Do you read the neuromonitoring record?

A. Typically, no.

Q. Do you know how to read it?

A. I don't read those.

Q. Are you trained in how to read them?

A. No.

Q. Have you looked at the neuromonitoring record?

A. I've looked at the record.

Q. Do the lines or graphs have any meaning to you?

A. Well, I look mainly at the interpretation, is what I looked at.

Q. Meaning the chat between the people that --

A. Right.

Q. What's your understanding of Crystal Goodwin's condition today?

A. At this time she is -- she has improved to the point where she can stand and walk enough in her kitchen to cook and bake.

Q. Do you know if she stands and walks without assistance or with assistance?

A. Based on her deposition, I think that she can stand and maybe walk some without assistance but not for any great distance. That really wasn't gone into in too much detail.

Q. Have you looked at any of her therapy records to determine her present condition?

A. I've not had any of her therapy records available to me since she left our practice.

Q. Sitting here in May of 2020, more than three-and-a-half years after the surgery, would you agree that her present condition is likely all the gains that she will make towards walking again where she is now? Let me rephrase that, Doctor.

So you agree she's unlikely to make significant gains at this point?

A. She's probably unlikely to make a major gain.

Q. After the surgery you spoke with Crystal and her family; is that correct?

A. Yes.

Q. How did they react to the news to your recollection?

A. They were upset.

Q. Any specifics you recall?

A. I recall they were upset and concerned.

Q. Did she have a supportive family to your

recollection?

A. She did have family.

Q. But did they seem supportive of her?

A. Yes.

Q. Despite being upset were they polite with you?

A. I didn't have a problem with them.

Q. They weren't impolite to you?

A. No.

Q. When was the last time you saw Crystal?

A. It would have been at our last office visit.

Q. Do you recall anything from that visit?

A. I don't recall anything specific other than what's in the note. I believe we continued to take care of her after that when she would call and needed medicines or therapy or some other issue. We always continued to provide those services for her up until she decided that she was no longer happy with our services.

Q. Did you expect her to make a further recovery than what she ultimately did?

A. Do you mean initially?

Q. Yes.

A. I thought it was possible that she could get -- that she could get much better.

Q. Is there any reason you think she didn't get better?

A. Just due to the severity of her injury.

Q. All right. Dr. Holbrook, I don't want to in any way ask you for the content of what took place, but did you participate in a peer review with regard to Crystal Goodwin's surgery?

A. A peer review of the --

Q. Was there any sort of peer review done?

A. Not that I know of.

Q. So you never gave any sort of testimony to a peer review committee?

A. No.

Q. What societies or organizations do you belong to in the field of medicine?

A. The American Association of Neurological Surgeons and a South Carolina medical society or two.

Q. Are you a member of the American Academy of Neurological Surgery?

A. It's the American Association of Neurological Surgeons.

Q. Do you receive their journal?

A. Yes.

Q. Do you regularly read it?

A. Yes.

Q. What other journals, if any, do you subscribe to?

A. Neurosurgery is another journal I get.
Q. Do you regularly read that one, too?
A. Yes.
Q. Do you subscribe to any journals specific to spine surgery?
A. The association puts out a Spine journal that's specific to spine.
Q. Do you read that journal?
A. Yes.
Q. Is that Contemporary Spine Surgery?
A. No.
Q. That's a different one?
A. Uh-huh.
Q. What is that journal called?
A. This one is just Neurosurgery -- I mean, just Spine, I think is the subtitle of it.
Q. How long have you belonged to the American Association of Neurological Surgeons?
A. Probably since I was a resident.
Q. Have you conducted any research related to Crystal Goodwin's surgery and injury?
A. No.
Q. Following her surgery on July 28th, 2016, did you undertake any research about the issues involved in her surgery?

A. Did I research her issues? No.

Q. If we looked on your bookshelf at home, at the office, with the exception of the journals we just mentioned what publications would we find in the field of medicine?

A. Mainly it would be those journals and online things at this time.

Q. What would be your go-to first choice for online research?

A. Well, if I had a specific topic I would research that topic.

Q. Do you use PubMed?

A. PubMed? I'm not real familiar with that one.

Q. Which one would you typically go to first?

A. I would go to our association's website.

Q. Do you have textbooks that you keep at your office on neurological surgery?

A. I have textbooks but they're all old. All the current information is generally from journals and online.

Q. Dr. Holbrook, I don't mean to pry into your personal life. I just ask these questions to make sure I can identify anybody who may have an association with you when we draw a jury in this case.

Do you have any family by blood or by marriage in Richland County that has a last name other than Holbrook?

A. No.

Q. What clubs, groups or organizations do you belong to in Richland County? And by that, I mean, country clubs, churches, social clubs like Kiwanis or Rotary, that type of thing.

A. Shandon Methodist Church and Forest Lake Club.

Q. Okay. Doctor, you realize that you've been named individually as a defendant in this case, correct?

A. If you say so.

Q. Well, is that your understanding?

THE WITNESS: Is that right?

MR. DAVIS: (Nods head).

BY MR. HINSON:

A. Yes.

Q. And are you aware that Crystal Goodwin is seeking punitive damages in this case for her injury?

MR. DAVIS: That's a legal question. I object.

BY MR. HINSON:

Q. Doctor, I'll represent to you that Crystal Goodwin is seeking punitive damages and one of the aspects of that is net worth. What would you estimate your net worth to be?

MR. DAVIS: Do not answer that question.

BY MR. HINSON:

A. I don't know.

MR. HINSON: What's the basis of the objection?

MR. DAVIS: What's the basis of your question?

MR. HINSON: It's relevant to the issue of punitive damages.

MR. DAVIS: We'll let a Court decide that later.

MR. HINSON: All right. Madam Court Reporter, would you please certify the question.

BY MR. HINSON:

Q. All right. Nothing more at this time.

MR. TODD: Monty Todd for Prisma. I have no questions.

EXAMINATION

BY MR. ROBINSON:

Q. Doctor, I have just a few. This is Jon Robinson. I represent Dr. Root and Carolina Anesthesiology. I'm going to hand you --

MR. ROBINSON: I don't think this has been marked as an exhibit but let me take a look. (Views documents).

(Defendant's Exh. #1 - Encounter Summary, was marked for identification.)

BY MR. ROBINSON:

Q. I'm going to hand you what we'll mark as Defendant's Exhibit #1. It is Prisma Health Baptist 701 and 702.

A. (Views document).

Q. Doctor, did Mrs. Goodwin come and see you on July 18th, 2016, approximately ten days before the surgery?
A. Yes, sir.
Q. All right. And was the blood pressure recorded at that time?
A. Yes, sir.
Q. All right. And what was the blood pressure?
A. 129 over 81.
Q. Okay. Doctor, in your operative note, which I think has already been marked as Exhibit #5, on page two of Exhibit #5 which should be Prisma Health Baptist 715 -- do you see that?
A. No.
Q. I may not have the right exhibit number.
A. Exhibit 2?
Q. Yeah. Exhibit #2.
A. Yes, sir.
Q. Thank you.
A. Yes, sir.
Q. In Plaintiffs' Exhibit #2 which the front is marked Prisma Baptist 714, do you have that document?
A. Yes, sir.
Q. All right. On page two of that document, 715, I believe I heard your testimony when reading through this is that the identifiable cause within the wound was not

demonstrated. This record says that the identifiable cause within the wound was demonstrated.

A. It was not demonstrated.

Q. All right. So the identifiable cause within the wound was not demonstrated?

A. Correct. It was not demonstrated.

Q. And so would that be a clerical error that you were referring to?

A. Yes.

Q. Okay. I believe your testimony also was that you do not recall Dr. Root being called to the room around this 10:00 o'clock hour when the signals were lost; is that correct?

A. She may have been but I don't recall.

Q. All right. Is there anything that you have seen in reviewing the records that would indicate that the loss of these signals around the 10:00 o'clock hour was communicated to Dr. Root prior to the conclusion of the surgery?

A. I believe it was, but I don't have -- I don't specifically remember the exact event.

Q. So you have the anesthesia record in front of you, correct?

A. Yes, sir.

Q. Is there anything on the anesthesiology record

that would indicate that the loss of the signals was communicated to Dr. Root prior to the conclusion of the surgery?

A. Can you show me where it is?

Q. I can't find it. That's why I'm asking you. Is there anything in the anesthesia record that would indicate that the loss of the signals was communicated to Dr. Root prior to the conclusion of the surgery?

A. I don't see anything like that, but I can't make out every single word.

Q. Okay. And as you are sitting here today, do you have any recollection as to whether the loss of the signals was communicated to Dr. Root? Not necessarily to the team, but to Dr. Root during the course of that first surgery, the loss of the signals?

A. I believe it was, but I can't remember exactly.

Q. All right. Is there anything in the medical records that would indicate that it was communicated to her, to Dr. Root?

A. I mean, I don't see anything.

Q. Okay. Do you see anything in the anesthesiology record at all regarding the loss of signals from the SSEPs?

A. (Views documents). I don't see anything, but I can't make out every last word.

Q. And I believe you testified a moment ago that

you do recall a conversation after the surgery with Dr. Root whereas you just generally discussed --

A. Yes.

Q. -- what had happened; is that right?

A. Yes.

Q. Prior to that --

A. I don't recall the exact conversation.

Q. But you recall it being after the surgery?

A. Yes.

Q. All right.

A. After or during the latter aspects of it.

Q. Okay. (Views documents).

MR. ROBINSON: That's all the questions I have.

MR. DAVIS: No questions.

MR. HINSON: Monty?

MR. TODD: (Shakes head).

MR. HINSON: Nothing?

MR. TODD: Still no questions.

MR. HINSON: All right. Real quick.

REEXAMINATION

BY MR. HINSON:

Q. Doctor, can you identify any other clerical errors or transcription errors besides what Mr. Robinson just asked you?

A. I mean, that's all that I see right now just

looking at these. I mean, I haven't read over every last word of these.

Q. If you encounter any more things that you believe to be clerical errors or transcription errors in the medical records, will you let your counsel know?

A. Yes.

MR. DAVIS: And I'll let you know.

BY MR. HINSON:

Q. I'm curious, Doctor. Have you ever had the occasion where an anesthesiologist stayed for the whole surgical procedure?

A. Yes. I think that's -- it's not -- with the usual case, they don't. But sometimes for certain things they might.

Q. You've done that in your practice on occasion where an anesthesiologist decided to stay in the operating room for the whole procedure?

A. Yes.

Q. All right.

MR. HINSON: Nothing further.

MR. DAVIS: Nothing further.

VIDEOGRAPHER: This is the end of Media II in the deposition of Thomas J. Holbrook, Jr., M.D. The time is now 1:02 p.m. We're off the record and this concludes this video deposition.

(The taking of the deposition concluded at 1:02 p.m.)

CERTIFICATE OF REPORTER

I, Laura S. DeCillis, Certified Court Reporter and Notary Public in and for the State of South Carolina at Large, do hereby certify:

That the foregoing Examination Under Oath was taken before me on the date and at the time and location stated on Page 1 of this transcript; that the witness was duly sworn to testify to the truth, the whole truth and nothing but the truth; that the testimony of the witness was thereafter transcribed; and that the foregoing Examination as typed is a true, accurate and complete record of the testimony of the witness to the best of my ability.

I further certify that I am neither related to nor counsel for any party to the cause pending or interested in the events thereof.

I further certify that the original of said transcript shall be hereafter sealed and delivered to FRANCIS M. "BRINK" HINSON, IV, ESQUIRE, Finkel Law Firm, LLC, 1201 Main Street, Suite 1800, Columbia, South Carolina, 29201.

Witness my hand, I have hereunto affixed my official seal this 22nd day of May 2020, at Columbia, Richland County, South Carolina.

Laura S. DeCillis

Laura S. DeCillis
Certified Court Reporter
State of South Carolina at Large
My Commission expires
August 4, 2026

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CURRICULUM VITAE — THOMAS JEFFERSON HOLBROOK, JR., M.D.

Present Position: Midlands Orthopaedics and Neurosurgery
Current Address: 1910 Blanding Street
Columbia, SC 29201
Phone No.: 803-256-4107
Fax: 803-461-7624

Personal Data:
Birthplace: Huntington, West Virginia
Spouse: Martha
Children: Three

Education:
University of Kentucky
B.S. Biology
June 1977

Medical Education:
West Virginia University School of Medicine
M.D. Degree, 1981
Surgical Internship – Vanderbilt University
Affiliated Hospitals - 1981-1982
Neurosurgical Residency – Vanderbilt University
Affiliated Hospitals - 1982-1987

Licensure and Board Status:
Board Certified: Am. Board of Neurological Surgery-9/89 #8987
SC State License # 13378

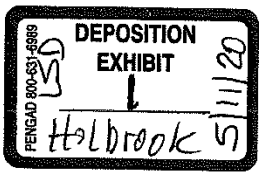
Hospital Appointments:
Palmetto Health Baptist, Columbia, SC (active)
Palmetto Health Parkridge (active)
Providence NE Hospital, Columbia, SC (active)
Lexington Medical Center, West Columbia, SC(courtesy)

Professional Memberships:
South Carolina Medical Association
Columbia Medical Society
Congress of Neurological Surgeons
American Association of Neurological Surgeons
SC Society of Neurosurgeons

Honors:
Phi Beta Kappa, University of Kentucky

Bibliography:

Holbrook, TJ; Fogo, A; Smith, HP
Histocytosis X Involving the Cervical Dura.
Childs Nerv Syst 1987; 3(10):50-Z



Surgical Documentation

Integumentary : No Significant Findings

Wegrzyn RN, Pamela C - 07/22/2016 08:34

Ancillary Referrals
Referral Functional : No Referral Indicated
Referral Nutrition : No Referral Indicated
Referral Spiritual Care : No Referral Indicated
Referral Case Mgmt-Social History : No Referral Indicated

Wegrzyn RN, Pamela C - 07/22/2016 08:34

Pain Evaluation
Primary Pain Location : Back
Laterality : Bilateral
Quality : Aching
Primary Pain Onset : Gradual
Primary Pain Time Pattern : Constant
Self Report Pain Tool : Numeric rating scale

Wegrzyn RN, Pamela C - 07/22/2016 08:34

Numeric/FACES Pain Scale
Numeric Pain Scale : 4
Numeric Pain Score : 4

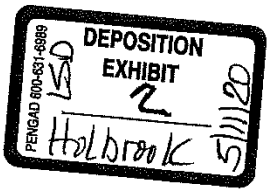
Wegrzyn RN, Pamela C - 07/22/2016 08:34

Image 1 - Images currently included in the form version of this document have not been included in the text rendition version of the form.

DOCUMENT NAME:	Operative Report
SERVICE DATE/TIME:	7/28/2016 11:18 EDT
RESULT STATUS:	Auth (Verified)
PERFORM INFORMATION:	Holbrook MD,Thomas J (7/28/2016 11:18 EDT)
ELECTRONICALLY SIGNED BY:	Holbrook MD,Thomas J (7/30/2016 13:34 EDT)

Operative Report
DATE OF OPERATION: 07/28/2016

SURGEON: Thomas J. Holbrook Jr., MD



PREOPERATIVE DIAGNOSIS: Thoracic spinal stenosis.

POSTOPERATIVE DIAGNOSIS: Thoracic spinal stenosis.

PROCEDURE: Decompressive thoracic laminectomy T9-10 through T11-12.

ATTENDING SURGEON: Holbrook.

ASSISTANT SURGEON: Maurio Riley

DESCRIPTION OF PROCEDURE: Patient brought to operating room. After the induction of satisfactory general endotracheal

anesthesia, the back was prepared and draped in the usual sterile manner. Fluoroscopy was used to localize the level. A portion of the previous incision was reopened extending inferiorly down through the posterior fascia. Paraspinous muscles were taken down bilaterally in a subperiosteal manner. Scar tissue from previous surgery was noted. The spinous processes at T11-12 were removed with a Leksell rongeur. Lamina were removed bilaterally with the Midas Rex, nosing the dura in the midline and dissection was continued in the midline and superiorly, dissecting scar tissue, partial calcification over the posterior dura up through the T9-10 level. This temporarily suspended correct some ventilation issues. Was continued and some additional bone in the lateral recesses. Examination with the Midas Rex and a small Kerrison rongeur. [____] remained stable up to this point and then abruptly stopped. The identifiable cause within the wound was demonstrated. Decompression was completed, thecal sac supple and was now well decompressed. Was irrigated, soft tissues were infiltrated with local anesthetic. A small Hemovac drain was left in the epidural space at the level of the [____] through a separate stab incisions superiorly and connected to an external drainage device. The paraspinous muscles were reapproximated with interrupted Vicryl, the posterior fascia with interrupted zero Nurolon, the subcutaneous tissues in layers of interrupted 2-0 Vicryl and the skin was skin staple approximator. The wound was dressed. Riley assisted with exposure and closing.

D: 07/28/2016 11:09 T: 07/28/2016 11:43 TID: 90079
Job #: 20940 Doc #: 20866988
cc: Thomas J. Holbrook Jr., MD

Electronically Signed & Verified on 07/30/2016 13:34 by Holbrook MD, Thomas J

DOCUMENT NAME:	Operative Report
SERVICE DATE/TIME:	7/28/2016 16:19 EDT
RESULT STATUS:	Auth (Verified)
PERFORM INFORMATION:	Holbrook MD,Thomas J (7/28/2016 16:19 EDT)
ELECTRONICALLY SIGNED BY:	Holbrook MD,Thomas J (7/30/2016 13:34 EDT)

Operative Report
DATE OF OPERATION: 07/28/2016

SURGEON: Thomas J. Holbrook Jr., MD

PREOPERATIVE DIAGNOSES: [____] spinal stenosis with cord edema.

Surgical Documentation

POSTOPERATIVE DIAGNOSES: [____] spinal stenosis with cord edema.

PROCEDURE: Reexploration of laminectomy wound, stenosis.

ATTENDING SURGEON: Thomas J. Holbrook Jr., MD.

ASSISTANT SURGEON: Not dictated.

INDICATIONS: In recovering from anesthesia from the initial surgery, the patient had no voluntary movement in the lower extremities. She could localize sensation over the left lower extremity, but had no sensation below about a T10 level on the right. Repeat MRI scan of the thoracic spine was done which demonstrated some residual stenosis originating from the left at the superior portion of the laminectomy. Also edema within the cord at the superior portion of the laminectomy. The condition and findings were discussed with the husband by phone as he had already left the hospital, and the need for a repeat surgery. I believed that he understood and agreed to proceed.

DESCRIPTION OF PROCEDURE: The patient was returned to the operating room. After the induction of satisfactory general endotracheal anesthesia the back was prepared and draped. The wound was reopened down to the previous laminectomy site. On inspection, normal postoperative changes were identified. No hematoma was identified. On inspection of the superior portion of the laminectomy site showed partially calcified scar tissue was encountered on the left [____] the canal on the left side. Further dissection was done in this area [____] the scar tissue from the thecal sac and excising it to free up this portion of the spinal canal. The dura remained supple and did not appear to be under any tension. The wound was irrigated and careful attention paid to hemostasis. A small Hemovac drain was left in the wound at the level of the lamina, brought out through a separate stab incision superiorly and connected to an external drainage device. Paraspinous muscles were reapproximated with interrupted 2-0 Vicryl. The posterior fascia with interrupted 0 Nurolon, the subcutaneous tissue in layers of interrupted 2-0 Vicryl, and the skin with skin staple approximator. The wound was dressed.

D: 07/28/2016 16:11 T: 07/28/2016 16:55 TID: 420198
Job #: 21242 Doc #: 20867060
cc: Thomas J. Holbrook Jr., MD

Electronically Signed & Verified on 07/30/2016 13:34 by Holbrook MD, Thomas J

* Auth (Verified) *

NKA

PH Baptist Anesthesia Record

Continuous Anesthesia Start Time: 0720 | Continuous Anesthesia End Time: 1155 | Date: 7-28-16

ASA 1E 2 3 4 5 E

Anesthetic: ☐ Local ☐ MAC ☑ General ☐ Spinal ☐ Epidural

☐ Type of Block: _____

Block By: _____

Post Op Analgesia _____

Post op Epidural by: _____

Art Line by: _____

Central Line by: _____

Surgeon: Holbrook

Anesthesiologist: DJM

CRNA: [illegible]

Diagnosis: Spinal stenosis T9-T12

Procedure: _____

GOODWIN, CRYSTAL JAQUAY
B1620200813
MR 000275536
03/02/1978 38Y F
HOLBROOK, THOMAS J

Time → 0715 0730 0800 0830 0900 0930 1000

Legend: BP Y; Pulse •; Start Anes ⊠; Start Op ◉; End Anes ⊗

Respirations: Spontaneous ○; Assisted ⊘; Controlled ⊗

Preinduction VS: BP 160/99; P 100; RR _____; O_2 99

99.0

Pre-anesthetic Checklist
OR # _____
☑ Pt. I.D.
☑ Pt. Chart
☑ Consent
☑ Anes. Equip
☑ Anes. Machine
NPO after AM

Induction
☐ Pre-O_2
☑ IV routine
☐ IV with Sellick
☐ Inhalation
☐ See Comments

Position
☐ Supine
☑ Prone
☐ Lithotomy
☐ Lateral R/L
☑ Arms Padded < 90° Secured
☐ Axillary Roll

Airway Maintenance
☐ Nasal Cannula
☐ Mask
☐ Oral Airway
☐ Nasal Airway
☐ LMA # _____

Intubation
☑ Endotracheal Size 7.0 mm
☐ Endobronchial R/L Size _____ Fr
☑ Oral Blade: MAC 3
☐ Nasal
☐ ETA
☐ Stylet
☑ DL x 1
☐ Fiberoptic Laryng
☐ Smooth
☐ Difficult
Secured @ 21 cm
Tube position reaffirmed by:
☐ BS=B
☐ $ETCO_2$
☐ Fiberoptic

Monitors
☑ EKG
☑ BP Cuff R/L
☑ Arm ☐ Leg
☑ Pulse Oximeter
☑ $ETCO_2$
☐ Temp S E R
☐ Precordial Steth
☐ Esoph Steth
☑ O_2 Analyzer
☑ Discon. Alarm
☑ PNS

Invasive Monitors
☐ Arterial Line
☐ CVP

Eye Care
☐ Lacribe ☑ Tape
☐ Opticgard
☐ Left ☐ Right

☐ NG Tube: ___ Fr
☐ OG Tube: ___ Fr
☑ Foley

Warming Equipment
☐ Hot line
☐ Bair Hugger Upper
☑ Bair Hugger Lower
☐ Bair Hugger Peds
☐ Level 1
☑ HME Filter

Re-evaluation and assessment of the physiologic state of the patient and readiness of the surgical environment has been done immediately prior to induction and administration of anesthesia and it is appropriate to proceed with the anesthetic as planned.

Signature: DJM

Medications													
Oxygen L/M	10	3	1.5	1.5	1.5	1.5	1.5	1.5	4	1.5	1.5	1.5	
N_2O / Air L/M			1.5	1.5	1.5	1.5	1.5	1.5	X	1.5	1.5	1.5	
%D F	0.5	0.5	1.0	1.0	1.0	1	1	1	1.0	1.0	1.0	1.0	
Roc / SUX	4/100	3H						25					
Propofol / Ketamine	200	100											
Versed (mg)													
Fentanyl / Sufenta	10	10	10			10		10	10			10	
Ketamine		30				10		10					
Dexmed												10	

Monitors													
EKG	ST	ST	SR	SR	SR	SR	SR	SR	SR	SR	SR	SR	
$ETCO_2$	40	34	32	32	33	34	34	33	36	36	34	35	
SAO_2	100	100	100	100	100	99	99	100	100	100	NA	NA	
FIO_2	1.0	0.6	0.6	0.6	.6	.6	.6	.6	1.0	.6	.6	.6	
Temp: E - R - S	—	35	36	35	35	35	35	35	—	35			
		✓	✓	✓	✓	✓	✓	✓		✓			
TC / PIP	550	55	544	36	550	36	40	38		36/25	37	25	
RR / Peep	12	+5	10	+5	10	/5	10	/5		9 /+5	9	/+5	

Fluids													
LR 1000													
Blood													
EBL - Interval/Total							50/			50/100			
Urine-Interval/Total													

IV Antibiotic: Ancef 1g IV
↑ 0745 ↓ 0759 Incision 0808
Surgeon Ordered (Y) N ; Orders Changed Y (N)

PRE MEDS: 0700 Reglan 10mg IVP's-RJ
0715 Versed 2mg IV, Robinul 0.2mg IV-RJ
q AM Seltzer 2 tabs PO & 30cc H2O-RJ

COMMENTS:
0648 Zantac 150mg PO-RJ
(1) SVI at anesthetic induction. Doctor initiated chart check — found prone. Pronemans rest Eyes taped. Nose free of pressure. Head check verified.
(2) pt b.t.ing ETT, Roc 25 mg IV, Sellicks applied, Eyes taped, Foley placed, Prone position verified, 10 given, Foley placed to bedside, Pronemans placed, head supported on foam pillow, Eyes OK, head remains neutral. Sao2 100%

Preoperative:
-Pre-anesthesia Exam/Eval Performed
-Anesthesia Plan Prescribed
-Qualified Anesthetists:

Intraoperative:
-Participated in Most Demanding Procedures
-Frequent Interval Monitored
-Physically Present & Available
-Post-Anesthesia Care Provided

OR in Time: 0724

Post Anesthesia Evaluation:
Patient Taken to: ☐ PACU ☐ OP Rec
BP: _____ / _____
Pulse: _____
Resp: _____
SaO_2: _____
Temp: _____
☐ No Anesthetic Complications @ Date: _____
Time: _____ Signed: _____

OR Out Time: _____
LOC: ☐ AW ☐ AR ☐ NAR
Airway: ☐ Oral ☐ Nasal ☐ Intubated
O_2 By: ☐ Mask ☐ N/C ☐ Room Air

85 Break Down Sterile ✓ 0910
All meds are IV unless noted.

28201Bmr r6/99 r5/05 r7/07 r8/09 r12/09 r4/10 r7/15

2820198

DEPOSITION EXHIBIT 3 04/11/17 Hall CSR

* Auth (Verified) *

PH Baptist Anesthesia Record

Continuous Anesthesia Start Time	0723
Continuous Anesthesia End Time	1155
Date	7/28/16
ASA	1 2 3 4 5 E
Anesthetic	☐ Local ☐ MAC ☑ General ☐ Spinal ☐ Epidural
Type of Block	
Block By	
Post Op Analgesia	
Post op Epidural by	
Art Line by	
Central Line by	
Surgeon	Holbrook
Anesthesiologist	JR
CRNA	
Diagnosis	
Procedure	See Page 1

GOODWIN, CRYSTAL JAQUAY 942 01
B1620200813
MR 000275536 HOLBROOK, THOMAS .
03/02/1978 38Y F

Time → 1015 30 1100 30

Legend: BP X; Pulse •; Start Anes ✖; Start Op ◉; End Anes ⊗

Respirations: Spontaneous ○ Assisted ⊘ Controlled ⊗

Preinduction VS: BP ___/___ P ___ RR ___ O_2 ___

Pre-anesthetic Checklist
OR #
☐ Pt. I.D.
☐ Pt. Chart
☐ Consent
☐ Anes. Equip
☐ Anes. Machine
NPO after

Induction
☐ Pro-O_2
☐ IV routine
☐ IV with Sellick
☐ Inhalation
☐ See Comments

Position
☐ Supine
☐ Prone
☐ Lithotomy
☐ Lateral R/L
☐ Arms Padded
☐ < 90° Secured
☐ Axillary Roll

Airway Maintenance
☐ Nasal Cannula
☐ Mask
☐ Oral Airway
☐ Nasal Airway
☐ LMA #
Intubation
☐ Endotracheal Size ___ Cuff
☐ Endobronchial Rt/Lt Size ___ Fr
☐ Oral Blade
☐ Nasal
☐ LTA
☐ Stylet
☐ DL #
☐ Fiberoptic Laryng
☐ Smooth
☐ Difficult
Secured @ ___ cm
Tube position confirmed by:
☐ BS=B
☐ $ETCO_2$
☐ Fiberoptic

Monitors
☐ EKG
☐ BP Cuff R/L
☐ Arm ☐ Leg
☐ Pulse Oximeter
☐ $ETCO_2$
☐ Temp S E R
☐ Precordial Steth
☐ Esoph Steth
☐ O_2 Analyzer
☐ Disconn. Alarm
☐ PNS
Invasive Monitors
☐ Arterial Line
☐ CVP
Eye Care
☐ Lacrilube ☐ Tape
☐ Opticlude
☐ Left ☐ Right
☐ NG Tube: ___ Fr
☐ OG Tube: ___ Fr
☐ Foley

Warming Equipment
☐ Hot line
☐ Bair Hugger Upper
☐ Bair Hugger Lower
☐ Bair Hugger Peds
☐ Level 1
☐ IIME Filter

Re-evaluation and assessment of the physiologic state of the patient and readiness of the surgical environment has been done immediately prior to induction and administration of anesthesia and it is appropriate to proceed with the anesthetic as planned.
Signature

IV Antibiotic: ___ Incision ___
Surgeon Ordered Y N ; Orders Changed Y N 1116

PRE MEDS:

COMMENTS:

Preoperative: Initials
-Pre-anesthesia Exam/Eval Performed
-Anesthesia Plan Prescribed
-Qualified Anesthetist

Intra/Postoperative: Initials
-Participated in Vol. Demanding
-Frequent Interval's Monitored
-Physician Present & Available
-Post-Anesthesia Care Provided
Face Mask in Grid

OR in Time: ___

Medications

Oxygen L/M	1.5	1.5	1.5	10	10	10	
N_2O / Air L/M	1.5	1.5	1.5	4			
% D F D	1.0	1.0	1.0	2			
/ SUX	125						
Propofol / Pentothal				2960 mg gtt	+300	= 3200 mg	Sets 1.6
Versed (mg)							2 2
Fentanyl / Sufenta							50
Ketamine	10						
Zofran	4						
Neosynephrine / Robinul / Decadron				5&6			10
Toradol							

Monitors

EKG	SR	SR	SR	SR	SR	SR	
$ETCO_2$	33	33	36	47	45	42	
SAO_2	99	99	99	99	99	99	
FIO_2	0.6	0.6	0.6	1.0	1.0	1.0	
Temp: E - R - G	35°						
Eye	✓	✓	✓	✓			
VC / P.P	611 / 25						
M / Pap	9 / 25						

Fluids

LL (3)							3700
Blood							
EBL - Interval/Total	100						
Urine-Interval/Total	240						200

4/4

Pt to PACU, placed on T piece breathing
Vss;

Post Anesthesia Evaluation: OR Out Time: 1197
Patient Taken to: ☑ PACU ☐ OP Rec
BP: 135 / 65 LOC: ☐ AW ☑ AR ☐ NAR
Pulse: 79 Airway: ☐ Oral ☐ Nasal ☑ Intubated
Resp: 20 T-Piece
SaO_2: 100 O_2 by: ☐ Mask ☐ N/C ☐ Room Air
Temp: 97.9
☑ No Anesthetic Complications @ Date: ___
Time: 1149 Signed: ___

All meds are IV unless noted.

28201Bmr r6/99 r5/05 r7/07 r8/09 r12/09 r4/10 r7/15

28201B

* Auth (Verified) *

Palmetto Health Baptist
PRE-ANESTHESIA EVALUATION

GOODWIN, CRYSTAL JAQUAY
B1620200813
MR 000275536
03/02/1978 38Y F
HOLBROOK, THOMAS J

Date 7-28-16 Time 1045

Proposed Operation Decompress T9-T12

Age 38 NPO [illegible] T 99° P 100 BP 160/99 Ht 162cm Wt 201g OSAT% 99%

BMI=45

Allergies Ø

NO	YES	PERTINENT HISTORY AND PHYSICAL FINDINGS
☐	☑	CARDIOVASCULAR (MI, Angina, CHF, PVD, (High BP) Arrhythmia)
☑	☐	PULMONARY DISEASE (Asthma, COPD, OSA, Tobacco)
☐	☑	CNS, NEUROMUSCULAR (CVA, Seizures, Dementia) Back Surg x2 - CLBP, thoracic stenosis
☑	☐	RENAL DISEASE (ESRD, CRI)
☑	☐	HEPATIC DISEASE (Hepatitis, Cirrhosis)
☑	☐	GASTROINTESTINAL (Hiatal Hernia, Obesity, GERD) EXAM: Cri-RRR -Otherwise
☐	☑	ENDOCRINE (Diabetes, Thyroid) Hyp-Clea
☑	☐	GYNECOLOGICAL (HCG (-))
☑	☐	HEMATOLOGICAL (Anemia, Sickle Cell Disease or Trait, Bleeding Disorder)
☐	☐	ORAL CAVITY (Loose Teeth, Dentures, Difficult Airway) Ø Loose, Cl II
☐	☐	PREVIOUS PROBLEMS WITH ANESTHESIA (MH, PONV) denies
☐	☐	CURRENT MEDICATIONS Metformin, HCTZ, Lisinopril ✓ Stopped today
	☐	PAIN SCORE 4 / 10
		OTHER FSBS - 91

PERTINENT LAB:

12 / 36 / 335 | 3.7 | Cr. 7 | BUN | EKG

91

B. S. | CXR

As A PHYSICAL STATUS: CLASS (1) 2, 3, 4, 5, E

RISK, BENEFITS, AND ALTERNATIVES DISCUSSED WITH PATIENT

PATIENT CONSENT TO PLAN OF Gen 7/28/16 M.D.

28203Bmr 8/12/02 r 6/08 r 11/10 r 7/11

BMG 91 @ 0620
7-28-16

28203

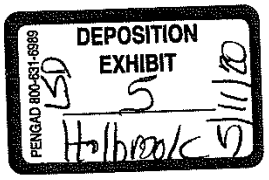
DEPOSITION EXHIBIT 4 7/28/16 CS

PENGAD 800-631-6989

Nursing Documentation

DOCUMENT NAME:	SN PreOp Assessment
SERVICE DATE/TIME:	7/22/2016 08:34 EDT
RESULT STATUS:	Modified
PERFORM INFORMATION:	Wegrzyn RN,Pamela C (7/22/2016 08:34 EDT)
ELECTRONICALLY SIGNED BY:	Wegrzyn RN,Pamela C (7/22/2016 09:26 EDT); Wegrzyn RN,Pamela C (7/22/2016 08:34 EDT)

SN PreOp Assessment Entered On: 07/22/2016 08:44
Performed On: 07/22/2016 08:34 by Wegrzyn RN, Pamela C



Vital Signs- PAT
Temperature Oral : 98 DegF
Peripheral Pulse Rate : 86 bpm
Pulse Equipment : Dinamap
Resp. Rate : 20 br/min
Pulse Ox Sat : 97 %
Systolic : 156 mmHg
Diastolic : 92 mmHg
NIBP Cuff Site : Right arm
NIBP Position : Sitting
NIBP Equipment : Automatic

Wegrzyn RN, Pamela C - 07/22/2016 08:34

Height & Weight
Dosing Weight : 119.5 kg
Dosing Height : 162 cm
Dosing BMI : 45.53 kg/m2
Scale Type : Stand up
Patient Stated Weight : 119.5 kg(Converted to: 263 lb 7 oz, 263.45 lb)
Patient Stated Height/Length : 162 cm(Converted to: 5 ft 4 in, 5.31 ft, 63.78 in)
Body Mass Index Calc Patient Stated : 45.53 kg/m2
Ideal Body Weight Calculated : 54.193 kg

Wegrzyn RN, Pamela C - 07/22/2016 08:34

General Information
Chief Complaint : numbness and tinglin g bilateral legs with letf leg weakness
Reason for Admission : posterior thoracic laminectomy for decompression t9- t12
Mode of Arrival : Ambulatory
Admitted From : Home
Primary Care Provider : No
Other Physicians : DR D FISHER-hx
holbrook
Actively Enrolled in a Clinical Trial : No
Information Source-Admission : Patient
Contact Numbers : HUSBAND IN WR DOS
james goodwin 803-477-5460
Orientation : Unit

Nursing Documentation

Who Was Oriented : Patient
Type of Housing : Home
Lives With : Family, Spouse
Patient's Preferred Language: : English
Literacy : Can Read and Write
Modes of Communication : Verbal
Communication Barriers : None

Wegrzyn RN, Pamela C - 07/22/2016 08:34

Advanced Directives
Advanced Directives : No Living Will, No Health Care Power of Attorney, Info Offered/Pt Refused

Wegrzyn RN, Pamela C - 07/22/2016 08:34

Allergies
Latex Sensitivity General : No
Latex Sensitivity Food : No
Allergy Information : Allergy Information Complete

Wegrzyn RN, Pamela C - 07/22/2016 08:34
(As Of: 7/22/2016 8:44:05 EDT)

Allergies (Active)

NKA — *Estimated Onset Date:* Unspecified ; *Created By:* Maldonado, Linda T; *Reaction Status:* Active ; *Category:* Drug Allergy ; *Substance:* NKA ; *Type:* Allergy ; *Updated By:* Maldonado, Linda T; *Reviewed Date:* 07/22/2016 08:38

Psychosocial-Cultural
Cultural-Religious Practices : NONE
Religion: : None
Religion : Baptist
Body Piercing(s) : Yes
Body Piercing(s) Comment : ears

Wegrzyn RN, Pamela C - 07/22/2016 08:34

Social History
Social History

(As Of: 7/22/2016 9:27:37 EDT)

Tobacco:
Never smoker (Last Updated: 7/22/2016 8:38:32 EDT by Wegrzyn RN, Pamela C)

Alcohol:
Denies Alcohol Use (Last Updated: 7/22/2016 8:38:39 EDT by Wegrzyn RN, Pamela C)

Health History- PAT
Current Procedures-Treatments : None
History of Positive PPD : No
History of Active TB : No
History of Treatment : No

Nursing Documentation

Assistive Devices : None
Implantable Devices : Caps/Crowns
Anesthesia History : No Anesthesia Complications

Wegrzyn RN, Pamela C - 07/22/2016 08:34

ID Travel Screen
Symptomatic After Exposure to Contagion : No
Symptomatic After Travel High-Risk Area : No

Wegrzyn RN, Pamela C - 07/22/2016 08:34

Problem History

(As Of: 7/22/2016 9:27:37 EDT)

Problems(Active)

Arthritis (SNOMED CT :13ED4849-4C1C-40A2-8F9C-EFF7C070C626)	*Name of Problem:* Arthritis ; *Recorder:* Wegrzyn RN, Pamela C; *Confirmation:* Confirmed ; *Classification:* Patient Stated ; *Code:* 13ED4849-4C1C-40A2-8F9C-EFF7C070C626 ; *Contributor System:* PowerChart ; *Last Updated:* 7/22/2016 09:27 ; *Life Cycle Date:* 7/22/2016 ; *Life Cycle Status:* Active ; *Vocabulary:* SNOMED CT
Back pain (SNOMED CT :2646370015)	*Name of Problem:* Back pain ; *Recorder:* Wegrzyn RN, Pamela C; *Confirmation:* Confirmed ; *Classification:* Patient Stated ; *Code:* 2646370015 ; *Contributor System:* PowerChart ; *Last Updated:* 7/22/2016 09:27 ; *Life Cycle Date:* 7/22/2016 ; *Life Cycle Status:* Active ; *Vocabulary:* SNOMED CT
Hypertension (SNOMED CT :64176011)	*Name of Problem:* Hypertension ; *Recorder:* Wegrzyn RN, Pamela C; *Confirmation:* Confirmed ; *Classification:* Patient Stated ; *Code:* 64176011 ; *Contributor System:* PowerChart ; *Last Updated:* 7/22/2016 09:26 ; *Life Cycle Date:* 7/22/2016 ; *Life Cycle Status:* Active ; *Vocabulary:* SNOMED CT
Pre-diabetes (SNOMED CT :D53A029B-437F-4029-A1CB-5E7C4CE4FCFF)	*Name of Problem:* Pre-diabetes ; *Recorder:* Wegrzyn RN, Pamela C; *Confirmation:* Confirmed ; *Classification:* Patient Stated ; *Code:* D53A029B-437F-4029-A1CB-5E7C4CE4FCFF ; *Contributor System:* PowerChart ; *Last Updated:* 7/22/2016 09:27 ; *Life Cycle Date:* 7/22/2016 ; *Life Cycle Status:* Active ; *Vocabulary:* SNOMED CT

Procedure History

Procedure History

(As Of: 7/22/2016 9:27:37 EDT)

Anesthesia Minutes: 0 ; *Procedure Name:* Thoracic back surgery x2 ; *Procedure Minutes:* 0 ; *Last Reviewed Dt/Tm:* 7/22/2016 9:27:33 EDT

Anesthesia Minutes: 0 ; *Procedure Name:* lap tubal ligation ; *Procedure Minutes:* 0 ; *Last Reviewed Dt/Tm:* 7/22/2016 9:27:33 EDT

Anesthesia Minutes: 0 ; *Procedure Name:* vaginal delivery x3 ; *Procedure Minutes:* 0 ; *Last Reviewed Dt/Tm:* 7/22/2016 9:27:33 EDT

Family History
Family History

(As Of: 7/22/2016 8:44:06 EDT)

Father: *Relation:* Father ; *Gender:* Male ;

Nomenclature: Hypertension ; *Value:* Positive

Nomenclature: Acute myocardial infarction ; *Value:* Positive

Mother: *Relation:* Mother ; *Gender:* Female ;

Nomenclature: Hypertension ; *Value:* Positive

SN System History Part 1
Respiratory : No Significant Findings, Bronchitis
Cardiovascular : Hypertension, Heart Murmur
Endocrine : Other: prediabetes on metformin
Hematological-Immunological : No Significant Findings
Neurological-Musculoskeletal : Alert & Oriented Times Three, Arthritis, Numbness & Tingling, Back Problems/Surgery
Psychological : No Significant Findings

Wegrzyn RN, Pamela C - 07/22/2016 08:34

SN System History Part 2
EENT : No Significant Findings
Gastroenterological : No Significant Findings
Genito-Urinary : No Significant Findings
Gynecological Status : Reproductive Age, Tubal Ligation
Pregnant? : No
LMP Date : 7/18/2016
Hepatic : No Significant Findings
Integumentary : No Significant Findings

Wegrzyn RN, Pamela C - 07/22/2016 08:34

Ancillary Referrals
Referral Functional : No Referral Indicated
Referral Nutrition : No Referral Indicated
Referral Spiritual Care : No Referral Indicated

Nursing Documentation

Referral Case Mgmt-Social History : No Referral Indicated

Wegrzyn RN, Pamela C - 07/22/2016 08:34

Pain Evaluation
Primary Pain Location : Back
Laterality : Bilateral
Quality : Aching
Primary Pain Onset : Gradual
Primary Pain Time Pattern : Constant
Self Report Pain Tool : Numeric rating scale

Wegrzyn RN, Pamela C - 07/22/2016 08:34

Numeric/FACES Pain Scale
Numeric Pain Scale : 4
Numeric Pain Score : 4

Wegrzyn RN, Pamela C - 07/22/2016 08:34

Image 1 - Images currently included in the form version of this document have not been included in the text rendition version of the form.

DOCUMENT NAME:	Braden Scale
SERVICE DATE/TIME:	7/28/2016 06:22 EDT
RESULT STATUS:	Auth (Verified)
PERFORM INFORMATION:	Foster RN,Rebecca E (7/28/2016 06:22 EDT)
ELECTRONICALLY SIGNED BY:	

Braden Scale
07/28/16 06:22 EDT Performed by Foster RN, Rebecca E
Entered on 07/28/16 06:23 EDT

Braden	
Sensory Perception	No Impairment (4)
Moisture	Rarely moist (4)
Activity	Walks frequently (4)
Mobility Braden	No limitations (4)
Nutrition	Adequate (3)
Friction and Shear	No apparent problem (3)
Braden Score	22

DOCUMENT NAME:	Admission History
SERVICE DATE/TIME:	7/28/2016 20:15 EDT
RESULT STATUS:	Auth (Verified)
PERFORM INFORMATION:	Moore RN,Chari R (7/28/2016 22:32 EDT)
ELECTRONICALLY SIGNED BY:	Moore RN,Chari R (7/28/2016 22:32 EDT)

Admission History Entered On: 07/28/2016 22:32
Performed On: 07/28/2016 20:15 by Moore RN, Chari R

* Auth (Verified) *

Midlands Orthopaedics and Neurosurgery • 114 Gateway Corporate Blvd, COLUMBIA SC 29204-2026

DELBRIDGE GOODWIN, CRYSTAL J (id #2176596, dob: 03/02/1978)

Encounter Summary

Patient

Name	DELBRIDGE GOODWIN, CRYSTAL (38yo, F) ID# 2176596	Appt. Date/Time	07/18/2016 08:45AM
DOB	03/02/1978	Service Dept.	MOPA_PNE
Provider	THOMAS J. HOLBROOK, JR., MD		
Insurance	Med Primary: BCBS-SC: (PPO) Insurance # : ZCW052657245612 Policy/Group # : 031458000 Prescription: ESI1 - Member is eligible. Prescription: ESI1 - Member is eligible.		

GOODWIN, CRYSTAL JAQUAY
B1620200813
MR 000275536 HOLBROOK, THOMAS J JR
03/02/1978 38Y F

Chief Complaint

Followup: Spinal stenosis of lumbar region

HPI

This lady returns for follow-up of thoracic stenosis. She states essentially she was last seen that her symptoms have improved. She has no back pain she still has some intermittent discomfort around the left knee particularly with standing for more than about 30 minutes or so at a time. She feels that her strength is normal. MRI scanning of her thoracic and lumbar spine have the main finding of marked stenosis at the T10-11 and T11-T12 areas with some recurrent stenosis at the T9-10 level with an osteophyte noted on the left.

Vitals

07/18/2016 08:28 am

BP: 129/81 sitting

Medications

Reviewed Medications

benzonatate 200 mg capsule	03/18/16	filled
ergocalciferol (vitamin D2) 50,000 unit capsule	02/10/16	filled
hydrochlorothiazide 25 mg tablet	03/01/16	filled
hydrochlorothiazide 50 mg tablet	06/21/16	filled
hydrocodone-homatropine 5 mg-1.5 mg/5 mL syrup	03/18/16	filled
lisinopril 10 mg tablet	03/01/16	filled
meloxicam 15 mg tablet	06/03/16	filled
metformin 1,000 mg tablet	06/12/16	filled
sulfamethoxazole 800 mg-trimethoprim 160 mg tablet	03/18/16	filled

Allergies

Reviewed Allergies

PENGAD 800-631-6989

DEPOSITION EXHIBIT
D-1
Holbrook 5/11/20

Midlands Orthopaedics and Neurosurgery • 114 Gateway Corporate Blvd. COLUMBIA SC 29204-2026

DELBRIDGE GOODWIN, CRYSTAL J (id #2176596, dob: 03/02/1978)

ROS

Patient reports no fever, no night sweats, no significant weight gain, no significant weight loss, and no exercise intolerance. She reports no dry eyes, no irritation, and no vision change. She reports no difficulty hearing and no ear pain. She reports no frequent nosebleeds and no nose/sinus problems. She reports no sore throat, no bleeding gums, no snoring, no dry mouth, no mouth ulcers, no oral abnormalities, and no teeth problems. She reports no chest pain, no arm pain on exertion, no shortness of breath when walking, no shortness of breath when lying down, no palpitations, and no known heart murmur. She reports no cough, no wheezing, no shortness of breath, no coughing up blood, and no sleep apnea. She reports no abdominal pain, no vomiting, normal appetite, no diarrhea, not vomiting blood, no dyspepsia, and no GERD. She reports no incontinence, no difficulty urinating, no hematuria, and no increased frequency. She reports no muscle aches, no muscle weakness, no arthralgias/joint pain, no back pain, and no swelling in the extremities. She reports no abnormal mole, no jaundice, and no rashes. She reports no loss of consciousness, no weakness, no numbness, no seizures, no dizziness, and no headaches. She reports no depression, no sleep disturbances, feeling safe in relationship, and no alcohol abuse. She reports no fatigue. She reports no swollen glands and no bruising. She reports no runny nose, no sinus pressure, no itching, no hives, and no frequent sneezing.

Physical Exam

Patient is a 38-year-old female.

On examination there is no point tenderness to palpation over the thoracolumbar spinous processes. She ambulates satisfactorily. There is no gross focal motor deficit in the lower extremities. She is able to step up onto a low stool with either legs satisfactorily. Sensation is intact to pinprick in the lower extremities.

Assessment / Plan

This lady has some marked progressive thoracic spinal stenosis from T9-T12 at the disc levels. There is encroachment on the spinal cord. As the stenosis is marked and progressive I have recommended surgery I have discussed with her the surgical procedure for a decompression from T9-T12. I also discussed with her the indications and risks for surgery as well believe that she understands and would like to go ahead and schedule this to be done.

1. Spinal stenosis of lumbar region
M48.06: Spinal stenosis, lumbar region
- SPINAL STENOSIS: CARE INSTRUCTIONS

Return to Office

- Thomas J. Holbrook, Jr., MD for Operating at MOPA_BMC Surgery on 07/28/2016 at 07:30 AM
- Thomas J. Holbrook, Jr., MD for NS-SR at MOPA_PNE on 08/08/2016 at 09:45 AM
- Thomas J. Holbrook, Jr., MD for NS-OV at MOPA_PNE on 08/29/2016 at 01:00 PM

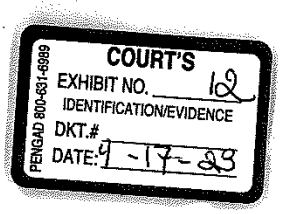
Encounter Sign-Off

Encounter signed-off by Thomas J. Holbrook, Jr., MD, 07/18/2016.

Encounter performed and documented by Thomas J. Holbrook, Jr., MD
Encounter reviewed & signed by Thomas J. Holbrook, Jr., MD on 07/18/2016 at 2:39pm

GOODWIN, CRYSTAL JAQUAY
B1620200813
MR 000275536 HOLBROOK, THOMAS J JR
03/02/1978 38Y F




COURT'S
EXHIBIT NO. 12
IDENTIFICATION/EVIDENCE
DKT.#
DATE: 9-17-23
PENGAD 800-631-6989

IN THE COURT OF COMMON PLEAS
FIFTH JUDICIAL CIRCUIT
STATE OF SOUTH CAROLINA
COUNTY OF RICHLAND

CRYSTAL GOODWIN and JAMES GOODWIN,
Plaintiffs,
v. Civil Action No.
MIDLANDS ORTHOPAEDICS AND NEUROSURGERY, THOMAS J. HOLBROOK, JR., M.D., PRISMA HEALTH, f/k/a PALMETTO HEALTH, and ERICH STARN, 2019-CP-40-04185
Defendants.

VIDEOTAPED DEPOSITION OF
FREDERICK D. JONES, III, M.D.

DATE: Thursday, March 30, 2023
TIME: 3:29 p.m.
LOCATION: Veritext Alpha Reporting
236 Adams Avenue
Memphis, Tennessee 38103
REPORTED BY: Helena Quirin
JOB NO.: 5795040

Certified Original

A P P E A R A N C E S

ON BEHALF OF PLAINTIFFS, CRYSTAL GOODWIN AND JAMES GOODWIN:

FRANCIS M. HINSON, ESQUIRE
HHP Law Group - SC
924 Gervais Street
Columbia, South Carolina 29201
brink@hhplawgroup.com
(803) 400-8277

ON BEHALF OF DEFENDANTS, MIDLANDS ORTHOPAEDICS AND NEUROSURGERY, AND THOMAS J. HOLBROOK, JR., M.D.:

ANDREW HEITMAN, ESQUIRE
Davis & Snyder
5 Hawthorne Park Court
Greenville, South Carolina 29615
aheitman@davissnyder.com
(864) 335-3500

ALSO PRESENT:

Steve Cummings, Videographer
Robert F. Goings, Observer (by videoconference)

I N D E X

EXAMINATION:		PAGE
By Mr. Hinson		6
By Mr. Heitman		87
By Mr. Hinson		120

E X H I B I T S

NO.	DESCRIPTION	PAGE
Jones:		
Exhibit 1	Video, Arterial Remodeling	35
Exhibit 2	Pre-Operative	49
Exhibit 3	Anesthesia Record	52
Exhibit 4	MAP Chart 1	57
Exhibit 5	Neuromonitoring	62
Exhibit 6	Urine Output Graph, MAP Chart 2	81
	(Exhibits attached.)	
Defense:		
Exhibit D1	Defendant Second Amended Answers to Plaintiffs' Third Set of Requests for Admission	100
	(Exhibit attached.)	

P R O C E E D I N G S

THE VIDEOGRAPHER: We are now on the record. Today is March the 30th, 2023, and the time is 3:29 p.m.

THE REPORTER: All right. Good afternoon, everyone. My name is Helena Quirin; I am the reporter assigned by Veritext to take the record of this proceeding.

This is the deposition of Dr. Frederick D. Jones, III, taken in the matter of Crystal Goodwin and James Goodwin vs. Midlands Orthopaedics and Neurosurgery, and Thomas Holbrook, Jr. on March 30, 2023, at the Veritext Alpha Reporting office in Memphis, Tennessee.

I am a certified reporter authorized to take acknowledgments and administer oaths in the State of Tennessee.

Additionally, absent an objection on the record before the witness is sworn, all parties and the witness understand and agree that any certified transcript produced from the recording of this proceeding:

- is intended for all uses permitted under applicable procedural and

evidentiary rules and laws in the same manner as a deposition recorded by stenographic means; and - shall constitute written stipulation of such.

At this time will everyone in attendance please identify yourself for the record, beginning from my left.

DR. JONES: I'm Frederick D. Jones, III, M.D.

MR. HINSON: Francis Brink Hinson for the plaintiffs.

MR. HEITMAN: Andrew Heitman for the defendants.

THE REPORTER: All right. And appearing remotely via Zoom, we have Mr. Robert F. Goings.

THE VIDEOGRAPHER: And I'm Steve Cummings, videographer with Veritext Reporting.

THE REPORTER: All right. Thank you, everyone. Hearing no objection, I will now swear in the witness.

All right, sir. Would you please raise your right hand?

WHEREUPON,

FREDERICK D. JONES, III, M.D.,

called as a witness, and having been first duly sworn to tell the truth, the whole truth, and nothing but the truth, was examined and testified as follows:

THE REPORTER: All right. You may begin.

EXAMINATION

BY MR. HINSON:

Q Doctor, will you please state your full name?

A Frederick Douglas Jones, III, M.D.

Q And, Dr. Jones, where do you live?

A 2148 Chancellor Cove, Nesbit, Mississippi.

Q And, Dr. Jones, what do you do for a living?

A I'm an anesthesiologist.

Q And why is it today that we're taking your testimony by video instead of having you come to Columbia, South Carolina, in a few weeks?

A Serious personnel shortages in my department and I was unable to get the time off to -- to come to trial.

Q And, Dr. Jones, if you would, tell us just a little bit about yourself. Are you married? Do you

have kids?

A I am married. Married 32 years come July 28th. I have two children -- two sons. One 30, one 25. Born in Meridian, Mississippi. Raised on the east coast. My father was in the Navy, so we moved a little bit. And graduated from college, Wake Forest University, Winston-Salem, North Carolina. Medical school at Howard University right after. I attended college on a four-year Army ROTC scholarship. Then after medical school, I did my internship in Pennsylvania. Then I served four years as a medical officer in the U.S. Army. A year in Korea, 2nd Infantry Division. And then three years at Aberdeen Proving Ground. And then I did another -- for a total of 23 years -- Army for active duty 19 reserve.

Q And when you say medical officer, generally, what does that mean for us lay folks?

A -- meaning doctor. General medical officer, meaning basically a family practitioner for the four years I was active duty. And then at the end of my active duty term, I did my anesthesiology residency. But the term is still medical officer. That's just a military term for any physician.

Q And so you have done a residency you say in

anesthesiology?

A Right. A three-year residency in anesthesiology followed by one year fellowship in critical care medicine. At the completion of that training, I was appointed clinical instructor in anesthesiology and director of the transplant anesthesiology program at the University of Maryland in Baltimore where I had done my residency and fellowship.

And then moved to Oxford, Mississippi in 1999. Former medical school classmate told me of a good opportunity down there and family and I visited, liked it, so we moved down in 1999 to Oxford, Mississippi. I was at the practice at Baptist Memorial Hospital, North Mississippi, for five years. And then got an offer at the Baptist Memorial Hospital-DeSoto in Southaven, and came up here in 2004. And have been here -- I was there almost 18 years. And then last year, was asked to take the leadership at the flagship hospital of our health system, Baptist Memorial Hospital in Memphis which is where I am now.

Q And so in your new role here in Memphis, do you still practice clinical medicine?

A Every day. Oh, yeah. I have the administrative title of site chief. Also assistant professor of anesthesiology -- University of Tennessee -- anesthesiology residency clinical faculty. I don't give lectures or anything like that.

But yeah, I do clinical anesthesia every day in addition to my administrative duties, which is basically in-between cases or afterhours.

Q And so have you been involved in teaching medical students?

A Only in the operating room. I don't give lectures or prepare lectures or anything of that type. But certainly, we teach them in the operating room. Medical students and residents. And student anesthetists. We have several CRNAs in our hospital, so we teach all three classes of students. The residents, student anesthetists and medical students.

Q A minute ago you mentioned a residency you did in anesthesia. What year did you complete that residency?

A 1996 I completed the residency. In 1997, I completed the fellowship.

Q And for us nondoctors, just generally, what is a residency and what is a fellowship? Terms we

often hear, but --

A Right.

Q -- may not know what they are.

A After a doctor completes medical school, you still -- you know the books, but you don't know medicine, so you do an internship. You can't really get a license until you finish your internship. Then after an internship, you are a general practitioner. You could hang a shingle with your general practitioner -- fellowship -- or I'm sorry. A residency is what allows you to become a specialist. In my case, my specialty's anesthesiology. Then a fellowship allows you to be a subspecialist if you choose to practice in that subspecialty area. My subspecialty would be critical care medicine, which I don't practice. I stay strictly with anesthesiology, but that's the difference between residency and fellowship.

Q And do you hold any board certifications?

A Yes. I'm board certified by the American Board of Anesthesiology.

Q And how long have you held that board certification?

A Since September of 1997.

Q Doc, this may be a hard thing to estimate, but in your career as a physician, how many separate surgical procedures have you had some involvement in in the field of anesthesia?

A It would be in the thousands.

MR. HINSON: At this time, Plaintiffs would offer Dr. Frederick Jones as an expert in the field of anesthesiology.

MR. HEITMAN: No objection.

BY MR. HINSON:

Q Dr. Jones, this work we're here for today in a medical/legal context, have you ever done that before?

A Yes, I have.

Q And have you ever worked with me or my law firm before?

A Not before this case, no.

Q And we have my colleague, Mr. Robert Goings and Jess Gooding is with him in his firm as well. Have you ever worked with either of them before?

A No, I have not.

Q How many times -- how many different cases would you estimate you have given deposition or trial testimony in?

A Between deposition and trial, probably 50 to 60.

Q And of those approximately 50 to 60, how many would you estimate were on behalf of the patient/plaintiff and how many would you estimate were on behalf of the healthcare provider/defendant?

A Maybe 2 to 15 percent for the patient/plaintiff and the rest would be for the healthcare provider.

Q And so then typically when you're in the setting, you're essentially on the other side of the courtroom testifying on behalf of the defendant?

A That's correct.

Q This type of work, medical/legal expert work, tell us -- tell the jury why you do it.

A I became involved in it initially in my residency when it was -- my first encounter, one of my attending anesthesiologists. In other words, when I was still in training. I went through the process and I was deposed at that point. An attorney mentioned to me, said, well, you -- you handled yourself pretty well under questioning. You ever considered looking at a case for me? And that was in 1997, ninety -- yeah. Probably '97.

Anyway, it caught my attention. But over the years, I enjoy the fact that I can learn vicariously from these cases. It makes me look at things I might not necessarily looked at before. I think it's made me a better physician.

And also, it's important that if a case is presented to me, there are cases in which I think healthcare providers make mistakes. And in a lot of cases, I think that they deserve good defense and I try to help out as best I can.

Q Have you turned down cases?

A Yes.

Q Have you turned down cases for the plaintiff?

A Yes.

Q Have you turned down cases for the defense?

A Absolutely.

Q Doc, I want to shift gears a little bit back to your clinical experience. In your work as an anesthesiologist, of all the surgeries you've been involved with as an anesthesiologist, approximately how many would you estimate were some sort of spinal surgery?

A A few hundred. And that would include

practice now, but also as a resident. The University of Maryland Medical Center at one point had a spine fellowship -- one of the best, supposedly, in the country. And so even since 1993 when I started residency, I've been working and providing anesthesia for spine surgeries. So I would say in the hundreds.

Q What percentage of all your surgeries would you estimate?

A Probably anywhere, five, ten percent.

Q And of those spine surgeries you've been involved with as an anesthesiologist, have you had the occasion where neuromonitoring was used?

A Most require neuromonitoring, yes.

Q And while you yourself are not a neuromonitoring technician, are you familiar with that process?

A Very.

Q Doctor, just generally speaking, as an anesthesiologist, do you have an understanding as to how a patient's blood pressure should be managed during a surgery, intraoperatively?

A Yes, I do.

Q If a patient's blood pressure is not adequately maintained during surgery, are there

repercussions or consequences that can befall the patient that can happen?

A Certainly. There are many that can befall the patient if the blood pressure's not properly maintained.

Q And so if they are allowed to fall too low for too long of a period of time, what sort of things can -- could happen to the patient?

A A number of organ systems can be affected by the pressure falling too low. You can have cerebral infarction, in other words a stroke. You can have a heart attack. You can have renal failure. And you can have poor perfusion. Really, of all the organs, but the ones that stand out most are usually going to be the central nervous system and spinal cord. The kidneys certainly are one and heart's a very obvious one, too. But all of the organs can suffer. You can even have muscle damage due to low blood pressure for too long.

Q And, Doc, I should have mentioned this earlier. As we go through today and we talk about different things -- medical concepts, as we talk about Crystal Goodwin specifically -- would you agree that unless you state otherwise, all the testimony that you

offer, you will only offer if you hold it to a reasonable degree of medical certainty?

A I would agree with that, yes.

Q If a patient's -- well, Doc, let me ask you this. Let's talk about what you reviewed in your work in this case.

Tell me what -- tell the jury what materials you have been provided and what you've reviewed.

A I've reviewed the records from the Midland Orhtopaedic Surgery Clinic. I've reviewed the records from the hospitalization during the surgery that we're talking about. I've also reviewed the neuromonitoring records. Certainly the depositions that were taken in this case -- several of the depositions and affidavits.

Q And when you say in this case, these are records involving which patient?

A Yes. Ms. Crystal Goodwin.

Q Earlier -- sorry to jump around. Just a second. I realized I forgot to make mention of this. I asked you if a patient's blood pressure was not adequately maintained during surgery. The consequences that could occur.

A Certainly.

Q And one of the things you mentioned was -- you used the term poor perfusion.

A Yes.

Q And I'm not sure what -- at what point in the trial your testimony may be played, but in the event that hasn't been discussed with the jury --

A Right.

Q -- could you just tell us in layman's terms what we're talking about when you use the term perfusion or poor perfusion?

A Perfusion, in layman's terms, is just the driving pressure of the fluid through a pipeline, if you will. You know, if you can turn on your -- your faucet and it's just dripping instead of flowing, that's poor perfusion through that pipe. Same in the human body. The perfusion is the driving pressure of blood through the blood vascular system. Through your blood vessels.

Q And so do we have perfusion in our lungs?

A You have perfusion in every organ of your body that requires blood flow, and that's every organ of your body. So yes, you've got perfusion everywhere.

Q Would it include your spinal cord?

A Absolutely.
Q Would it include your kidneys?
A Yes.
Q Your liver?
A Yes.
Q Heart, lungs, etcetera?
A Correct. I think the important thing to remember about perfusion is perfusion itself is not just the issue. You've got to have perfusion, but it also has to be at the proper pressure. If the pressure -- the perfusion pressure is what we call it -- if that perfusion pressure is too low, that in itself is a problem. In other words, it's not -- it's not enough just to have blood flowing through it. It needs to be flowing through it at a specific pressure. You don't want it too high, but you also cannot have it too low.
Q Doc, I want to talk about that concept in a minute, but first I want to jump back to the materials that you've reviewed. The hospital that Crystal Goodwin had her surgery on July 28, 2016, was -- now it's called Prisma Health Baptist. It used to be called Palmetto Health Baptist. Like a lot of them, it has changed names. Have you undertaken -- kind of

get a general idea of that hospital? Its size, its capabilities and --

A I have. Not long really after I became involved in this case. It's about the same size and it seems like the same services offered as a hospital where I was chief of anesthesia for about 17 years, which is Baptist Memorial Hospital-DeSoto right down in Southaven. About 300 beds, tertiary care hospital with a wide variety of surgical services.

So yes, I'm familiar with hospitals of that type. And I know it's situated in Columbia. It's the state capital of South Carolina.

Q And you said tertiary care. You know, for us lay folks, what does that term mean?

A Tertiary care, meaning that you have a hospital that can provide not just emergency room or primary care, but tertiary care. Inpatient hospital care usually involving also surgery and major surgeries such as spine surgery and those types of surgeries.

Q And, Dr. Jones, we can get into the specifics and the details later on in just a little bit here, but kind of the overarching 30,000-foot question. From your review of these materials that

you mentioned a minute ago, did Crystal Goodwin suffer an injury during the surgery Dr. Holbrook performed on July 28, 2016?

A Absolutely.

Q And can you just, in general terms, describe what that injury was?

A Sure. She suffered a severe damage to the spinal cord that has left her basically a functional paraplegic.

Q And again, we can get into the details in a few minutes, but from your review of the materials, have you reached any conclusions as to this neurologic injury that you just described?

A Yes, I have.

Q As to the cause of it?

A Yes, I have.

Q And what is that?

A That there was inadequate perfusion to her spinal cord during the critical portion of the surgery and that's caused the neurologic injury that I just mentioned.

Q And so in layman's terms, when you say inadequate perfusion to the spinal cord, what are you talking about?

A The blood pressure was too low for too long.

Q Doc, general terms, what does it mean to be the attending anesthesiologist in a spine surgery?

A Attending anesthesiologist is the same -- really, the -- the broader term is attending physician. As I was mentioning earlier in my training, you have interns, you have residents, you have fellows, and you have attendings. Attending is the highest level of being a physician and in the anesthesia arena specifically, you have CRNAs, or certified registered nurse anesthetists, and you have the attending anesthesiologist. The attending anesthesiologist is the anesthesiologist who oversees the CRNA.

Q And for the surgery that Dr. Holbrook performed on the morning of July 28, 2016, who do you understand to be the attending anesthesiologist?

A My understanding is it was Dr. Jennifer Root.

Q And how does -- how, if at all, does that relationship work between the anesthesiologist and the surgeon? Just in general terms, how does that work?

A The anesthesiologists and the surgeons are parts of the team. The surgeon certainly brings the

patients to the hospital and posts the cases, but the anesthesiologist works with the surgeon and the other members of the team. In this case, you have the CRNA and the neuromonitoring tech. But there's a collaborative understanding, but also we focus on our individual areas of specialty. He's operating on the -- he's functioning and -- and looking at the actual surgical opening and closure and those concerns. We're focusing on managing the patient, keeping them alive and properly perfused, properly oxygenated, properly ventilated throughout the surgery. But we're in communication and we have to have an understanding on how we're going to manage the patient. That's probably the most important thing.

Q As the anesthesiologist working a spine case, do you rely on the surgeon to provide you certain information?

A Absolutely. I rely on the surgeon to provide me information and typically that surgeon's going to rely on me to provide certain information to him or her.

Q Two-way street?

A Correct.

Q Doc, I want to talk about the assessment of

a patient prior to surgery.

A Mm-hmm.

Q So before surgery begins, do physicians evaluate the patient?

A Yes.

Q And just generally speaking, what's the purpose of that evaluation?

A The purpose of that evaluation is to determine the patient's baseline status, to -- and we do that with an eye toward how to best provide an anesthetic that is safe, that is effective, and that also accomplishes the surgical objectives. We want to optimize operating conditions while at the same time we have to take into consideration that patient's unique physical -- literal anatomical physical status because we're managing airways. We're looking at body habitus. We're looking at positioning. Those types of things. But also the patient's physiologic status. We're looking at the major organ systems. What is their neurologic status? What is their cardiac status? What is their pulmonary status? What is their renal status? All of those things are taken into consideration. People often don't really realize that, but we are having to look at all of those things

and those need to be tailored.

People often think that I think an anesthetic is one size fits all. It's not. And one of the things I impress upon the -- those who I teach, residents, medical students or CRNA students. An anesthetic should be like a suit of clothes. You tailor that anesthetic to that patient. One size does not fit all.

If we did the same anesthetic on everybody who comes under our care, there'd be a lot of dead people in the operating room.

So no, it has to be tailored. And we learn what size to cut that suit in the preanesthetic evaluation.

Q And so the things that a physician looks at in a pre-anesthesia evaluation, does that include blood pressure?

A Absolutely. Blood pressure and -- and as many blood pressures that we have access to, in addition to lab work and other things. But yes, blood pressure certainly plays a big role in that.

Q And is there kind of a rule of thumb or a standard range where someone's blood pressure should be typically maintained during a surgery?

A We typically want to maintain it within 20 percent of their baseline blood pressure.

Q And so does that go both directions? Twenty percent up and twenty percent down?

A That's correct.

Q And when you say baseline blood pressure, just generally what do you mean by that term?

A As best we can determine, the average of their blood pressures over time. In, you know, many cases, patients don't take their own blood pressures at home. And if they do, they may write them down. They may not. But whatever blood pressures we have access to, as many of those as we have, we try to determine from that some average about where they are and where they're trending. But that's the best that we can typically do with determining their baseline blood pressures.

Q And is that sometimes simply just the morning of and the pre-anesthesia evaluation?

A Sadly, a lot of times that's all we have to work with.

Q The concept you mentioned of 20 percent above and 20 percent below, as we go through today's testimony, can we use the term 20 percent rule to

describe that concept? Is that --

A Sure. That's fair.

Q The 20 percent rule, if a patient during a surgery goes outside of that range of 20 percent above or 20 percent below for a prolonged period of time, can that cause injury to a patient?

A Certainly.

Q What types of injury can occur if a patient's blood pressure were allowed to go prolonged -- for a prolonged period of time during surgery below 20 percent of their baseline?

A Because using the understanding I gave earlier of perfusion, if your pressure is too low for too long, then you will not deliver oxygen and nutrients to the organs in adequate quantity for those organs to function properly. So you'll start to see what we call end organ dysfunction. In other words, the organs are not going to be doing their job because they don't have the building blocks that they require. Number one, oxygen. And also carrying waste products. It's not just enough to deliver oxygen and nutrients to our tissues. We also have to carry away waste products. One of those waste products being carbon dioxide. Another being lactic acid. And adequate

perfusion is necessary to achieve all those functions.

So low blood pressure for too long is going to compromise that function and the organs will start to show, first, a dysfunction. And ultimately, they may stop functioning altogether.

Q And would those organs include the spinal cord?

A Yeah. Absolutely.

Q When you're determining a baseline blood pressure, a term that I believe we'll have heard in this case -- well, what is the term -- let me ask it this way.

What is the term MAP or mean arterial pressure mean?

A Mean arterial pressure is if you'd use a calculation, everyone knows the systolic blood pressure -- if you take a blood pressure and say 120/80, systolic would be the 120. Diastolic would be the 80.

Q And let me stop you for a second. Now those two numbers, the systolic, what does that reflect?

A When your heart contracts, the -- the blood that jets out of the left ventricle of your heart, which is the main driving ventricle -- the main

driving pump of your heart -- that's your systolic blood pressure. When the heart contracts --

Q How much pressure's at that moment?

A Correct. At that instant. If you were to take your pulse, what you're feeling is your systolic blood pressure. All right? That's your systolic.

Now when the heart relaxes in order to draw blood in before it contracts again, that's going to be your diastolic. The difference between the two, the 120 and the 80 -- let's say in a 120/80 which, you know, is your -- people consider textbook. But it's textbook if you're young and healthy. That's known as a pulse pressure -- the difference between those two.

Now one-third of that amount plus the diastolic gives you your mean arterial pressure. So if you were to write it out for the mathematically inclined people, it would be one-third of your pulse pressure plus your diastolic blood pressure. That's your mean arterial pressure.

The reason that's a value to us in medicine is because it allows us to -- instead of trying to follow two different pressures all along, it allows us to follow one. It really tells the tale of how much perfusion pressure -- how much flow you've got going

through your blood vessels at any given time.

Q All right. And that concept is called what? That term?

A The mean arterial pressure?

Q Mm-hmm.

A Yes.

Q And is it sometimes just called MAP?

A MAP is our abbreviation for it, yes.

Q And so I want to make sure I understand. With that, of the two numbers, systolic and diastolic, is one weighted heavier -- given more emphasis in that calculation?

A Well, the systolic is higher. Certainly that's the one that concerns us most if pressures are high or low. The diastolic, if it's elevated -- looking on the high end above that 20 percent -- the diastolic can be particularly damaging to the heart. Diastolic blood pressures over 100, we get very concerned about.

On the low end, we tend to focus more on the systolic. And so that systolic falling below a certain level concerns us a little more than the diastolic on the low side of that 20 percent rule.

Q Got you. Now as you are working with a

patient in the operating room setting, somebody who's under anesthesia, does an anesthesiologist and surgical team undertake to monitor and evaluate the patient's blood pressure?

A Consistently. That's a requirement. That's a standard of care. The blood pressure must be monitored continuously throughout the surgery. And even before the surgery itself begins, a lot of times in surgery, we're actually in the operating room for several minutes before the actual surgery begins. The monitoring begins immediately upon entry into the operating room.

Q And as part of this monitoring, are there -- well, tell me what -- just generally, what tools do you use to monitor a patient's blood pressure?

A Basic monitoring during general anesthesia's going to be EKG, blood pressure, and pulse oximeter, as well as -- and then there are -- depending on the type of surgery, monitoring of the urine output. We may need to do invasive monitoring and that's going to depend on the types of surgery that the patient is going to undergo. And their physical status. So in some cases, you'll need an arterial line instead of just a blood pressure cuff. In some cases, you may

need a pulmonary artery catheter just because of the type of surgery. For instance, open heart surgery and that type of thing. And then as I said, a urine output. In small, brief cases, you may not measure urine output. In bigger cases, you do.

And then in this case, that neuromonitoring is not an anesthesia monitor, but it is a type of monitor that's needed for this type of case.

There's also cerebral oximetry monitoring that's used in some cases.

Q And as far as blood pressure, what tool is used to monitor blood pressure? I know it's kind of an elementary question, but what do we do -- how do we determine a patient's blood pressure intraoperatively?

A The most common is the noninvasive blood pressure cuff. We put a cuff on the arm and it's connected to our monitor, and it inflates every few minutes and gives the blood pressure reading.

Q Is it similar to what somebody might have at home?

A Very similar. Mm-hmm.

Q The things you mentioned that are monitored during surgery, did that include urine output as well?

A In certain types of cases, yes. In cases

such as this, which is considered a bigger surgery, yes. Urine output needs to be monitored.

Q Approximately how long did this surgery last?

A This surgery was a little over four hours. So, yeah, you would want to monitor urine in a surgery of that type. Also, surgery where you expect there to be a significant fluid shifts where you should be giving large volumes of fluid. You'd want to monitor urine output. And also, you don't want the bladder to become distended, so you'd want to put in a Foley catheter which is a flexible, plastic catheter connected to a bag to collect the urine in.

Q Okay. And a minute ago, you described how blood pressure could be -- or would be monitored simply with the blood pressure cuff.

A Sure.

Q How was the urine output monitored?

A As I just said, the -- the Foley catheter's placed inside the bladder and it's draining into a -- a bag. What we call a urometer, which is nothing more than usually a plastic bag with markations on there to let you know how much fluid is in there.

Q So that has lines with measurements?

A Yes. Mm-hmm.

Q Doc, I want to talk about a concept -- a medical concept that I -- called arterial remodeling. Just generally speaking, what is arterial remodeling?

A Arterial -- first of all, people need to understand the difference between a vein and an artery. A vein is almost like a bag in that it will collapse if it's not -- if there's nothing in it. It's flat. An artery on the other hand is muscular. An artery literally has muscles in its wall. And for that reason, it is thicker in diameter. Its walls are thicker in diameter. However, because it has muscle in its walls, the muscles in an artery, just like the muscles in your arms or your legs, the more stress they're placed under, the thicker they get. The stronger they get.

So in the case of a person who has hypertension for instance where the pressure -- that perfusion pressure I talked about -- that driving pressure is high, the walls of the arteries and arterials, which are even smaller than arteries that go to the organs, will become thicker.

They also, as they become thicker, become less flexible. There's no give to them. And that

thickening of the wall is remodeling.

Now the side effect of that remodeling is that you now have a situation where the blood -- the amount of -- the diameter of the vessels become smaller typically and the blood flow becomes very dependent on the heart contracting, but there's no auto regulation. There's no give to the system.

If -- if the -- before remodeling, if pressure falls, there may be some residual effect where the blood vessels will dilate to allow more blood to flow. After the remodel, they no longer have that type of response. And I know I worked with the -- Dr. Shipley who was a medical animator, and we put together I think a -- a pretty good demonstration of remodeling and how it affects blood flow.

Q All right. Great. And that's something I want to move to now.

So have you worked with a graphic artist who also happens to be an M.D., have you worked with somebody to prepare a graphic animation describing this concept of arterial remodeling?

A I have. I let him know what I needed and what we needed to show, and he did a pretty good job of doing that I think.

Q And does the animation that was prepared between your collaboration with Dr. Shipley, the graphic artist, does it accurately display this medical concept of arterial remodeling as a result of hypertension or high blood pressure?

A Yes, it does.

MR. HINSON: At this point, Plaintiff would move the video of arterial remodeling into evidence as Jones Exhibit 1.

(Jones Exhibit 1 was marked for identification.)

MR. HEITMAN: We're going to object to that.

MR. HINSON: All right. And so I assume for the purposes of today, we will --

MR. HEITMAN: Yes.

MR. HINSON: -- move forward and address that at a later time.

MR. HEITMAN: Sure.

BY MR. HINSON:

Q So, Doc, I'm going to hand you the laptop there. And I would also hand you the steering wheel, so to speak. So if you need to pause it at any point.

A Okay.

MR. HEITMAN: And just for the record, I'm objecting because it's demonstrative evidence. So I'm objecting to that coming into evidence.

MR. HINSON: Okay. So I just want to make it clear, do you object to it being shown or you just object it going into evidence?

MR. HEITMAN: I object to it going into evidence.

MR. HINSON: Okay. But you don't have any objection to it being shown?

MR. HEITMAN: No.

MR. HINSON: Okay. All right.

THE WITNESS: Okay. So what we're looking at here is just a nice diagram of the vertebrae and -- at a level -- you know, this being an armpit's obviously here, and that being the vertebrae.

Spinal cord with some of the nerves going out of the cord. This one is just showing an overlay of the aorta, which as you know is the largest blood vessel -- largest artery in the body.

This is a detail, assuming the aorta's been cut away now. You're looking at how the blood flows to the spinal cord.

What you're looking at here is the

anterior spinal artery.

The way the anterior spinal artery lies on the spinal cord is if you would imagine a stack of spools of thread with a line running down right the middle of them -- right down the middle of them, on the front side of them, and that would be the anterior spinal artery.

And coming off of the anterior spinal artery are smaller blood vessels that supply the individual levels of the spinal cord.

This is just a cross section of the -- of the artery. And this could be on any artery, but this is specifically looking at the anterior spinal artery. But the walls -- this is meant to show that the walls are muscular. They're not just flat, single layers of wall. They actually are muscular.

And that's the animated flow of blood.

BY MR. HINSON:

Q Are artery walls thicker than vein walls?

A Much, much thicker. In fact, when we're doing ultrasound looking at blood vessels, whether we're doing nerve blocks or putting in central lines, you can compress a vein to the point where you can't even see it. An artery can't be compressed. If it

can, then the pressure inside of it's too low.

So this is an animation of the normal situation.

Q So it says MAP there. Is that the medical concept we were talking about earlier?

A That -- correct. Mean arterial pressure is normal in this -- this part of the animation.

And this is just showing that in a normal vessel, when the mean arterial pressure falls, the artery can dilate to -- to maintain flow and that's called autoregulation. That happens throughout the body and it's very necessary because during the course of even a regular day in a nonsurgical situation, there are times when your blood pressure may fall. You may be too hot on a summer day and haven't consumed enough fluids. Well, your organs don't necessarily shut down because you've got blood vessels that allow flow to regulate because their walls are expansible.

However, if the mean arterial pressure is high for too long and the arterial wall becomes thickened, then you lose that autoregulatory effect. The wall becomes very thick and very inflexible. And that's where -- when pressure drops or your perfusion

drops, it will not autoregulate. It will not adjust to allow greater flow.

Q Now is that something that would happen in just a matter of a few days of hypertension or --

A No.

Q -- blood pressure?

A No. That's not something that happens -- that's going to come after years typically of hypertension.

Q And hypertension is synonymous with --

A High blood pressure. Mm-hmm.

Q What are you showing there at this --

A What we're looking at here is the fact that you now have a thickened arterial wall and the arterial wall's thickened to create a permanently narrow channel that will not accommodate falls in blood pressure.

So it's very dependent on the driving pressure out of the heart. There is no give. There is no fluctuation. If perfusion falls, the artery can no longer adjust its own flow to allow better blood flow. It will -- the blood flow -- the pressure downstream from the -- from the aorta or from the heart is going to fall. And it's a permanent change.

It's not something that goes away really ever. I mean, you can -- you can take blood pressure medicine and so forth, that may drop your blood pressure over time, but this effect -- this remodeling doesn't -- doesn't reverse.

And as I said, this is the concept of remodeling. And this happens in anywhere there's arteries. Not just in the spinal cord, but also the heart, the blood vascular system, everywhere.

And as I said, once remodeling is occurring, the mean arterial pressure drops, for instance, during a surgery, it will not autoregulate. The effect is much more dramatic than the person who does not have longstanding hypertension or in whom remodeling has not occurred.

Q And so I want to make sure I understand the concept that you're discussing here.

So if a person has had chronic high blood pressure or longstanding high blood pressure, what is it that occurs in the arteries throughout their body? Just in summary.

A Remodeling -- in summary, remodeling will occur.

Q Which is --

A Which is this. In other words, their pressure is no longer going to be -- it will be in a state of -- of hypotension. In the face of low blood pressure, their likelihood of having organ damage is increased because the blood vessels supplying blood to the organs cannot maintain any ability to increase blood flow as needed.

Q And what is it that lessens a person with chronic hypertension, chronic high blood pressure, ability to adjust or autoregulate?

A This remodeling of the -- of the arteries. Arterial remodeling or vascular remodeling.

Q Is the artery less pliable or flexible?

A That's -- exactly. Pliability, flexibility, correct. So there's no autoregulation in it. It's just like a -- a -- it's like a pipe. Just like a PVC pipe now.

Q What are you showing right there, Dr. Jones?

A Just what we were just talking about. In other words, artery can no longer expand and adjust its flow. And so if the -- the general -- if blood pressure falls throughout the body, the individual vessels can no longer make the adjustments that they do in a normal person. The effect is going to be more

-- the end -- the end organ is going to suffer more than any person who does not have remodeling.

Without remodeling, as I said, blood flow at the level of the individual vessels can autoregulate. Once remodeling has occurred, you've lost that.

Q And so with what's being shown there on the screen, an artery that has undergone this remodeling that is now having a period of low blood pressure, what would be the result to the nearby organs?

A Oh, the nearby organs are not going to get the oxygen or the nutrients they would normally receive. And also, you're not going to have enough pressure to ensure that the products of metabolism are carried away. So you're going to end up with organ damage.

Q And when you say products of metabolism, you mean waste products?

A Waste products of metabolism. Carbon dioxide, lactic acid, so forth. And this is occurring at a cellular level and obviously cells is what makes up all of our organs. So as you destroy cells or compromise cells' ability to metabolize normally, then you're going to have organ damage.

Q And is this concept that you've described

here, how does it relate to essentially the 20 percent rule we discussed earlier?

A Well, once you fall below that 20 percent, you're going to start to see perfusion dropping in anyone. Once you fall below that 20 percent rule in a person who has not had vascular remodeling, they may be able to -- to -- to rebound somewhat because autoregulation will allow blood flow to resume or to maintain a fairly normal flow.

Now that's part of the problem or part of the curse of the 20 percent rule is within that 20 percent, we know that autoregulation occurs. Outside that 20 percent, that's part of the problem. You lose that autoregulatory component. And that's why it's important on both sides. On the high side, if the pressure gets too high, then the system also can regulate to try to keep things within a normal range. But outside that 20 percent, that's why we want to keep them within that, because outside of that, you start to lose that. And in people who have had remodeling, it's even more dramatic.

Q Is that part of the reason why you look at a person's baseline blood pressure?

A Yes. Very much so. Because it helps us to

determine intraoperatively where to keep that patient. I don't want to keep, you know, that -- that high school or that college athlete who has the 120/80 all the time, well, I can keep them at 120/80 in the operating room. However, someone whose pressure is typically higher, 120/80 is not enough.

Q And you just used the term keep a person's blood pressure.

A Mm-hmm.

Q What tools do you have as a physician working in the operating room to keep a person's blood pressure somewhere?

A We have medications. We have fluids. There are a couple of techniques. And I mean to a great extent, we can put a blood pressure anywhere it needs to be. We have fluids at our disposal in the operating room. Certainly in a tertiary care hospital such as this, you're going to have lactated Ringer's crystalloid solution. Normal saline crystalloid solution. Albumin. Blood if necessary. And then you have pressor agents, you have phenylephrine, ephedrine, vasopressin. These are all -- Levophed, which is norepinephrine. Epinephrine itself. All of these are available.

And then you also have the ability as an anesthesiologist to adjust the level of anesthesia. In this situation, Ms. Goodwin was on two anesthetic agents during this case. The anesthetic level could also be adjusted. And these are all things that are done every day in operating rooms all over the place. I do it. I was doing it till 1:00 this morning. You're adjusting it constantly. It's part of the art and the science of anesthesia is making those adjustments.

Q And so if you find a patient has gotten too high, there's things you can do to bring it down?

A Yes. Certainly.

Q And if you find somebody's too low --

A You can bring it up. Absolutely. We can -- you can put a pressure wherever you need it --

Q Okay.

A -- basically.

Q Doc, I'll take that computer back and not be a distraction. Thank you.

A Certainly.

Q Dr. Jones, let's shift gears for a minute now and talk specifically about Crystal Goodwin.

A Okay.

Q In the materials you reviewed, did they reflect that Crystal had longstanding or chronic high blood pressure?

A They did. From my review of the records, she had been diagnosed with hypertension back in 2007, which would have been nine years before this event -- before this surgery.

Q And what did the pre-anesthesia evaluation show Crystal Goodwin's blood pressure to be at that time?

A She had had a blood pressure -- and I jotted down a couple of them -- a few days before I think. Her surgery was on July 28th. She had a blood pressure on July 22nd. She had another recorded on July 18th. And one of course on June 20th.

And on the 28th, her mean arterial pressure was 119. On the 22nd, which was the week before, it was 113. She had one on July 18th that was 97. And she had one on June 20th that was 125.

So those are the -- the four blood pressures that we had. And at the time of preanesthetic evaluation or going into surgery, that's the information that would have been available to the anesthesia team.

Q Okay. Would that information have been available to the surgeon as well?

A Certainly. Certainly. In fact, the ones that were taken in the office would have been available to the surgeon before they were available to the anesthesia team.

Q Okay. Did you undertake to determine what would be a reasonable preoperative baseline blood pressure to consider for Ms. Goodwin?

A Sure. Looking at the -- the average of her mean arterial pressures going into surgery, her mean should have been about 116. And the -- the term we're using 116 refers to millimeters of mercury pressure.

Q Okay. But the 116 is the MAP --

A Mean arterial pressure.

Q Okay.

A That's the mean arterial pressure.

Q That concept we talked about earlier.

A Correct. Using the calculation I talked about earlier.

Q Okay. And, Doc, let me show you what we -- we talked earlier about evaluating a patient before a surgery. Was Crystal Goodwin evaluated prior to undergoing surgery on July 28, 2016?

A Yes, she was.
Q And just -- well, when did that evaluation take place?
A On the 22nd. A week before.
Q Okay. And at that evaluation, what was her mean arterial pressure determined to be at that point?
A 113 millimeters of mercury.
Q Okay. Doc, I'm going to show you a document.
MR. HINSON: -- that's the pre --
MR. HEITMAN: Okay.
MR. HINSON: -- pre-anesthesia assessment.
MR. HEITMAN: You can --
MR. HINSON: Yep.
BY MR. HINSON:
Q Doc, I'm just going to show you --
THE VIDEOGRAPHER: Counselor, your microphone just fell off.
MR. HINSON: Oh, I'm sorry.
BY MR. HINSON:
Q I'll show you a document. If you can identify what we're looking at there.
A Okay. This is from the Prisma Health

Baptist Hospital and this is the preoperative assessment for Ms. Goodwin on the 22nd of July 2016, which would have been six days before her surgery.

Q And was that part of the materials you reviewed?

A Yes, it was.

Q And does that document reflect a blood pressure being taken during the preoperative assessment?

A It does.

MR. HINSON: All right. The plaintiffs move the preoperative assessment as Jones Exhibit 2.

(Jones Exhibit 2 was marked for identification.)

MR. HEITMAN: Is that a clean copy, Brink?

MR. HINSON: I have a clean copy --

MR. HEITMAN: Okay.

MR. HINSON: -- all right?

MR. HEITMAN: No objection then.

MR. HINSON: Here it is right here. Okay. I found my clean copy. I'll swap you.

THE WITNESS: Okay.

MR. HINSON: I'll swap you out there.

Sorry about that.

THE WITNESS: All right. No problem.

BY MR. HINSON:

Q And so tell us, Doctor, on that exhibit, where will we find the blood pressures that were recorded during that preoperative assessment?

A Well, in the preoperative assessment, on the first page under vital signs, it has her temperature, her pulse rate, and a few other items. Pulse oximetry which is her oxygen saturation. But it has her blood pressure 156/92. Used -- a blood pressure cuff was on her right arm and that's how the pressure was taken. And that comes with a mean arterial of 113 as I said.

Q And could you hold that document up and just show us where on the document you'll find the blood pressure?

A Right there.

Q Okay. So that's on Exhibit 2?

A Correct.

Q Thank you. And, Doc, was there another blood pressure taken prior to the surgery commencing -- the surgery beginning --

A Yes.

Q -- on July 28th?

A Yes. We call that the preinduction pressure and that's something that anesthesiologists and anesthesia providers typically do. And that is to basically establish the baseline for that case in addition to, you know, the understanding of what was available on preoperative evaluation, in this case, the week before.

But yes, her preinduction blood pressure mean was 119 millimeters of mercury.

Q All right. And so let me hand you another document. Can you identify what we're looking at there?

A What we're looking at here is known as the intraoperative anesthesia record. And this is from July 28, 2016. And this is a -- how we, anesthesia providers -- anesthesiologists and CRNAs -- record what we do during the surgery.

Q And does this record contain a preoperative blood pressure as well?

A It does on the column here, it has 160/99 and a pulse of 100.

Q And, Doc, in your work as an anesthesiologist, do you use similar anesthesia records as what we're looking at?

A We do. This -- nowadays, a lot of it's electronic. But this system obviously had not gone to electronic health records at that point. But yes, in places that don't have electronic health records, this is the same type of form we've been using for many years.

MR. HINSON: And Plaintiffs would move the anesthesia record -- two-page anesthesia record in as Jones Exhibit 3.

(Jones Exhibit 3 was marked for identification.)

MR. HEITMAN: No objection.

BY MR. HINSON:

Q Dr. Jones, taking the two -- taking the two blood pressures we talked about, the preoperative blood pressure -- the preoperative assessment blood pressure and the preoperative blood pressure on the day of surgery, what was the baseline MAP for Crystal?

A That'd be 116 millimeters of mercury. And we reached that by simply adding 113 plus 119 and dividing it by two.

Q Okay. That's math even I can do, I believe.

And so then if you take the 116 to be her baseline, what would be the -- applying the 20 percent

rule, what would be the low end of where you'd want to keep Crystal's blood pressure?

A The low end should be low 90s. Mid -- mid to low 90s.

Q Doc, I want to look at that anesthesia record we've marked as Exhibit 2 [sic]. Can you tell us what it is exactly we're looking at here? This grid?

A Sure. On the grid, what you're looking at --

Q Well, let me do this. I have a bigger demonstrative.

A Right.

Q It's just a blow up of Exhibit -- I said Exhibit 2. It's Exhibit 3 -- of Exhibit 3. Can you take us through what we're looking at on that grid?

A Okay. As I said, this is the anesthesia record. This is what we call the intraoperative record. Just to give you a quick thumbnail sketch, you've got the continuous start time, the time typically we roll into the operating room, then the time we're out of the operating room. ASA is -- we're talking about the patient's -- American Society of Anesthesiologist physical status classification. The

type of anesthetic, whether it's going to be general or spinal or epidural or monitored anesthesia care, local, so forth.

The surgeon's name, the anesthesiologist's name, the CRNA's name, the diagnosis.

Q Tell us what this little grid is right there.

A The grid -- okay. The grid allows us to document the blood pressures. We put time across the top and the grid is -- is broken down, going this way in five-minute increments. And the little arrows or carrots or whatever you want to call them, to us anesthesia providers tells us the blood pressure.

For instance here, where the checkmark is, downward is the systolic. Upward is the diastolic. And then the dot, those are the pulse rates. And this is -- the grid is basically telling you or showing you graphically the blood pressures and the pulse rates across time.

Q And so, Doc, on that blow-up demonstrative there, could you take this orange highlighter and just kind of highlight where the systolic blood pressure is? The little carrots or arrows you described. Just kind of make us a line of those?

A Sure.

Q And so what is the increment between each little arrow or carrot?

A That's five minutes.

Q And then if you could also do the same for the diastolics.

A Okay. Okay.

Q Doc, have you reviewed the -- well, who would have charted these arrows or carrots there?

A From my understanding, this would have been Erich Starn who was the CRNA on the case.

Q Okay. And have you reviewed his testimony to glean or understand exactly the numbers he intended by those arrows and carrots, to the degree there's a little bit of subjectivity whether it's 100 -- whether one's a 96 or a 97?

A Yes.

Q You've reviewed his testimony to confirm that?

A I have read the deposition testimony and also with that, it generated a table of those blood pressures.

So we can see them here. You know, sometimes there can be a discrepancy. Was it a -- was

it really 140 or was it 139, or was it 141? But he went back and looked at them, actually generated a table of what those blood pressures were, which was very helpful.

Q And have you reviewed a demonstrative chart that puts together those figures or those blood pressures graphically in a way that's easier to view and understand?

A Yes, I have.

Q All right. Doc, I'm going to hand you this and just ask you to identify this foam board.

A Okay.

Q Tell us just generally, what are we looking at?

A This is somewhat similar to what we were just looking at on the -- on that grid. It's different in appearance, but the same breakdown in terms of time going this way and the blood pressures going up and down. And the times are across here at the bottom and the blood pressures are here in millimeters of mercury. That's what we're looking at.

Q And does the data included on that foam board that you're holding in your hand, is it taken from --

A It's taken from the blood pressures that Mr. Starns verified from the anesthesia record.

Q And have you undertaken to confirm its accuracy?

A I have looked at every single one of these and they're all exactly what he recorded in his testimony and on the tabular chart that he generated.

Q And is this document or this foam board that you're holding, is it a graphical representation of data that is in Crystal Goodwin's medical chart?

A Yes, it is.

MR. HINSON: All right. Plaintiffs would move this demonstrative graph as Exhibit 4.

(Jones Exhibit 4 was marked for identification.)

MR. HEITMAN: Objection.

MR. HINSON: And just objection just to entering it into evidence?

MR. HEITMAN: Yes.

MR. HINSON: Okay. But you don't have an objection to us using the demonstrative?

MR. HEITMAN: No.

MR. HINSON: We will seek to move it into evidence and we can argue that --

MR. HEITMAN: Sure.

MR. HINSON: All right.

BY MR. HINSON:

Q So, Doctor, what is the -- there's red obviously on that chart. Tell us what that red represents.

A The red represents the zone below that 20 percent window that we want to see based on a mean arterial pressure of 116. So everything that is below the pink and grading into red would be an area that we want to stay out of.

The mean arterial pressures we need to see to keep her within 20 percent would need to be above the red or pink area.

Q Okay. And so tell us what you see on this -- well, let me ask you. Is this a summary -- I'm kind of shifting gears on you, Doc. I apologize.

A That's okay.

Q Is what you hold in your hand, is it a summary of the data taken from Crystal's medical chart?

A Yes, it is. This is -- this to the -- to the layperson would be what I look at when I see the chart that I was holding up a minute ago. That grid.

And it shows me also where, in a nice way, how long she was in the danger zone, i.e. how long or all the -- the incidents when she fell below that 20 percent baseline that we'd want to see, or within that 20 percent of her mean arterial pressure.

So yeah, this is a graphic description or graphic presentation not only of the blood pressures, but for me, it helps me see how long and how often she was under -- outside the range that we would want to consider a safe range.

Q And right there about two-thirds through that summary of the data taken from the anesthesia record, there's this yellow line. Tell us what that is there.

A This corresponds with the time period when the signal was lost in the -- on the anesthesia record, there is no record -- by the way, it's never mentioned that the signal was lost, but we know from looking at the neuromuscular -- neuromonitoring technician's note and also the deposition testimonies, that around 9:57, the signal -- the SSEP signal, which stands for somatosensory evoke potential -- the signal was lost and that's what the yellow line there corresponds to. And you can see right down here 9:55,

and then a minute later, roughly 9:56 is where we see the signal lost.

Q Doctor, what do you equate and believe that signal loss to have been the result of?

A I believe that signal loss right there is due to all of this time spent below that pink line. Especially this time leading right up to it. You're looking at 9:56, the signal -- or 9:57, the signal was lost. Well, for the better part of an hour leading up to that, you had mean arterial pressures well below the lower end of that 20 percent window that we want to keep the patient in. That, in my mind without a doubt, is what's the cause of the signal loss.

Q And, Doctor, what we're looking at there with he blood pressures taken from the anesthesia chart, and the signal loss -- well, let me ask this. Where'd you get the signal loss information from?

A Signal loss information came primarily from the neuromuscular monitoring technician.

Q Okay. And what you're holding in your hand, is that a summary of evidence taken from the medical chart?

A This was taken from the medical chart, but there was an additional blood pressure reading that

the neuro -- the neuromonitoring technician included that was not included on the anesthesia record. This was all verified by Mr. Starns, which is fine, but he made one omission that caught my attention. And that's one that I think is graphically displayed on the -- on another. And that is right after this, there was a reading of 77 millimeters of mercury, which ends up, by the way, being the lowest reading -- the lowest mean arterial pressure reading on the entire chart. And that was the last one before the loss of the signal.

Q All right. And I'm going to show you that in just a second. Before we move on, I want to make sure I understand that what you're holding in your hand there, is that a summary of data taken from the medical record?

A It is.

MR. HINSON: And again, I would move the foam board there in Dr. Jones' hands into evidence as Plaintiff's Exhibit 4.

MR. HEITMAN: Objection.

MR. HINSON: Same as before?

MR. HEITMAN: Same as before.

//

BY MR. HINSON:

Q All right. Doc, I'm going to take that back from you. Now I'm going to hand you another document, Dr. Jones.

A Mm-hmm.

Q And just generally, can you identify what it is we're looking at there?

A This is the neuromonitoring record that Teresa Adkins generated during the case.

Q And have you reviewed this material in preparation for your testimony today?

A Yes, I have.

Q And this was part of the overarching -- was this part of Crystal Goodwin's overarching medical record?

A Yes, it was.

MR. HINSON: Plaintiffs would move the neuromonitoring record in as Jones Exhibit 5.

(Jones Exhibit 5 was marked for identification.)

MR. HEITMAN: No objection.

BY MR. HINSON:

Q All right. Doc, you made a reference a minute ago to another blood pressure reading during

the course of this surgery. Tell us what you were talking about there. Tell the jury what you meant.

A What I'm talking about is on page 36 of the neuromonitoring record, there is an entry at the top of the page, 9:56:18, where Ms. Adkins recorded a blood pressure of 103/64 that corresponds to a mean arterial pressure of 77. That was the lowest mean arterial pressure on the entire anesthesia record. And that also was the last mean arterial pressure before we lost the signal.

So obviously it stood out in Ms. Adkins' mind because it's also the only entry of its type I believe in the entire neuromonitoring record where she actually makes a note of putting that there. She also notes, by the way, the level of anesthetic that was being provided at the time.

So in my mind, and having done enough of these cases and worked with enough neuromonitoring techs, that's something that's significant. They don't typically record in that fashion unless it strikes them as -- as being significant.

Q And is there a summary of that evidence available, to include that 77?

A Yes, there is.

Q Excuse me. That blood pressure.
A Oh, yeah. There is.
Q Okay. So that blood pressure of 103/64, what does that turn into as far as the mean --
A 77. Mean arterial pressure, yeah. I'm sorry.
Q And I'm going to hand you another foam board.
A Okay.
Q Doc, what are we -- what are you holding in your hands there?
A What I'm holding here is the same data as before, but with the inclusion of the blood pressure that Ms. Adkins recorded, which is not recorded on the intraoperative anesthesia record that Ms. Starns generated. Which causes me a little bit of concern why he did not record that. That's the lowest pressure of the case. That's the last blood pressure before loss of signal. You know, don't know why that's not there, but it's not. And it is here. It's on her record. She's documented it on the neuromonitoring record.
Q Her meaning Ms. Adkins?
A Her being Ms. Adkins, right.

Q And so there is a blood pressure -- what is the lowest blood pressure recording during the surgery from all the evidence available to you?

A That one right there.

Q And was that -- and what time was that?

A That's at 9:56:18.

Q All right. And did that information make it into the anesthesia chart?

A No, it didn't.

Q Okay. And so, Doc, what you're holding in your hand there, that foam board, is that a summary of the evidence that was available to you?

A Yes, that is.

Q And does it accurately reflect the blood pressures both in the anesthesia chart and as you could glean from the neuromonitoring record?

A Yes. That includes both.

MR. HINSON: All right. Plaintiff would move that chart as Exhibit 5.

MR. HEITMAN: I'm going to object to it being used as demonstrative evidence, as well as going into evidence in the case.

MR. HINSON: All right. What's the objection on the demonstrative --

MR. HEITMAN: Well, the issue is that Dr. Jones is giving his opinion on the 77 blood pressure reading. In his deposition, he never testified at all to a 77 blood pressure reading. And he said in his deposition that he would let counsel know -- let his counsel know if he had a change or addition in opinions. And we've never been notified of this new opinion.

BY MR. HINSON:

Q Doctor, does this 77 -- meaning arterial pressure -- does it change your opinions in any way?

A No. Not at all.

Q Is it still your opinion -- well, even considering the 77 mean arterial pressure at 9:56, what is your opinion as to what the cause of the neuromonitoring signal loss was?

A That -- that single pressure at 9:56 is significant; however, it doesn't change my opinion because that single incident is not what caused it. It was the time -- the -- the pressure being so low for so long. Not a single point in time. So it wouldn't change my opinions at all.

Q Does it further support your opinions?

A It further supports it, but it doesn't

change my opinion.

Q So, Doc, you said earlier that Crystal Goodwin suffered a neurologic injury during the July 28th surgery. Can you summarize for us how these blood pressures during the surgery played a part in what you believe caused that neurologic injury?

A Sure. And as I said just a second ago, her blood pressure -- her mean arterial pressure -- that perfusion pressure, that driving pressure I was describing earlier, was too low for too long. And as a result, she -- her spinal cord did not receive adequate oxygen or nutrients and the tissue was compromised. And that's what caused her spinal injury.

Q Did neuromonitoring reflect this spinal cord injury?

A Yes, it did. That loss of signal. That is where the -- the neuromonitoring -- and that's why neuromonitoring is there is to document and -- first of all, to detect those type of injuries. And on the cases that I do myself, spine cases, that's -- we're relying on the neuromonitoring tech to tell us those types of things so that we can make adjustments. And that's a common practice.

In many cases, you're going to have to make adjustments throughout the surgery based on the information the neuromonitoring tech gives.

Q And if the neuromonitoring tech isn't giving that information to the anesthesiologist, is there somebody else who should ensure that information gets relayed?

A Oh, sure. The surgeon. The neuromonitoring tech should be conveying it to everyone in the room. And in fact, in many cases I've been in, we actually will turn the monitor so the neuromonitoring tech can see the same thing we're seeing. And some surgeons want to see it, too. And so the whole team is tuned into what's going on with the -- with the vital signs.

Now we can't all see what the neuromonitoring tech sees because they have a screen typically off -- only they're looking at. But everyone can see the vitals.

And, yes, the neuromonitoring tech is following and we are following what they tell us, and they usually let us know if there's anything. In this situation, for instance, not only would the what they call somatosensory evoke potential's being monitored, but also the motor potentials.

So the, you know --

Q Is there an acronym for those two things that are --

A Well, motor evoke potentials or MEPs versus SSEPs, somatosensory evoked potentials.

Now because there had been an issue during the case with the airway and they had to paralyze the patient, they could no longer monitor the motor potentials. Because once you're paralyzed, you can't monitor that.

Q And when you say paralyzed, you're not speaking of her legs; are you?

A No. I'm talking about chemical paralysis. I'm sorry. We anesthesiologists -- when I talk about it, I'm usually talking about a chemical paralysis. She was given a medication called rocuronium. Its job is to -- to stop the muscles throughout the body from responding, not like a spinal paralysis. No.

Q Would administering rocuronium, would that affect MEPs?

A The MEPs --

Q I'm sorry. The SSEPs.

A It will not affect the SSEPs, correct. And that's one of the reasons why you want both.

Q Okay. And what time again did the signal loss take place, approximately?

A Around 9:56.

Q And did you see anything in the record that would demonstrate that the CRNA or the surgeon ever alerted the anesthesiologist of this loss of neurologic signal?

A No. And in fact, the CRNA acknowledged I think in his deposition he didn't notify her. The surgeon I believe in his deposition said he didn't see the need for her to be notified by the CRNA. But no, she was never notified. And Dr. Root, in her deposition, said that she was never notified.

Q If a patient has lost signal to her lower extremities during a spine surgery, is that something that an anesthesiologist would want to be notified of?

A That's a major event. If a CRNA of mine is doing a case and this happens and they don't notify me, we're going to have some talk -- a serious talk. And I know when I was a resident and a fellow in a case such as this, the attending would be livid if you didn't because it's a very significant change.

Q Would you also be upset with the surgeon if they didn't take effort to inform you of this change?

A Oh, certainly.

MR. HEITMAN: Objection.

THE WITNESS: The team in general.

I'm sorry.

MR. HEITMAN: Well, he's not a surgeon.

MR. HINSON: I asked if he'd be upset with the surgeon.

BY MR. HINSON:

Q If a situation were such where nobody from the operating room -- not the CRNA nor the surgeon -- told you of a loss of neuromonitoring signal to the patient's lower extremities, would you be upset with both individuals?

A Well, sure. I'd want to know that this had occurred because this patient is not just the surgeon's patient. It's my patient, too. It's the CRNA's patient, too. And that's one of the most traumatic events that can occur during a spine surgery is loss of signal. So yeah, I would want to know and I'd expect anybody in the room -- if the tech needed to call me, they could call me. The surgeon could let us know.

I've been notified in many cases by a surgeon, hey, Fred, you need to get in here. You

know, something's wrong. What can you fix? Can you adjust something? Spin a dial? Something. But I'd expect to be informed, yes.

Q That brings up my next question, Dr. Jones. If the standard -- if the anesthesiologist had been informed, which I think you've established she was not.

A Correct.

Q Had the anesthesiologist been informed of this loss of signal, what would the standard of care require the anesthesiologist to do in response to loss of signal to the patient's lower extremities in this clinical situation?

A First thing she would do is get the pressure up by whatever means necessary. Whether it's fluid bolus, administration of pressors or a lightening of the anesthetic agents. But that's what she would do to keep -- to be within standard of care.

Q And had those things been done in a timely fashion, do you have an opinion to a reasonable degree of medical certainty what the likely outcome would have been for Crystal?

A I think that she would have maintained a proper perfusion to respond and she wouldn't be

paralyzed today.

Q Doc, besides the blood pressures that we've talked about, is there anything else in the chart that demonstrates inadequate perfusion for Crystal during the course of this July 28th surgery?

A Certainly. The urine output.

Q Okay. And tell us about that.

A Urine output, people have to understand, your kidneys are one of the most vascular organs -- or two of the most vascular organs in your whole body. Every time your heart contracts, 25 percent of your cardiac output goes to your kidneys. That's how important and how dependent on blood flow the kidneys are.

Urine output is one of our best ways of assessing the adequacy of a patient's organ perfusion. Because it's like I was saying earlier in the demonstration that I showed -- that animation -- what's going on there is not just going on in the spine, it's going on throughout the body. Perfusion is critical.

If perfusion drops to the kidneys, you're not going to produce urine. If perfusion is adequate to the kidneys, you're going to produce urine. Unless

you are in end-stage renal failure and there's no indication here that Ms. Goodwin was in any way in any type of renal failure.

So her urine output is going to be almost entirely dependent on perfusion. And probably one of the best indicators of her perfusion status. And her urine output was dismal for this case.

Q And let's talk about that. How much urine output -- well, let me ask it this way, Doctor.

Is there a rule of thumb of how much urine output a physician expects to see a patient produce during a surgery?

A Sure. During general surgery -- under general anesthesia, an adult patient should usually produce between 1 to 2 milliliters per kilogram per hour --

Q Okay.

A -- of urine.

Q And, Doc, I have some different measuring -- liquid measuring devices here that I've brought. And I have some water we've dyed blue.

And so you said how much? What would be the rule of thumb for urine?

A 1 to 2 milliliters per kilogram per hour.

And Ms. Goodwin was about 120 kilograms on the day of surgery.

Q Okay. And so then taking -- giving the benefit of the doubt, let's take the lower number there of 1 milliliter of urine per kilogram --

A Per hour.

Q -- per hour.

A Mm-hmm.

Q Can you show us how much urine you would expect on the low end for Ms. Goodwin to be producing in the course of an hour during this surgery?

A Okay. So the course of an hour at 120 CCs -- or 120 kilograms -- on the low end, she should produce 120 milliliters, which is -- per hour.

Q And so --

A That's --

Q Can you hold that up and show us -- and just tell us --

A Sure. Per hour, that's what I would expect to see. 120 CCs, because that'd be 1 CC per kilogram in that one hour.

Q All right. And so then over the course of a little bit over a four-hour surgery, how much -- can you show us how much urine --

A Sure.

Q -- you would expect on the low end for a properly perfused patient to be --

A Okay. That was at the end, let's say hour one. That would be the end of hour two. End of hour three. End of hour four. And she was actually in there for a little over four hours, but that would be at the end of four hours.

Q Okay. And can you show us graphically with the tools in front of you there how much urine was recorded as Crystal having produced during the surgery?

A During the whole surgery, she produced that much. So you're looking at -- and this is on the low end. I would expect, like I said, 1 to 2. So really on the upper end, twice this much, but this is how much -- I would expect this is how much she produced. 80 CCs according to the record.

Q And what does that tell you as a physician?

A That she's -- her kidneys are not perfused either. So in other words, throughout her body, her -- her perfusion was not adequate. She was hypotensive. Her blood pressure was too low throughout her whole body throughout the case. And

the best evidence we have objectively was with the urine output, but then the neuromonitoring also, in my mind, verified that by showing a loss of signal.

She was not adequately perfused. Her pressure was too low for too long. She should have produced far more urine.

Like I said, this is on the low end. I would expect it to be much higher.

Q Can you show us what the high end would look like?

A Sure. Double that amount. So that was 120 per hour. Okay. 2 CCs per kilo per hour, that's how much -- actually, I expected more than that because like I said, her surgery actually went a little over four hours. This is at 2 milliliters per kilogram per hour versus, again, what she actually produced.

Q In your mind, is there any way a patient producing only 4 milliliters of urine over the course of a four plus hour surgery was adequately perfused?

A No, no. If she had a history of renal failure, if she was on dialysis, yeah. You might only expect 80 CCs. Ms. Goodwin was not in that situation. She had normally functioning kidneys. The only reason she would produce such a small amount of urine is she

was inadequately perfusing her kidneys, and she was inadequately perfusing her kidneys because her blood pressure was too low.

Q Doctor, does the chart tell us how much fluid she was getting during the surgery?

A According to the records, she received 2700 milliliters, or 2,700 milliliters of crystalloid during the case. Yes.

Q Okay. Can you show us what 2700 milliliters of crystalloid would look like?

A Okay. Well, this is 1,000 in here. That's 2,000. And 700. So that's how much crystalloid she received. And again --

Q And I'm sorry, Doc. What is -- for us lay folks, what is --

A Oh, crystal -- I'm sorry. For us anesthesiologists or physicians, crystalloid is a salt water IV solution. That's all it is.

Q Saline?

A Saline. Like, it's not blood. It's not albumin. It's not platelets. It's not plasma. It's crystalloid. It's basically salt water.

Q Okay. And so what are we looking at there in the jar?

A We're looking at 2,700 milliliters of fluid. And --

Q And that represents what?

A That represents how much she received during the course of the surgery.

Q Okay. And how much output did she have?

A 80 milliliters. That's it.

Q Is that a fluid imbalance there?

A Huge.

Q Doctor, someone producing that little urine over the course of four hours, would they even stand the risk of suffering renal injury?

A Oh, yeah. Acute renal insufficiency would be a very definite possibility in having that type of fluid imbalance. She was -- she was not anuric, which means no urine, but she was oliguric, meaning she was, you know, very little urine.

Q So what about other organs like liver and pancreas and spleen? Is there a way we can measure whether or not they were suffering during this surgery?

A You could draw a liver function test immediately afterwards. That might tell you that, but I don't think that was done. That's -- you know, if

you had a cerebral oximetry monitor on her, sometimes that might also be of assistance, but that wasn't used in this case nor did the standard of care require it to be. But there are tests that you can take to see if hypoperfusion, you know, was occurring in real time. But after the -- the -- after the case, that would be hard to -- to find.

Q And so in other words, do we have any way of measuring whether or not other organs besides the spine and the kidneys were suffering from lack of perfusion during the surgery?

A Not that was in place at that time, no.

Q All right, Doc. I'm going to show you one other graph here. Can you tell us -- hold that up and tell us -- first of all, just tell us what we're looking at before you hold it up.

A Okay. What you're looking at here is her urine output over time, starting at 7:30 that morning and running till 11:30 that morning. And we're seeing on the lower line, green, what her actual urine production was based on the anesthesia record. With that first 40 being at 9:30, which is annotated in the record -- on the anesthesia record. And then the -- the blue line is showing what ideally it should be at

that same point in time. So you can see the very -- the very large discrepancy. 480 milliliters of urine versus 80 milliliters.

Q And is that the high end or the low end of that range?

A That's the low end. That's the low end. The high end would be twice that high.

Q And does the graph you're holding, is that -- is the information on the green line there taken from the chart?

A Yes.

Q Is that from the evidence in this case?

A Yes, it is.

MR. HINSON: Plaintiffs would move the graphic description of the evidence in as Exhibit 6.

(Jones Exhibit 6 was marked for identification.)

MR. HEITMAN: I would object to it going into evidence.

MR. HINSON: Again, just so I'm clear, the objection isn't against it being used. It's to being entered; is that fair?

MR. HEITMAN: Correct.

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BY MR. HINSON:

Q Doc, so that we can later figure out where this information is, can you show us on the anesthesia record where we will see the urine output?

A Sure. Right here, you see the 40 under urine/total?

Q Would you circle that?

A Sure.

Q Just make a big circle on it. And what time was that 40 recorded?

A That's at around 9:30.

Q Okay.

A Which corresponds with what's on the graph. And then you have another 40 here between 10:15 and 10:45. Right there. And that's it, for a total of 80.

Q And where would we find how much crystalloid or saline she was given?

A Right here. LR being given by 18-gage IV in the right hand.

Q And is it summarized there at the end of the --

A Correct.

Q -- surgery?

A Right. And that's where it says 2700.

Q All right. Doctor, do you have a belief to a reasonable degree of medical certainty as to whether sustained low blood pressure during the surgery on July 28, 2016, caused Crystal Goodwin's neurologic injury?

A Yes, I do.

Q And what is that belief?

A It did. That's -- the blood pressure was too low for too long and that's what caused the injury.

Q And if it had been -- if her blood pressure had timely been raised in the face -- or in response to this neuromonitoring signal loss to her lower extremities, do you have belief as to whether her permanent neurologic injury could have been avoided?

A Yes, I do. And I think it could have been avoided.

Q Doctor, what is a reperfusion injury?

A Reperfusion injury is really an inflammatory response that occurs when tissue that has not had adequate blood flow and oxygenation is suddenly reperfused. In other words, the perfusion that we talked about earlier, the pressure was low, now it's

high again. And the body's response, they've studied it now and it seems that the same mechanisms that we see almost like in a traumatic injury occurs in organs. So that's basically it in a nutshell.

Q Does the clinical picture and the evidence in this case fit with a reperfusion injury?

MR. HEITMAN: Objection. He was never asked about that at his deposition. Never gave an opinion. He's also not a neurosurgeon.

BY MR. HINSON:

Q You can answer that, Doc.

A Okay. Reperfusion though is not just a neurosurgical concept. It's a concept throughout medicine. But I say that no for a couple reasons. One, if perfusion is adequate up to that point, then there is no reperfusion injury. In other words, reperfusion injury occurs in tissue that has not been perfused and you suddenly restore perfusion.

Looking at this record, the perfusion wasn't adequate -- was -- if it had been adequate to begin with, there would not have been any occurrence of reperfusion injury.

Also, reperfusion injury does not occur at an instant in time. Even Dr. Holcomb [ph] in his

deposition said the signal drop off was dramatic. It was like almost instantaneous, like flipping a switch. That's not the way reperfusion injury typically occurs. It manifests over a period of time.

So no, I don't think reperfusion injury occurred here.

Q And if there weren't -- if it were -- I understand your position is you don't believe it was a reperfusion injury, but if it were a reperfusion injury, would doing the things you mentioned earlier in response -- giving fluids, lowering the anesthetic levels, raising blood pressure -- would they help to lessen or alleviate a reperfusion --

A You're doing the same thing --

MR. HEITMAN: Same objection.

BY MR. HINSON:

Q You can answer.

A Okay. With reperfusion, yes. You'd be doing the same thing. You'd want to restore pressure, provide supportive therapy, keep the pressure up, keep the patient well oxygenated and ventilated. And that's about all you would do.

So if the same things had been done that should have been done as soon as the signal was lost,

then if this was due to a reperfusion injury, it should have resolved.

Q But in order to do that, those things that you just described, the anesthesiologist would have to what?

A Would have to have been notified.

Q Thank you. Dr. Jones, I've got no further questions for you at this time. Please answer any questions opposing counsel may have.

A Certainly.

MR. HEITMAN: Y'all take a quick break?

MR. HINSON: Sure. That'd be fine.

THE VIDEOGRAPHER: All right. This ends Media Number 1. Going off the record at 4:00 p.m. -- wait, 5:00 p.m.

(Off the record.)

THE VIDEOGRAPHER: This begins Media Number 2. Going back on the record at 5:07 p.m.

THE WITNESS: I don't see my face there.

MR. HEITMAN: Yeah. He -- we just turned it off.

MR. HINSON: I turned it off because the other attorney --

THE WITNESS: Oh, okay. Got you. All right.

EXAMINATION

BY MR. HEITMAN:

Q Dr. Jones, my name is Andrew Heitman. I met you off the record.

A Yes.

Q I represent Dr. Holbrook and Midlands Orthopaedics and Neurosurgery.

A Understood.

Q You're an anesthesiologist; correct?

A Yes.

Q Okay. And you're not a neurosurgeon like Dr. Holbrook is; right?

A Correct.

Q Okay. How long have you been working as an anesthesiologist?

A I finished my residency in September -- I'm sorry. July of 1996. Board certification on first pass, 1997. And so I've been a board-certified anesthesiologist since September 1997.

Q Okay. And you might have already answered this, so I'll try not to repeat too much of what Mr. Hinson did. But how long have you been an expert for?

A I started doing expert witness work at around 1999. '98, '99. Yeah, probably '99.

Q And how much do you get paid for reviewing a case?

A $400 an hour.

Q And what about for your deposition?

A That's -- I do 500 an hour with a three-hour minimum.

Q And then what about for trial?

A Same price, but for a four-hour minimum.

Q About how many hours do you think you've spent on this case?

A Total, probably 20 hours. But that's over the three years. And I've already been paid for about half of that amount. I haven't billed for the other half yet.

Q At this point in your career, you said you've treated thousands of patients; is that correct?

A Yes. Oh, yeah.

Q In all of these cases that you've done, do you do a pre-anesthesia evaluation?

A Yes.

Q And often times the first time you see a patient is on the day of surgery; correct?

A Frequently.

Q So when is the pre-anesthesia evaluation performed?

A Most of the time it's immediately before surgery. You rarely have the -- the luxury of seeing them beforehand more than the day of surgery. Sometimes you do, but many times you don't. Sometimes it depends also if they're inpatient or outpatient. But most of the preanesthetic evaluations are right before surgery.

Q And it's at the pre-anesthesia evaluation that the baseline blood pressure's determined; is that correct?

A At the -- not only just at the preop evaluation, you usually want to look at any -- a blood pressure that you have available to you that's in the record. And then also your immediate preinduction blood pressure. That tells us quite a bit as well. And that's the one that you take once you're actually in the operating room before you induce.

Q Who all's involved in the pre-anesthesia evaluation?

A The anesthesiologist who is going to perform the anesthetic in the operating room, sometimes but

not always. One of the things that we often have now are pre-anesthesia evaluation clinics where you'll have an anesthesiologist and non-anesthesia nurses doing assessments of patients sometimes days in advance of a surgery. So it depends on where you are and the facility and their processes.

Q So it'd be the -- but it would be the anesthesiologist and/or the nurse anesthetist who would determine the baseline blood pressure?

A Usually -- correct. One of the two.

Q Is it usually one more than the other?

A The anesthesiologist usually takes precedence. We're the ones who call the shots. We're kind of the captain of the ship, so we're usually the ones to determine that.

Q And why is it important to determine the baseline blood pressure?

A Because that will help guide your intraoperative management of the blood pressure.

Q Help guide the anesthesiologist intraoperative management?

A Correct.

Q Is your opinion that more likely than not Ms. Goodwin's blood pressure fell so low during her

surgery on July 28, 2016, that it caused her to have permanent leg weakness due to lack of blood flow to her spine; is that correct?

A Correct.

Q And it's your opinion that more likely than not, if Ms. Goodwin's blood pressure was maintained in an adequate range, that she would have maintained adequate perfusion to her spinal cord; is that correct?

A Correct.

Q And in your opinion, more likely than not, if Ms. Goodwin's spinal cord was adequately perfused, she would have avoided her neurological injury or the injury would not have been as severe; correct?

A Correct.

Q The MAP calculations directly correlate to the blood pressure; is that correct?

A Correct.

Q How is it calculated?

A Typically, I mean, arterial pressure is calculated by taking one-third of the pulse pressure and adding it to the diastolic blood pressure. And your pulse pressure is the difference between your systolic and your diastolic.

Q And in your opinion, Ms. Goodwin's MAP should have been maintained between 100 and 110; right?

A Roughly that because I'm taking her mean arterial pressure baseline to be 116. So within 20 percent of that on either side.

Q The lower the MAP, the lower the blood pressure is; is that correct?

A Correct.

Q Ms. Goodwin's lowest MAP, according to what Erich Starn recorded, leading up to her event on July 28, 2016, was 86.6; is that correct?

A I'd need to look at it and see.

Q Sure. I've got a copy of that.

A Okay. Thank you. The -- the problem with this one, it doesn't have the means on there. I'd have to -- if you want to wait for me to calculate. Or we can use that graph that had -- he gave a tabular listing that -- from this deposition that showed those blood pressures.

Q I'll show you a copy of your deposition just to help refresh your memory.

A Okay.

Q And if you will, Doctor -- let's see -- turn

to page 80.

A Okay. All right.

Q And on line 19, 19 through 22, it says: "Looking at your sheet, it looks like the lowest mean arterial pressure on the sheet was 82 and that was at 10:45. But that was after the event. Leading up to her event, her lowest pressure was 86.6"; is that correct?

A Correct.

Q Would you agree that Erich Starn, the CRNA during this surgery, was keeping the blood pressures in real time; is that right?

A To the best of my understanding, yes.

Q And you agree that he'd be sitting there, looking at the blood pressure monitor right in front of him?

A Correct. That's what -- again, my understanding.

Q In your opinion, the MAP at 9:45 was 86; is that right? You can look on page 78, line 12.

A Okay. I see it. We'll go -- okay. 86. That's fine.

Q Okay. And at 9:55, it was 85; is that right?

A Yes.
Q And at 10:00, it was 108?
A Uh-huh.
Q And at 10:05, it was 96; is that right?
A Right. Sounds right.
Q And a signal was lost and announced in the operating room at 10:04?
A Well, it began at 9:57. It was lost completely at 10:04.
Q All right. You would reasonably expect a patient's blood pressure to be elevated on the day of surgery; is that right?
A Within limits, certainly.
Q And you agree that Whitecoat Syndrome is real?
A It's real, not always to that extent. And also what gives me reason to question that being Whitecoat Syndrome is because her pressure's elevated in situations when she was not in the hospital. But Whitecoat Syndrome, is it real? Sure it's real.
Q And Whitecoat Syndrome is an episodic anxiety about just being in the healthcare environment, particularly a surgical environment; is that right?

A That's correct.

Q And just being in a doctor's office can cause it as well; is that right?

A It can, certainly. Again, I wouldn't expect it to be at that extent. In my experience, you don't usually see it that high.

Q Your opinion as the baseline blood pressure for Ms. Goodwin on July 28, 2016, is a systolic in the 150s and a diastolic in the 90s; is that right?

A Okay. Just a sec. Which one is that now?

Q Your opinion on her baseline blood pressure?

A Mm-hmm?

Q On the day of surgery?

A You're saying -- okay. 160/99 preinduction or another one?

Q No. I'm asking your opinion of what Ms. Goodwin's baseline blood pressure was on the day of her surgery.

A Mm-hmm.

Q And in your opinion, was the systolic in the 150s and the diastolic in the 90s?

A As I said, her baseline on the day of surgery in my mind is her preinduction and the one that she had the week before.

Q So --
A Which give me a mean of 116.
Q Okay. Would that work out to a systolic in the 150s and a diastolic in the 90s?
A I'd have to calculate it out, but I don't doubt what you're saying. If you've already calculated it, that's fine.
Q You can calculate it if you'd like to.
A Okay. Which one did you say now?
Q A systolic in the 150s and diastolic in the 90s.
A I'm just going to give you a mean -- you're saying systolic in the 150s -- systolic in the 150s, diastolic in the 90s?
Q Correct.
A Okay. Okay. That's going to give you around 110.
Q Okay. Is that your opinion that that's what her baseline blood pressure was?
A Like I said, her baseline blood pressure was 116.
Q Okay. Doctor, can you please turn to page 58 of your deposition?
A Okay. All right.

Q Are you there?
A I am.
Q All right. Would you please look at line 15 through 21? Question: "Okay. So did you come up with a baseline blood pressure for Ms. Goodwin?" Answer: "I would say that her baseline systolic is going to be in the 150s and her baseline diastolic is going to be in the 190s."
A Okay.
Q Question: "And that's based on those four blood pressures?" Answer: "Correct." Did I read that correctly?
A You did.
Q Doctor, so your opinion of her baseline blood pressure in that range is based on only four blood pressures; is that right?
A Correct. Correct.
Q And that would be -- would that be the blood pressure taken on June 20th, which was 152/112?
A Mm-hmm.
Q July 18th, which was 129/81?
A Mm-hmm.
Q And July 22nd, which was 156/92?
A And then the one preinduction.

Q July 28th, which was 160/99?
A Right.
Q Is that correct?
A Correct.
Q And is that why, Doctor, that you're saying her MAP should have been maintained from 100 to 110?
A Correct. Her mean should have been, you know, within 20 percent of the 110. So roughly 80 -- correct. The mean should have been no less than probably 85 if you're just going with the 20 percent off of 110. If you're going off 116, it'd be higher than that.
Q Okay. And what should the MAP be maintained at in a normal, healthy patient with normal blood pressure?
A Normal blood pressure, first of all, you have to define what that is. Because a normal blood pressure for a person in their teens or other young adult with 120/80 is going to be different than a person who's older. Also a person with chronic hypertension.

But a 120/80, you want to keep it within, you know, 120/80. So your pulse pressure being 40 plus 80. A third of that. You want a mean of around

80 or 80 to 90 to keep within range.

Q And you've never seen any studies or reports where someone undergoing spine surgery had permanent nerve injury where the MAP stayed above 80; is that correct?

A Restate your question?

Q You've never seen any studies or reports where someone undergoing spine surgery had a permanent nerve injury where the MAP stayed above 80; is that right?

A I've never seen any studies of that, no. I can only go off of my experience, what I've seen in the operating room.

Q Doctor, I'm going to show you a copy of Plaintiffs' Second -- sorry. The Second Amended Answer to Plaintiffs' Third Set of Requests for Admission.

This is a copy of the table of blood pressures that Erich Starn gave.

A Right. Mm-hmm.

Q Do you mind just looking that over and tell me if you would generally agree with those, or do any of those stick out that you disagree with?

A No. I've looked at this before. This is

fine. It's verified. I have no objection to this at all.

Q Okay.

MR. HEITMAN: I'd like to make that as Defense Exhibit Number D1.

(Defense Exhibit D1 was marked for identification.)

MR. HINSON: I would object. I think RTAs get published, not admitted.

MR. HEITMAN: Okay. We can take --

MR. HINSON: Yeah.

BY MR. HEITMAN:

Q Doctor, in your opinion, what's the likelihood that Ms. Goodwin's spine would become poorly perfused if her MAP dropped down to 86.6?

A Because her pressure's normally higher than that. I -- I believe it would be at risk. And looking at her pressures, several of those were close to that -- to that value. I still think because of her hypertension history that she would be at risk for hypoperfusion.

Q Do you agree for the most part that Ms. Goodwin's MAP was maintained in the high 80s to 90s range; is that right?

A Sure. And that's what the -- that's what the record reflects.

Q Okay. And in your opinion, is it predictable and foreseeable that Ms. Goodwin's spine would become poorly perfused if her MAP were maintained in the high 80s to 90s?

A Again, restate your question now?

Q Yeah. Is it predictable and foreseeable to you that Ms. Goodwin's spine would become poorly perfused if her MAPs were maintained in the high 80s to 90s range?

A If they're perfused throughout that, it would be still a possibility because of her history of hypertension. Her pressure or mean should have been maintained higher than that, certainly, to ensure adequate perfusion. So I'd have to say no.

Q No, it's not predictable and foreseeable, or yes, it is --

A Predictable and foreseeable that her pressures would -- that her spine would be perfused or would not be?

Q Would be poorly perfused.

A Would be poorly perfused, correct.

Q Okay. And your opinion is predictable and

foreseeable that Ms. Goodwin's spine would become poorly perfused if her MAPs were maintained in the high 80s to 90s range?

A I guess my problem there as a physician, 90s range. I mean, you're saying low 90s -- high 80s to low 90s. High 80s to low 90s is kind of a -- or, if you prefer, gray area where I would expect there to have been some perfusion, yes. Would it be adequate? Probably not, no. But would she be perfusing her spine? Yes.

Q I can ask it a different way, Doctor --

A Okay.

Q -- if that would help.

A Sure.

Q In your opinion, is it predictable and foreseeable that Ms. Goodwin's spine would become poorly perfused if her MAPs were maintained in the range that they were during this surgery on July 28, 2016?

A Yes, yes.

Q Is that to a reasonable degree of medical certainty more likely than not?

A Yes.

Q And in your opinion, if Ms. Goodwin's spine

is poorly perfused, is it predictable and foreseeable that it would cause these neurologic damages that we see in her today?

A Yes.

Q Is that opinion to a reasonable degree of medical certainty more likely than not?

A Yes.

Q If you were the anesthesiologist for Ms. Goodwin's case, you would raise her blood pressure to try to get the signal back as soon as it was lost; is that correct?

A Absolutely.

Q And if low blood pressure caused Ms. Goodwin's injuries, then it would be important to raise the blood pressure after the signal is lost because if the surgeon is telling you that it's not mechanical, and a technician's telling you that it's not her equipment, then you as the anesthesiologist need to do what you can to raise the blood pressure to ensure adequate perfusion; is that correct?

A That's absolutely right.

Q And the same thing would be true of the CRNA. The CRNA would need to raise that blood pressure; is that correct?

A Correct. And there's an inherent -- there's another obligation upon the CRNA. In addition to doing the very same things that the anesthesiologist would do -- administer pressors, give fluid, lighten the anesthetic -- he also needs to notify the surgeon and the anesthesiologist.

Q Have you yourself ever been involved in a case where the signal was temporarily lost, but then returned?

A Yes.

Q How many cases?

A Over the period of a 20-some year career, I wouldn't say probably more than about 10 or 15 that I've had to deal with that. But yeah, that -- that's a reality of spine surgery.

Q And in those situations, was the signal lost due to poor perfusion?

A Well, let's see. We go through the diagnostic. In some cases, it was perfusion issues in which case you raise the pressure. In others, it was mechanical and surgeons had to make adjustments.

I don't recall if I've been anywhere where the signal was -- was thrown off due to the monitor error. But I know some stand out in my mind of

perfusion issues and the -- the surgeon manipulating instrumentation.

Q About how many would you say were due to poor perfusion?

A Maybe as many as a half.

Q And in those situations, would you raise the patient's blood pressure?

A Yes. That's how -- that's largely how we determine that it was a perfusion issue. You run into a differential diagnosis when you lose the signal; okay? First of all, you have to assume is it, you know, the monitor? But that monitoring tech is usually going to be working on that.

On our side, we're looking at the pressures. And sometimes those pressures on the screen may appear what we would consider textbook normal. Okay. It's 120/80, why are we having this? But you raise the pressure because if it turns out that raising the pressure doesn't do it, then you rule that out as a cause of it. In which case then you say, you know, surgeon, hey, I brought the pressure up. I've got a mean now, you know, well over, you know, the 20 percent range and we still don't have return of signal. We know it's not a perfusion issue. Check

again.

In some cases, the surgeon will check and say, oh -- in many cases, it is something. It is compression. If they're applying screws or whatever, they let off on it, all the sudden the signal comes back.

But it's a differential thing and that's where the communication is crucial because we don't always know, but you've got to try everything until you get that signal back. If the -- if the equipment's working, we know it's not the equipment. The surgeon says hey, I haven't touched it, fine. It's not you. It must be at the head of the table as we say, which is anesthesia. Lighten the anesthetic, give a fluid, give pressors, see if you get the signal back. Thank God I've never had one that didn't get back. So that's how we roll through that.

Q So in those cases that you mentioned, when you raise the blood pressure, the signal returned?

A Correct. In those cases where it was a matter of perfusion. In some cases, we raised the blood pressure -- with the surgeons, and those cases typically would make a manipulation and we'd get return of signal.

Q And in your experience in thousands of cases, you've never been involved in a case where the signal was lost or remained lost; is that correct?

A Correct.

Q The signals always come back in your experience with low perfusion cases because you raise the blood pressure?

A On the cases that I, myself, have performed? Yes. That's correct. I've heard of cases in partners and in practice where that did not happen, but I've just been lucky enough where we got the signals back.

Like I said, some are due to low perfusion. Some are due to surgeons. In my cases, when it was perfusion, we got the pressure up, the signals came back.

Q And this case involving Ms. Goodwin, her blood pressure was raised to an MAP of 108 after the signal was lost; is that right?

A For a very brief period of time, correct.

Q And 108 in your opinion would have been an adequate MAP; is that correct?

A For that brief period of time. The problem with that, and I looked at that on the record, the spike that occurred -- number one -- yeah. The spike

that occurred was -- was isolated. And I don't know -- it doesn't make good sense to me as an anesthesiologist. You went from a mean of 86 to basically a mean after the signal loss was reported to 110 without administering anything. I don't know and I didn't see in his deposition testimony where Mr. Starns said he gave anything or adjusted anything. But then it goes right back down.

And that's also one of the reasons for my criticism is that going in, we had low MAPs. You had that one spike that was good, but I don't know why it's there. And then it drops back down, is allowed to remain down. That gives me some cause for concern, too, because, you know, we -- the hypotension is what led to the signal loss, and that was due to the poor perfusion.

Then even after that, something occurred. Don't know what it was, it got it up. But then it was allowed to drip down again.

For all I know, she may have been salvageable. The cord may have been salvageable at that point if the right things had been done, but they weren't.

Pressors, fluids, lightening of the

anesthetic. Any of those things could have been done and yet, after that one episode, it goes down as low as it was before. In some cases, even lower. That was -- that gave me serious reasons for concern. And that combined with the low urine output, it was a perfusion issue without a doubt in my mind.

Q So, Doctor, your answer to my question was yes with your explanation that 108 was an adequate MAP; is that right?

A Right. For that one episodic blood pressure, 108 was good. If it had been maintained before that, I think we would have had a different outcome. But go ahead.

Q Yeah. Her SSEP signal never came back; is that right?

A Correct.

Q It's your opinion that by 10:00, the damage to Ms. Goodwin's spine had already been done; is that right?

A It certainly was not work -- functioning at that point. Her spine was not according to the SSEPs. Now had adequate perfusion been provided over a period of time, other than just one blood pressure measurement, then she may have been salvageable. The

spine I should say could have been salvaged.

Q But by 10:00, the damage had already been done to Ms. Goodwin's spine; is that right?

A It had been hypo-perfused to the point where it was not functioning properly. Correct. But what I'm saying is damage had been done, but the damage may not have been irreparable at 10:00.

Q The way you determine if you're getting adequate perfusion's by looking at in-organ function; is that right?

A Correct.

Q And you can look at the spine, the brain, the kidneys and the heart; is that right?

A You can look at those and other organs, yes. If you have the monitors to do so. The spine, brain, kidneys, heart, those are the ones that are easily measurable.

Q Who all's present in the room during a laminectomy?

A Depends on the operating room, but base is going to be of course your anesthesia provider, your surgeon, your neuromonitoring technician, and some surgeons don't use neuromonitoring technicians. Most of them do. Usually a surgeon's going to have a scrub

tech and a first assist often, and there's also a circulating nurse. Those are pretty much minimal number of people that you're going to have in a case of this type.

Q A scrub tech, is that the same as a surgical tech?

A Yeah. Mm-hmm.

Q And each person in the room has different roles; is that correct?

A Correct.

Q What is a scrub tech -- what is their role?

A The scrub tech or surgical technologist is the person who hands the instruments to the surgeon, maintains the sterile field. In movies when a surgeon says scalpel, it's a surgical tech that hands them the scalpel. But they also maintain the surgical field. And in some cases, depending on the hospital, if it's a kind of a no-frills operating room, the surgical tech may often sometimes even hold retractors while the surgeon operates.

Q And what's the neuromonitoring operator's role?

A The neuromonitoring operator's role is to monitor the -- whatever parameter they have been

requested to monitor. And I say that because neuromonitoring techs typically aren't -- they don't just show up for every case. Usually the surgeon will say I need neuromonitoring for this. And for spine cases, most surgeons will say that. There have been some who don't, but most will say I need neuromonitoring for this and that tech comes in. They set up their machine. They put their electrodes on the body, depending on the part of the body they're going to be monitoring. And during the case, they will sit at their station which is usually not far from the anesthesia station because they're watching the vital signs monitor. And that's all they do. They sit there for the entire case, watching those wave forms like you see on the neuromonitoring record.

Q Okay. And who was part of the anesthesia care team?

A The anesthesia care team consisted of the anesthesiologist, Dr. Jennifer Root, and the nurse anesthetist, Mr. Starns. And I believe someone gave him a break at one point, but he was there for the majority of the case.

Q During the procedure such as the laminectomy that Crystal Goodwin underwent on July 28, 2016, is

the anesthesia care team's responsibility to appropriately monitor the patient's blood pressure; is that right?

A Certainly. Yes. Not just blood pressure, but all the vital signs.

Q And it's the anesthesiologist and the CRNA's job to monitor urine output; is that right?

A Correct. Correct. Now I will say this, it's not in isolation. I say that to say this, it is their job to monitor it because the surgeon can't. The surgeon is scrubbed in. But the communication has to be going on and we often will in the operating room say, you know, urine output is down or we're looking over into the operative field. It's not everyone operating in isolation in a marginalized area.

But yeah, the anesthesiologist or the CRNA, whoever the anesthesia provider is, we are the primary people monitoring urine output, blood pressure, pulse rate, pulse oximetry, which is a measure of oxygenation. You know, ventilatory parameters in a patient who's being ventilated. Positioning, because in a case such as this, the patient is prone -- patients in the prone position are at high risk of nerve damage and pressure injuries.

So all of that, the anesthesia provider is the person primarily responsible or watching it. But as we always say in the operating room, we're all a team. So everyone -- we would communicate what's going on.

Q And is it also the anesthesiologist's and the CRNA's responsibility to administer medication or fluids to lower or raise the patient's blood pressure to keep it in a safe range; is that correct?

A That's correct. We're the only ones really who can. The surgeon can't do it. The -- you know, the monitoring tech can't do it. Only anesthesia can really give the medications and the fluids.

Q In performing a Stagnara wake up test, would that be the anesthesiologist and the CRNA's responsibility, too?

A Well, that definitely has to be coordinated with the surgeon because when you wake that patient up, they might move. And when that patient has a microscope or something in that spine, that has to be very, very carefully titrated. You don't want to wake them up too much. You want to wake them up enough where they can comply, but it is something that needs to be finessed and there has to be constant

communication between the surgeon and the anesthesia provider.

But anesthesia's the one that lightens the anesthetic. We're also the ones that reverse the paralytic if the patient is paralyzed. But the surgeon is the one often who will let us know, okay, I'm ready to do that Stagnara wake up test.

Q It would be the anesthesiologist and the CRNA would be primarily responsible for the Stagnara wake up test?

A Yes, as far as titrating the medications. Right. But as far as saying when to do it, that's the surgeon.

Q As far as actually waking the patient up though, that --

A Oh, yeah. Yeah. Because we're the ones that are keeping them asleep. Your baseline is always to wake up. So, yeah, we'd be the ones to adjust that.

Q And I believe you said it's the surgeon's role to focus on -- operate on the patient; is that right?

A Sure. Operate on the patient and, you know, let us know what he's seeing in his field also. He

may be seeing things that we need to be aware of.

Q Would you agree that in this case, Dr. Holbrook did not determine what the cause of the injury was; correct?

A Correct. According to his deposition, he said he did not know.

Q But you did see that he indicated it was not anything mechanical or something that he did during the surgery?

A Correct. Which is also what gave me further reason to -- to believe, as I do, that it was a matter of perfusion.

Q And you saw that Dr. Holbrook said he was not near the cord when the signal went out; is that right?

A Correct. That's what I saw in his deposition.

Q And you as an anesthesiologist really cannot comment on the standard of care of the neurosurgeon, Dr. Holbrook, in this case; is that correct?

A As in regards to anesthesia and interaction with anesthesia and the other members of the operative team, I can. As far as his technical performance of his duties, no, I can't speak to that. But how he

communicates with the anesthesia care team, I could definitely respond to that. And how he communicates with the neuromonitoring technician, I can respond to that as well.

Q You mentioned earlier that you've participated in thousands of surgeries; right?

A Correct.

Q And so you're very experienced with knowing and recognizing the level of communication required between a surgeon and the anesthesia care team; is that right?

A Yes. Very much so.

Q And I understand that you're not a neurosurgeon and cannot testify to the surgical aspects of this case; however, as to the communication between Dr. Holbrook and the anesthesia care team, you don't have any criticisms of Dr. Holbrook; true?

A I've not seen anything where he failed to communicate anything he saw. It seems to me during the critical portion of the case where the signal was lost, which is what stands out most in my mind, he and the anesthesia care team were informed at the same time. So I don't think there was a breakdown in communication between them other than the fact that,

you know, if he had been more adamant about get your attending in here, in other words, Dr. Root, or exploring or, you know, mentioning to the CRNA perhaps what is the pressure. These are all things that in spine cases I've been in that have started to have problems with the signal, that has occurred.

And so, yeah. I would have a criticism of that. I don't think he communicated with them enough once he was told that the signal dropped off. Bells and whistles should go off when that occurs.

Q If you turn to page 126 of your deposition, look at line 11.

A I think I handed it back to you.

Q Eleven through twenty.

A What page is that again, sir?

Q Page 126, please.

A 1-2-6.

Q Let me know when you're there.

A Oh, I'm there.

Q Okay. Line 11, question: "If I understand what you said earlier, you said that in your point of view, there was no deviation of the standard of care by Dr. Holbrook; is that correct?" Answer: "Not that I could determine. I said, you know, the relationship

between he and the anesthesiologist and communication between them, I can address, but I didn't see where there was a problem, no." Question: "So nothing you can testify to?" Answer: "Correct." Did I read that correctly, Doctor?

A You did.

Q So from an anesthesia standpoint, you can't see where Dr. Holbrook did anything inappropriate in this case; is that correct?

A Right. And I would still have to say though, regardless of that, that, you know, communicating or -- if he had felt strongly enough about it to tell the CRNA to get the anesthesiologist in there, that's the only criticism I would have. But that would be it.

As far as his technical neurosurgery skill, I have no way of criticizing that.

Q And the CRNA is capable of raising blood pressures?

A Absolutely.

Q Okay.

A They -- that is part of their core training, privileges and so forth. Yes.

Q They're qualified to do that?

A Yes. They better do that.

Q I don't have any other questions, Doctor. Thank you.

A Okay.

EXAMINATION

BY MR. HINSON:

Q Very brief redirect, Dr. Jones.

The Stagnara wake up test was mentioned earlier. Just generally speaking, what is that test?

A Stagnara wake up test is where the patient is still prone, their operative field is still open, meaning in this case the spine would still be exposed, but the surgeon would say, okay, Fred, we're going to do a wake up test. So at that point, I start to dial down the anesthetic. In this case, it would have been the sevoflurane. Cut back on the propofol infusion. Make sure the muscle relaxant was reversed. In this case, the rocuronium. I would give a reversal agent and we would let -- following vital signs and so forth, we would start to continuously talk to the patient and -- until the patient started to respond. And typically at that point, the neurosurgeon would say, okay, you know, Brink, move your right foot. And you'd move your right foot. Move your left foot.

You'd move your left foot. That's basically it. And once they've done that, they'd say okay, we're good, and I'd put them right back down. Spin the volatile anesthetic agent back up, give the propofol and go right back to sleep.

Q And in your experience and work as a physician, have you had occasions where you've seen and been a part of a Stagnara wake up test being done?

A Yes. Yeah. It's pretty dramatic to see someone with their spine open who's wiggling their feet and their toes and responding to your questions.

Q It is not an archaic thing that's never done anymore; is that fair?

A No. You don't see it done as much now as you used to, but it's still done.

Q And in this situation, Crystal's situation, I understand it's your testimony that had there been anesthetic changes, meaning lowering the anesthetic, had the blood pressure been increased and had the perfusion been increased -- excuse me -- the fluid's been increased, the things you talked about earlier, that you believe her signal would have returned. Had it not returned in the face of those things, would the Stagnara wake up test be something that the entire

surgical team might consider?

A Certainly. That could be something that could be considered -- while the surgical team may consider that, that is definitely something that the surgeon would have to order. We can't just do it without him saying so because that could be detrimental.

Q And as Mr. Heiten mentioned to you a minute ago, you yourself are not a neurosurgeon.

A Correct.

Q But do you work with neurosurgeons?

A Every day.

Q And I want to make sure I understood your testimony and the jury understands your testimony. Both at deposition and today, you don't have the education, training, background to criticize a neurosurgeon's particular skill with their instruments; fair?

A No. Correct. I do not.

Q But from your experience and as you testified at deposition and today, do you have criticism of Dr. Holbrook regarding what he did and did not bring to the attention of the attending anesthesiologist, Dr. Root?

A Correct. When the -- when the signal was lost, that would -- I would expect him to have said get Dr. Root in here. Something as simple as that.

Q And earlier in the cross-exam, Mr. Heiten looked at some blood pressures. Regardless of whether you look at one blood pressure, two blood pressures or four blood pressures, whether you look at just the one the morning of surgery, the one the week before surgery, and the two that were done in Dr. Holbrook's office, do you have an opinion as to whether there was an adequate consideration in this surgery for her -- for Crystal Goodwin's chronic hypertension?

A They would have to have appreciated it merely by looking at the blood pressures. You know, Mr. Starns, and to a certain extent Dr. Root, taking that information and dealing with it appropriately, I would have to say no. Because if they had, they would have kept the pressure higher.

Q And in the face of that, with the signal going out, what should have occurred with the whole surgical team. Just generally speaking, what should have been done?

A An emphasis should have been placed right away on getting the pressure back up. Getting the

pressure higher. And if they thought it was in normal range, then you get it even higher than that because sometimes that's what it takes.

Q And have you in your career had occasion where signal went out because unfortunately inadequate perfusion?

A Yes. Oh, yeah.

Q And in your experience, what was done in the face of inadequate perfusion?

A The very things I mentioned. Lighten the anesthetic if you can. Sometimes lightening the anesthetic's not an option because you don't want the patient to wake up. But fluids is a big one. Particularly in a patient who really is running dry based on how much she was getting versus how much she was -- urine output she had. And then pressor agents.

Pressor agents are probably the most common. And like I said, vasopressin, phenylephrine, ephedrine, all of those are medications we regularly give in these cases.

They're fairly high-volume cases. Patients have lots of insensible fluid loss. We know that going in. They can be bloody cases. This one was not particularly bloody. 200 milliliters for this type of

case is not bad.

But yeah, we do all of those things.

Q And in every occasion where you had that occur, where there was a signal lost and there was a reaction with pressors, fluids, and lightening anesthetics, was the patient's neurologic function able to be salvaged in return?

A Yes. Thank God they were.

Q And do you believe that could have happened in this case?

A I do.

Q Do you believe it would have happened in this case had the standard of care been followed?

A I do.

Q No further questions, Dr. Jones.

MR. HEITMAN: I don't have anything -- re-cross.

MR. HINSON: Thanks for your time today.

MR. HEITMAN: Thank you. Thank you.

MR. HINSON: Sorry you couldn't join us in Columbia.

THE WITNESS: I know. I know. I'm going to get down there one of these days. I'm glad

y'all came to Memphis though. Well, y'all were here before though.

MR. HINSON: We were, yeah.

THE WITNESS: Yeah, that's right. At our office. Yep.

MR. HINSON: Mm-hmm.

THE REPORTER: Would anyone like to order a copy of the transcript?

MR. HINSON: Yeah. E-tran. I'll get a copy of the video as well. Can we expedite it? Is that what he said?

THE REPORTER: If he wants a copy -- on it.

THE VIDEOGRAPHER: All right. This concludes today's deposition. Going off the record at 5:48 p.m.

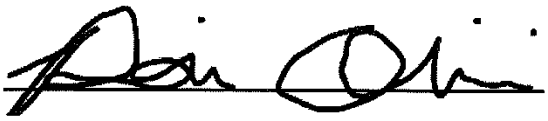
All right. Would y'all like the video synced with the transcript or just the straight video?

(Signature waived.)

(Whereupon, at 5:48 p.m., the proceeding was concluded.)

CERTIFICATE OF DEPOSITION OFFICER

I, HELENA QUIRIN, the officer before whom the foregoing proceedings were taken, do hereby certify that any witness(es) in the foregoing proceedings, prior to testifying, were duly sworn; that the proceedings were recorded by me and thereafter reduced to typewriting by a qualified transcriptionist; that said digital audio recording of said proceedings are a true and accurate record to the best of my knowledge, skills, and ability; that I am neither counsel for, related to, nor employed by any of the parties to the action in which this was taken; and, further, that I am not a relative or employee of any counsel or attorney employed by the parties hereto, nor financially or otherwise interested in the outcome of this action.



HELENA QUIRIN
Certified Reporter in and for the
State of Tennessee

CERTIFICATE OF TRANSCRIBER

I, JACOBEY RADTKE, do hereby certify that this transcript was prepared from the digital audio recording of the foregoing proceeding, that said transcript is a true and accurate record of the proceedings to the best of my knowledge, skills, and ability; that I am neither counsel for, related to, nor employed by any of the parties to the action in which this was taken; and, further, that I am not a relative or employee of any counsel or attorney employed by the parties hereto, nor financially or otherwise interested in the outcome of this action.



JACOBEY RADTKE

Nursing Documentation

DOCUMENT NAME:	SN PreOp Assessment
SERVICE DATE/TIME:	7/22/2016 08:34 EDT
RESULT STATUS:	Modified
PERFORM INFORMATION:	Wegrzyn RN,Pamela C (7/22/2016 08:34 EDT)
ELECTRONICALLY SIGNED BY:	Wegrzyn RN,Pamela C (7/22/2016 09:26 EDT); Wegrzyn RN,Pamela C (7/22/2016 08:34 EDT)

SN PreOp Assessment Entered On: 07/22/2016 08:44
Performed On: 07/22/2016 08:34 by Wegrzyn RN, Pamela C

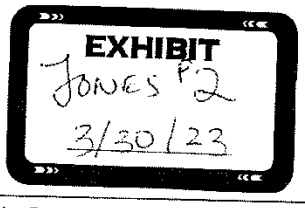
Vital Signs- PAT
Temperature Oral : 98 DegF
Peripheral Pulse Rate : 86 bpm
Pulse Equipment : Dinamap
Resp. Rate : 20 br/min
Pulse Ox Sat : 97 %
Systolic : 156 mmHg
Diastolic : 92 mmHg
NIBP Cuff Site : Right arm
NIBP Position : Sitting
NIBP Equipment : Automatic

Wegrzyn RN, Pamela C - 07/22/2016 08:34

Height & Weight
Dosing Weight : 119.5 kg
Dosing Height : 162 cm
Dosing BMI : 45.53 kg/m2
Scale Type : Stand up
Patient Stated Weight : 119.5 kg(Converted to: 263 lb 7 oz, 263.45 lb)
Patient Stated Height/Length : 162 cm(Converted to: 5 ft 4 in, 5.31 ft, 63.78 in)
Body Mass Index Calc Patient Stated : 45.53 kg/m2
Ideal Body Weight Calculated : 54.193 kg

Wegrzyn RN, Pamela C - 07/22/2016 08:34

General Information
Chief Complaint : numbness and tinglin g bilateral legs with letf leg weakness
Reason for Admission : posterior thoracic laminectomy for decompression t9- t12
Mode of Arrival : Ambulatory
Admitted From : Home
Primary Care Provider : No
Other Physicians : DR D FISHER-hx
holbrook
Actively Enrolled in a Clinical Trial : No
Information Source-Admission : Patient
Contact Numbers : HUSBAND IN WR DOS
james goodwin 803-477-5460
Orientation : Unit



Nursing Documentation

Who Was Oriented : Patient
Type of Housing : Home
Lives With : Family, Spouse
Patient's Preferred Language: : English
Literacy : Can Read and Write
Modes of Communication : Verbal
Communication Barriers : None

Wegrzyn RN, Pamela C - 07/22/2016 08:34

Advanced Directives
Advanced Directives : No Living Will, No Health Care Power of Attorney, Info Offered/Pt Refused

Wegrzyn RN, Pamela C - 07/22/2016 08:34

Allergies
Latex Sensitivity General : No
Latex Sensitivity Food : No
Allergy Information : Allergy Information Complete

Wegrzyn RN, Pamela C - 07/22/2016 08:34
(As Of: 7/22/2016 8:44:05 EDT)

Allergies (Active)
NKA

Estimated Onset Date: Unspecified ; *Created By:* Maldonado, Linda T; *Reaction Status:* Active ; *Category:* Drug Allergy ; *Substance:* NKA ; *Type:* Allergy ; *Updated By:* Maldonado, Linda T; *Reviewed Date:* 07/22/2016 08:38

Psychosocial-Cultural
Cultural-Religious Practices : NONE
Religion: : None
Religion : Baptist
Body Piercing(s) : Yes
Body Piercing(s) Comment : ears

Wegrzyn RN, Pamela C - 07/22/2016 08:34

Social History
Social History

(As Of: 7/22/2016 9:27:37 EDT)

Tobacco:

Never smoker (Last Updated: 7/22/2016 8:38:32 EDT by Wegrzyn RN, Pamela C)

Alcohol:

Denies Alcohol Use (Last Updated: 7/22/2016 8:38:39 EDT by Wegrzyn RN, Pamela C)

Health History- PAT
Current Procedures-Treatments : None
History of Positive PPD : No
History of Active TB : No
History of Treatment : No

Nursing Documentation

Assistive Devices : None
Implantable Devices : Caps/Crowns
Anesthesia History : No Anesthesia Complications

Wegrzyn RN, Pamela C - 07/22/2016 08:34

ID Travel Screen
Symptomatic After Exposure to Contagion : No
Symptomatic After Travel High-Risk Area : No

Wegrzyn RN, Pamela C - 07/22/2016 08:34

Problem History

(As Of: 7/22/2016 9:27:37 EDT)

Problems(Active)

Arthritis (SNOMED CT :13ED4849-4C1C-40A2-8F9C-EFF7C070C626)	*Name of Problem:* Arthritis ; *Recorder:* Wegrzyn RN, Pamela C; *Confirmation:* Confirmed ; *Classification:* Patient Stated ; *Code:* 13ED4849-4C1C-40A2-8F9C-EFF7C070C626 ; *Contributor System:* PowerChart ; *Last Updated:* 7/22/2016 09:27 ; *Life Cycle Date:* 7/22/2016 ; *Life Cycle Status:* Active ; *Vocabulary:* SNOMED CT
Back pain (SNOMED CT :2646370015)	*Name of Problem:* Back pain ; *Recorder:* Wegrzyn RN, Pamela C; *Confirmation:* Confirmed ; *Classification:* Patient Stated ; *Code:* 2646370015 ; *Contributor System:* PowerChart ; *Last Updated:* 7/22/2016 09:27 ; *Life Cycle Date:* 7/22/2016 ; *Life Cycle Status:* Active ; *Vocabulary:* SNOMED CT
Hypertension (SNOMED CT :64176011)	*Name of Problem:* Hypertension ; *Recorder:* Wegrzyn RN, Pamela C; *Confirmation:* Confirmed ; *Classification:* Patient Stated ; *Code:* 64176011 ; *Contributor System:* PowerChart ; *Last Updated:* 7/22/2016 09:26 ; *Life Cycle Date:* 7/22/2016 ; *Life Cycle Status:* Active ; *Vocabulary:* SNOMED CT
Pre-diabetes (SNOMED CT :D53A029B-437F-4029-A1CB-5E7C4CE4FCFF)	*Name of Problem:* Pre-diabetes ; *Recorder:* Wegrzyn RN, Pamela C; *Confirmation:* Confirmed ; *Classification:* Patient Stated ; *Code:* D53A029B-437F-4029-A1CB-5E7C4CE4FCFF ; *Contributor System:* PowerChart ; *Last Updated:* 7/22/2016 09:27 ; *Life Cycle Date:* 7/22/2016 ; *Life Cycle Status:* Active ; *Vocabulary:* SNOMED CT

Procedure History

Procedure History

(As Of: 7/22/2016 9:27:37 EDT)

Anesthesia Minutes: 0 ; *Procedure Name:* Thoracic back surgery x2 ; *Procedure Minutes:* 0 ; *Last Reviewed Dt/Tm:* 7/22/2016 9:27:33 EDT

Anesthesia Minutes: 0 ; *Procedure Name:* lap tubal ligation ; *Procedure Minutes:* 0 ; *Last Reviewed Dt/Tm:* 7/22/2016 9:27:33 EDT

Anesthesia Minutes: 0 ; *Procedure Name:* vaginal delivery x3 ; *Procedure Minutes:* 0 ; *Last Reviewed Dt/Tm:* 7/22/2016 9:27:33 EDT

Family History
Family History

(As Of: 7/22/2016 8:44:06 EDT)

Father:

Relation: Father ; *Gender:* Male ;

Nomenclature: Hypertension ; *Value:* Positive

Nomenclature: Acute myocardial infarction ; *Value:* Positive

Mother:

Relation: Mother ; *Gender:* Female ;

Nomenclature: Hypertension ; *Value:* Positive

SN System History Part 1
Respiratory : No Significant Findings, Bronchitis
Cardiovascular : Hypertension, Heart Murmur
Endocrine : Other: prediabetes on metformin
Hematological-Immunological : No Significant Findings
Neurological-Musculoskeletal : Alert & Oriented Times Three, Arthritis, Numbness & Tingling, Back Problems/Surgery
Psychological : No Significant Findings

Wegrzyn RN, Pamela C - 07/22/2016 08:34

SN System History Part 2
EENT : No Significant Findings
Gastroenterological : No Significant Findings
Genito-Urinary : No Significant Findings
Gynecological Status : Reproductive Age, Tubal Ligation
Pregnant? : No
LMP Date : 7/18/2016
Hepatic : No Significant Findings
Integumentary : No Significant Findings

Wegrzyn RN, Pamela C - 07/22/2016 08:34

Ancillary Referrals
Referral Functional : No Referral Indicated
Referral Nutrition : No Referral Indicated
Referral Spiritual Care : No Referral Indicated

Nursing Documentation

Referral Case Mgmt-Social History : No Referral Indicated

Wegrzyn RN, Pamela C - 07/22/2016 08:34

Pain Evaluation
Primary Pain Location : Back
Laterality : Bilateral
Quality : Aching
Primary Pain Onset : Gradual
Primary Pain Time Pattern : Constant
Self Report Pain Tool : Numeric rating scale

Wegrzyn RN, Pamela C - 07/22/2016 08:34

Numeric/FACES Pain Scale
Numeric Pain Scale : 4
Numeric Pain Score : 4

Wegrzyn RN, Pamela C - 07/22/2016 08:34

Image 1 - Images currently included in the form version of this document have not been included in the text rendition version of the form.

DOCUMENT NAME:	Braden Scale
SERVICE DATE/TIME:	7/28/2016 06:22 EDT
RESULT STATUS:	Auth (Verified)
PERFORM INFORMATION:	Foster RN,Rebecca E (7/28/2016 06:22 EDT)
ELECTRONICALLY SIGNED BY:	

Braden Scale
07/28/16 06:22 EDT Performed by Foster RN, Rebecca E
Entered on 07/28/16 06:23 EDT

Braden

Sensory Perception	No Impairment (4)
Moisture	Rarely moist (4)
Activity	Walks frequently (4)
Mobility Braden	No limitations (4)
Nutrition	Adequate (3)
Friction and Shear	No apparent problem (3)
Braden Score	22

DOCUMENT NAME:	Admission History
SERVICE DATE/TIME:	7/28/2016 20:15 EDT
RESULT STATUS:	Auth (Verified)
PERFORM INFORMATION:	Moore RN,Chari R (7/28/2016 22:32 EDT)
ELECTRONICALLY SIGNED BY:	Moore RN,Chari R (7/28/2016 22:32 EDT)

Admission History Entered On: 07/28/2016 22:32
Performed On: 07/28/2016 20:15 by Moore RN, Chari R

Nursing Documentation

Height & Weight
Dosing Weight : 118.18 kg
Dosing Height : 162 cm
Dosing BMI : 45.03 kg/m2
Patient Stated Weight : 118.18 kg(Converted to: 260 lb 9 oz, 260.54 lb)
Patient Stated Height/Length : 162 cm(Converted to: 5 ft 4 in, 5.31 ft, 63.78 in)
Body Mass Index Calc Patient Stated : 45.03 kg/m2
Ideal Body Weight Calculated : 54.193 kg

Moore RN, Chari R - 07/28/2016 22:23

General Information
Reason for Admission : posterior thoracic laminectomy for decompression t9- t12
Mode of Arrival : Stretcher
Admitted From : OR/PACU
Primary Care Provider : No
Other Physicians : DR D FISHER-hx
holbrook
Actively Enrolled in a Clinical Trial : No
Information Source-Admission : Patient
Contact Numbers : HUSBAND IN WR DOS
james goodwin 803-477-5460
Orientation : Unit, Room, Orientation Packet, Patient rights-responsibilities
Who Was Oriented : Patient
Type of Housing : Home
Lives With : Family, Spouse
Patient's Preferred Language: : English
Literacy : Can Read and Write
Modes of Communication : Verbal
Communication Barriers : None

Moore RN, Chari R - 07/28/2016 22:23

Learning Preferences Grid
Patient Learning Preferences: : Demonstration, Printed materials, Verbal explanation

Moore RN, Chari R - 07/28/2016 22:23

Advanced Directives
Advanced Directives : No Living Will, No Health Care Power of Attorney, Info Offered/Pt Refused
Treatment Restrictions : No Restrictions

Moore RN, Chari R - 07/28/2016 22:23

Allergies
Latex Sensitivity General : No
Latex Sensitivity Food : No
Allergy Information : Allergy Information Complete

Moore RN, Chari R - 07/28/2016 22:23
(As Of: 7/28/2016 22:32:33 EDT)

Allergies (Active)
NKA — *Estimated Onset Date:* Unspecified ; *Created By:* Maldonado, Linda T; *Reaction Status:* Active ; *Category:* Drug Allergy ;

* Auth (Verified) *

NICA

PH Baptist Anesthesia Record

Continuous Anesthesia Start Time	Continuous Anesthesia End Time	Date
0720	1156	7-28-16

ASA 1 2 3 4 5 E

Anesthetic: ☐ Local ☐ MAC ☑ General ☐ Spinal ☐ Epidural ☐ Type of Block: ____

Block By: ____

Post Op Analgesia: ____

Post op Epidural by: ____

Art Line by: ____

Central Line by: ____

Surgeon: Holbrook

Anesthesiologist: [illegible]

CRNA: [illegible]

Diagnosis: spinal stenosis T9-T12

Procedure: ____

GOODWIN, CRYSTAL JAQUAY
B1620200813
MR 000275536
03/02/1978 38Y F
HOLBROOK, THOMAS J

Time → 0715 30 0800 30 0900 30 1000

Legend: BP X; Pulse •; Start Anes ✖; Start Op ◉; End Anes ⊗

Respirations: Spontaneous ○; Assisted ⊘; Controlled ⊗

Preinduction VS: BP 160/99; P 100; RR ____; O2 99

99.0

Pre-anesthetic Checklist
OR # 7
☑ Pt. I.D. ☑ Pt. Chart ☑ Consent ☑ Anes. Equip ☑ Anes. Machine
NPO after MN

Induction
☐ Dur-O2 ☑ IV routine ☐ IV with Sellick ☐ Inhalation ☐ See Comments

Position
☐ Supine ☐ Prone ☐ Lithotomy ☐ Lateral R/L ☑ Arms Padded < 90° Secured ☐ Axillary Roll

Airway Maintenance
☐ Nasal Cannula ☐ Mask ☐ Oral Airway ☐ Nasal Airway ☐ LMA # ____
Intubation ☑ Endotracheal Size 7.0 mm ☐ Endobronchial R/L Size ____ Fr ☑ Oral Blade Mac 2 ☐ Nasal ☐ LTA ☐ Stylet ☑ DL x 1 ☐ Fiberoptic Laryng ☐ Smooth ☐ Difficult Secured @ 21 cm
Tube position confirmed by: ☐ BS=B ☐ ETCO2 ☐ Fiberoptic

Monitors
☑ EKG ☑ BP Cuff R/L ☑ Arm ☐ Leg ☑ Pulse Oximeter ☑ ETCO2 ☐ Temp S E R ☐ Precordial Steth ☐ Esoph Steth ☑ O2 Analyzer ☑ Disconn. Alarm ☐ PNS
Invasive Monitors: ☐ Arterial Line ☐ CVP
Eye Care: ☐ Lacrilube ☑ Tape ☐ Opeguard ☐ Left ☐ Right
☐ NG Tube: ___ Fr ☐ OG Tube: ___ Fr ☑ Foley

Warming Equipment
☐ Hot line ☐ Bair Hugger Upper ☑ Bair Hugger Lower ☐ Bair Hugger Peds ☐ Level I ☑ HME Filter

Re-evaluation and assessment of the physiologic state of the patient and readiness of the surgical environment has been done immediately prior to induction and administration of anesthesia and it is appropriate to proceed with the anesthetic as planned.

Signature: [illegible]

IV Antibiotic: Ancef 2g IV
↑ 0745 ↓ 0759 Incision 0809
Surgeon Ordered (Y)N ; Orders Changed Y(N)

PRE MEDS: 0700 Reglan 10 mg IVP's-RJ
0715 Versed 2mg IV, Robinul 0.2mg IV-RJ
0715 Zantac 150mg PO & Bicitra 30cc PO-RJ

COMMENTS:
0648 Zantac 150mg PO-RJ
(1) SVI at anesthetic induction
Doctor intubated clear clear — turned prone on Prone Pillow Eyes Gel Nose free of pressure
100 head neck neutral
(2) pt b.t. by ETT, Roc 25 mg, IV, Sch. 40 mg, Ketamine 10 given, heart RRR & bilat. Pt. moved to prone, ovaries placed, head remained on foam pillow, eyes d/c, head remained neutral. SpO2 100%

Freeperative:
-Pre-anesthes a Exam/Eval Performed
-Anesthesia Plan Prescribed
-Qualified Anesthetist:

Intraoperative
-Participates in Mgt, Demanding
-Frequent Intervals Monitored
-Physically Present & Available
-Post Anesthesia Care Provided

OR in Time: 0724

Post Anesthesia Evaluation:
Patient Taken to: ☐ PACU ☐ OP Rec
BP: ____ / ____
Pulse: ____
Resp: ____
SaO2: ____
Temp: ____
☐ No Anesthetic Complications @ Date: ____
Time: ____ Signed: ____

OR Out Time: ____
LOC ☐ AW ☐ AR ☐ NAR
Airway: ☐ Oral ☐ Nasal ☐ Intubated
O2 By: ☐ Mask ☐ N/C ☐ Room Air

	0715	30	0800	30	0900	30	0930	30	1000
Medications									
Oxygen L/M	10	3	1.5	1.5	1.5	1.5	1.5	1.5	4
N_2O / Air L/M			1.5	1.5	1.5	1.5	1.5	1.5	x
% D F	D	TOS	TAS	1.0	1.0	1	1	1	1.0
Roc / SUX	4/90	24						25	
Propofol / Ketamine	200	50							
Versed (mg)									
Fentanyl / Sufenta	10		10	10			10	10	
Ketamine		20				10		10	
Decadron									10
Monitors									
EKG	SR	ST	SR	SR	SR	SR	SR	SR	SR
$ETCO_2$	40	34	32	32	33	34	34	33	36
SAO_2	100	100	100	100	100	99	99	100	100
FIO_2	100	0.6	0.6	0.6	.6	.6	.6	.6	100
Temp: E - R - S		35.6		35.7	35.7	35.7	35.9	35.4	
BP / P.I.P	550	135	544	136	550	136	480	132	376
HR / Pace	62	75	79	75	80	75	80	75	91
Fluids									
Blood									
EBL - Interval/Total							50/		50/
Urine-Interval/Total									40

	0715	30	0800	30	0900	30	0930	30	1000
Medications									
Oxygen L/M	10	3	1.5	1.5	1.5	1.5	1.5	1.5	4
N_2O / Air L/M			1.5	1.5	1.5	1.5	1.5	1.5	x
% D F	D	TOS	TAS	1.0	1.0	1	1	1	1.0
Roc / SUX	4/90	24						25	
Propofol / Ketamine	200	50							
Versed (mg)									
Fentanyl / Sufenta	10		10	10			10	10	
Ketamine		20				10		10	
Decadron									10
Monitors									
EKG	SR	ST	SR	SR	SR	SR	SR	SR	SR
$ETCO_2$	40	34	32	32	33	34	34	33	36
SAO_2	100	100	100	100	100	99	99	100	100
FIO_2	100	0.6	0.6	0.6	.6	.6	.6	.6	100
Temp: E - R - S		35.6		35.7	35.7	35.7	35.9	35.4	
BP / P.I.P	550	135	544	136	550	136	480	132	376
HR / Pace	62	75	79	75	80	75	80	75	91
Fluids									
Blood									
EBL - Interval/Total							50/		50/
Urine-Interval/Total									40

	0715	30	0800	30	0900	30	0930	30	1000
Medications									
Oxygen L/M	10	3	1.5	1.5	1.5	1.5	1.5	1.5	4
N_2O / Air L/M			1.5	1.5	1.5	1.5	1.5	1.5	x
% D F	D	TOS	TAS	1.0	1.0	1	1	1	1.0
Roc / SUX	4/90	24						25	
Propofol / Ketamine	200	50							
Versed (mg)									
Fentanyl / Sufenta	10		10	10			10	10	
Ketamine		20				10		10	
Decadron									10
Monitors									
EKG	SR	ST	SR	SR	SR	SR	SR	SR	SR
$ETCO_2$	40	34	32	32	33	34	34	33	36
SAO_2	100	100	100	100	100	99	99	100	100
FIO_2	100	0.6	0.6	0.6	.6	.6	.6	.6	100
Temp: E - R - S		35.6		35.7	35.7	35.7	35.9	35.4	
BP / P.I.P	550	135	544	136	550	136	480	132	376
HR / Pace	62	75	79	75	80	75	80	75	91
Fluids									
Blood									
EBL - Interval/Total							50/		50/
Urine-Interval/Total									40

0825 Quick Quin Sinbro 0910

All meds are IV unless noted.

28201Bmr r6/99 r5/05 r7/07 r8/09 r12/09 r4/10 r7/15

28201B

EXHIBIT
Jones 3
3/30/23

DEFPROD

PH Baptist Anesthesia Record

Continuous Anesthesia Start Time 0723 | Continuous Anesthesia End Time 1155 | Date 7/29/16

ASA 1 2 3 4 5 E

Anesthetic: ☐ Local ☐ MAC ☒ General ☐ Spinal ☐ Epidural ☐ Type of Block: ☐ Block By ☐ Post Op Analgesia ☐ Post op Epidural by ☐ Art Line by: ☐ Central Line by: ☐

Surgeon Holbrook | Anesthesiologist JR | CRNA

Diagnosis | Procedure See page 1

GOODWIN, CRYSTAL JAQUAY 942 01
B1620200813
MR 000275536 HOLBROOK, THOMAS .
03/02/1978 38Y F

Time → 1045 1100 1130

Legrod | BP | Pulse | Start Anes | Start Op | End Anes

Respirations: Spontaneous ☐ Assisted ☐ Controlled ☐

Preinduction VS: BP ___/___ P ___ RR ___ O_2 ___

Pre-anesthetic Checklist
OR # ☐ Pt. I.D. ☐ Pt. Chart ☐ Consent ☐ Anes. Equip ☐ Anes. Machine ☐ NPO after ☐

Induction
☐ Pre-O_2 ☐ IV routine ☐ IV with Sellick ☐ Inhalation ☐ See Comments

Position
☐ Supine ☐ Prone ☐ Lithotomy ☐ Lateral R/L ☐ Arms Padded < 90° Secured ☐ Axillary Roll

Airway Maintenance
☐ Nasal Cannula ☐ Mask ☐ Oral Airway ☐ Nasal Airway ☐ LMA # ☐
☐ Intubation ☐ Endotracheal Size ___ cm ☐ Endobronchial ET Size ___ Fr ☐ Oral Blade ☐ Nasal ☐ LTA ___ ☐ Stylet ☐ DL ___ ☐ Fiberoptic Laryng ☐ Smooth ☐ Difficult
Secured @ ___ cm
Tube position confirmed by: ☐ BS=B ☐ ETCO$_2$ ☐ Fiberoptic

Monitors
☐ EKG ☐ BP Cuff R/L ☐ Arm ☐ Leg ☐ Pulse Oximeter ☐ ETCO$_2$ ☐ Temp S E R ☐ Precordial Steth ☐ Esoph Steth ☐ O_2 Analyzer ☐ Disconn. Alarm ☐ NMS
Invasive Monitors: ☐ Arterial Line ☐ CVP
Eye Care: ☐ Lacrilube ☐ Tape ☐ Opticlude ☐ Left ☐ Right
☐ NG Tube ___ Fr ☐ OG Tube ___ Fr ☐ Foley

Warming Equipment
☐ Hot line ☐ Bair Hugger Upper ☐ Bair Hugger Lower ☐ Bair Hugger Peds ☐ Level 1 ☐ HME Filter

Re-evaluation and assessment of the physiologic state of the patient and readiness of the surgical environment has been done immediately prior to induction and administration of anesthesia and it is appropriate to proceed with the anesthetic as planned.

Signature

IV Antibiotic: ___ ↑ ___ ↓ ___ Incision ___
Surgeon Ordered Y N ; Orders Changed Y N

PRE MEDS:

COMMENTS:

Preoperative: Pre-anesthesia Exam/Eval Performed ☐ Anesthesia Plan Prescribed ☐ Qualified Anesthetist ☐ Initials

D tongue with uneven palate between b_2 pt during surgery.

Pt to PACU, placed on T piece briefly Hemodynamically VSS;

Intra/Postoperative: Participation in Visit Demanding ☐ Frequent Interval Monitored ☐ Physically Present & Available ☐ Post-Anesthesia Care Provided ☐ Initials

OR in Time: ___

Post Anesthesia Evaluation: OR Out Time: 1147
Patient Taken to: ☒ PACU ☐ DP Rec
BP 135 / 65 LOC: ☐ AW ☒ AR ☐ NAR
Pulse: 79 Airway: ☐ Oral ☐ Nasal ☒ Intubated
Resp: 28 T-PIECE
SaO_2: 100 O_2 by ☐ Mask ☐ N/C ☐ Room Air
Temp: 97.9
☒ No Anesthetic Complications @ Date: ___
Time: 1149 Signed: ___

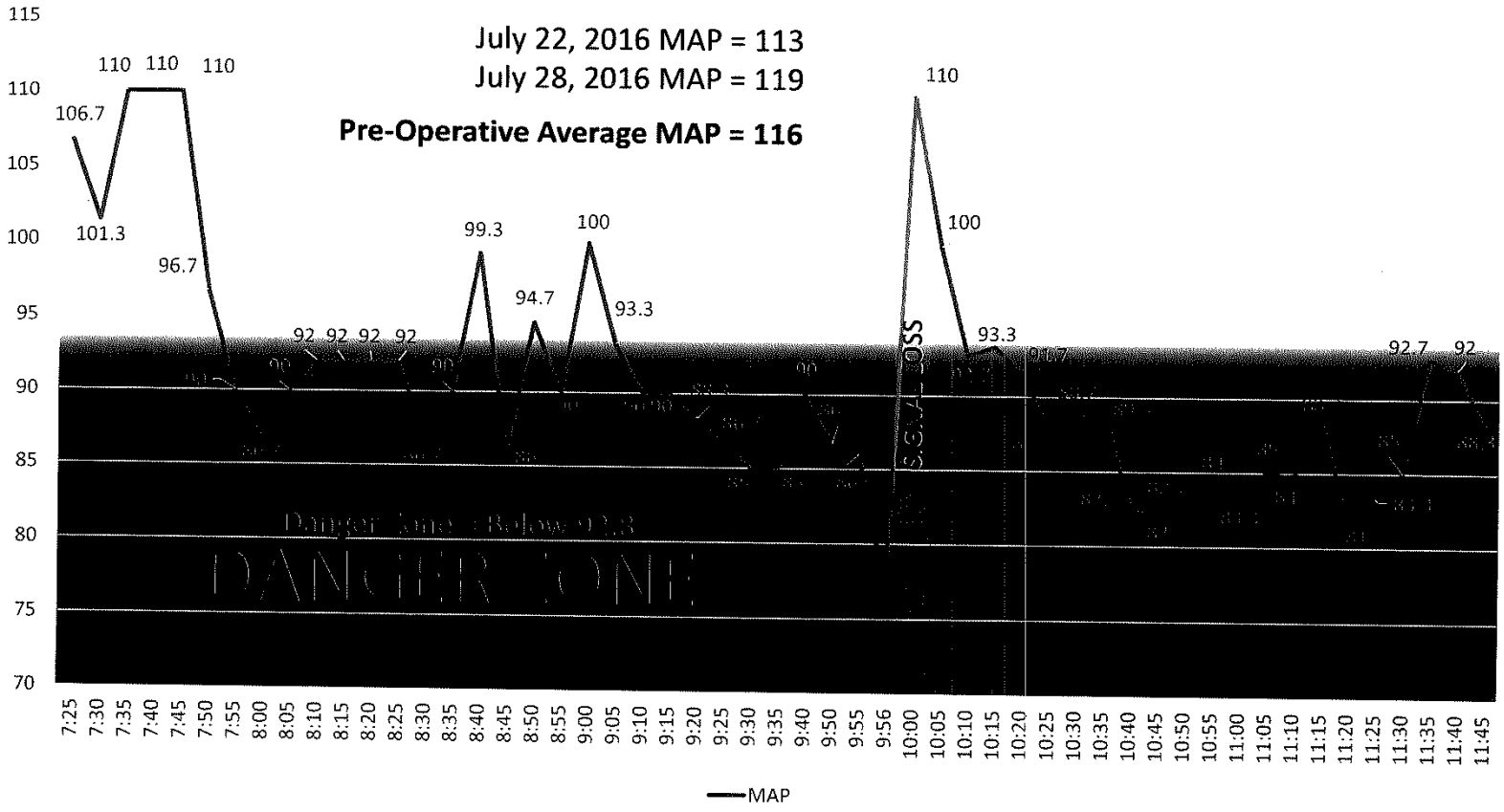
Medications						
Oxygen L/M	10 +15 +15	10	10	10		
N_2O / Air L/M	15 +15 +15	5				
% D F	10 +10 +10	5				
SUX	125					
Propofol / Pentothal	7960 mg gtt +200 = 3200 mg					$5\alpha_2$ 1.0
Versed (mg)						
Fentanyl / Sufenta						70
Ketamine	10					50
Zofran	4					
Neosty/Robinul		5&4				60
Reversals						
TOF						4/4
Monitors						
EKG	SR	AF	AP	SR	SR	AF
$ETCO_2$	33	33	36	47	45	42
SAO_2	99	95	99	99	99	99
FIO_2	0.6	0.6	0.6	1.0	1.0	1.0
Temp: E - R - B	35.0					
Eye J	✓	✓	✓	✓		
VC / P.P	611 / 25					
U / Pmp	9 / 25					
Fluids						
LL (3)						3700
Blood						
EBL - Interval/Total						200
Urine-Interval/Total	40					600

All meds are IV unless noted.

28201Bmr r6/99 r5/05 r7/07 r8/09 r12/09 r4/10 r7/15

* 2 8 2 0 1 B *

Crystal Goodwin's
Mean Arterial Pressures (MAP) During Surgery Performed by Dr. Holbrook

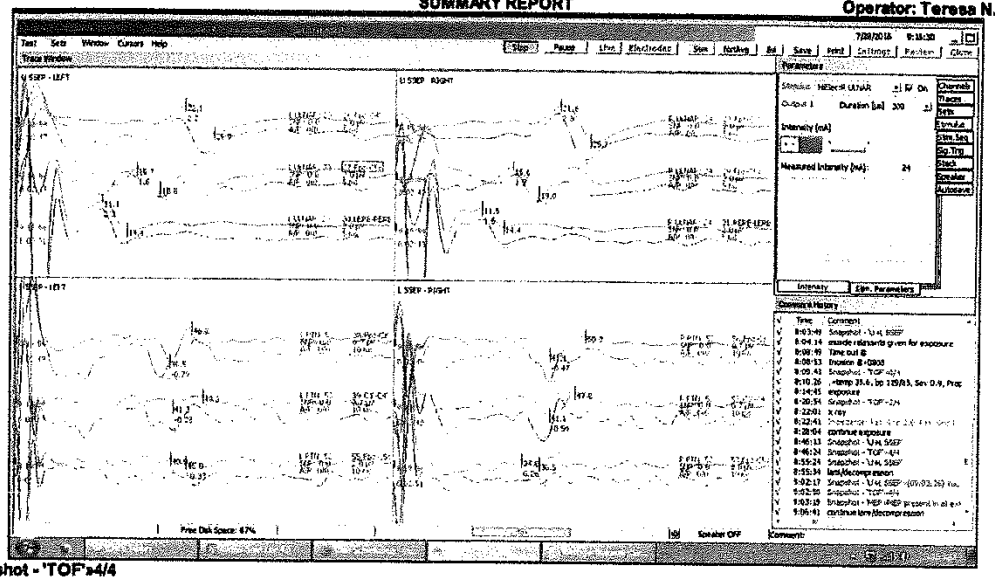


EXHIBIT

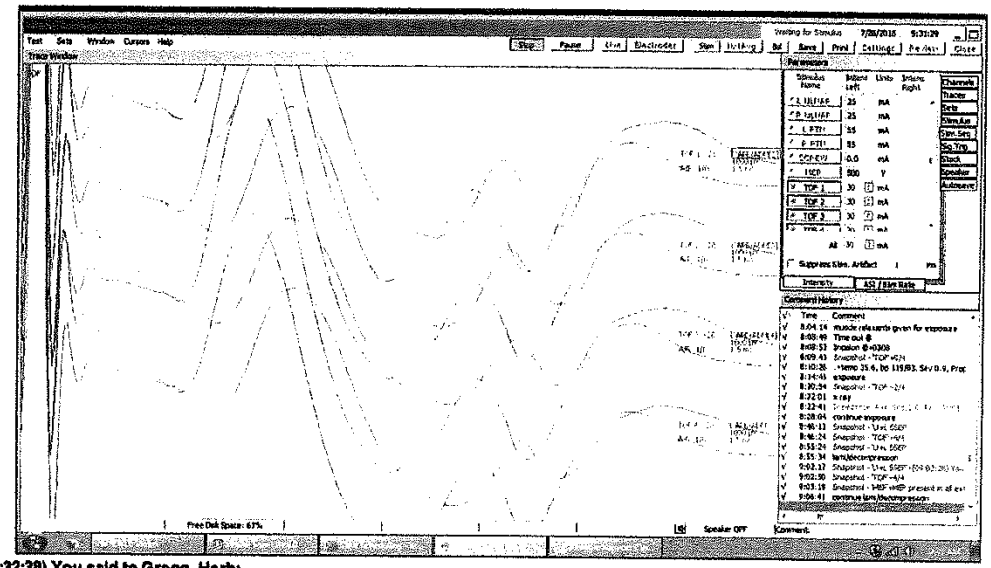
Jones 4

exhibitsticker.com

ROA_2763



09:31:29 Snapshot - 'TOF'»4/4



09:33:14 .»(09:32:38) You said to Gregg, Herb:
anesthesia is having issues w/ moving airway, going to give paralytics.

pause procedure, anesthesia troubleshooting airway

09:50:59 Impedance: Pat. Gnd:1.9, Pat. Gnd B:2.1,
Fpz:0.5, Cz':0.8, C3':0.5, C4':0.4, C5a:0.7, LERB:0.8, RERB:1.0,
LAPB:1.2, RAPB:0.9,
LADM:1.4, RADM:1.0,
Lic+:Open, LI+:Open, LRA+:Open, LSa+:Open, Ric+:Open, RI+:Open, RRA+:Open, RSa+:Open,
Lic-:Open, LI-:Open, LRA-:Open, LSa-:Open, Ric-:Open, RI-:Open, RRA-:Open, RSa-:Open,
LQ+:Open, LTA+:1.1, LAH+:0.9, ANS+:Open, RQ+:Open, RTA+:1.0, RAH+:1.0,
Lq-:Open, LTA-:2.6, LAH-:0.8, ANS-:Open, RQ-:Open, RTA-:1.8, RAH-:0.9,

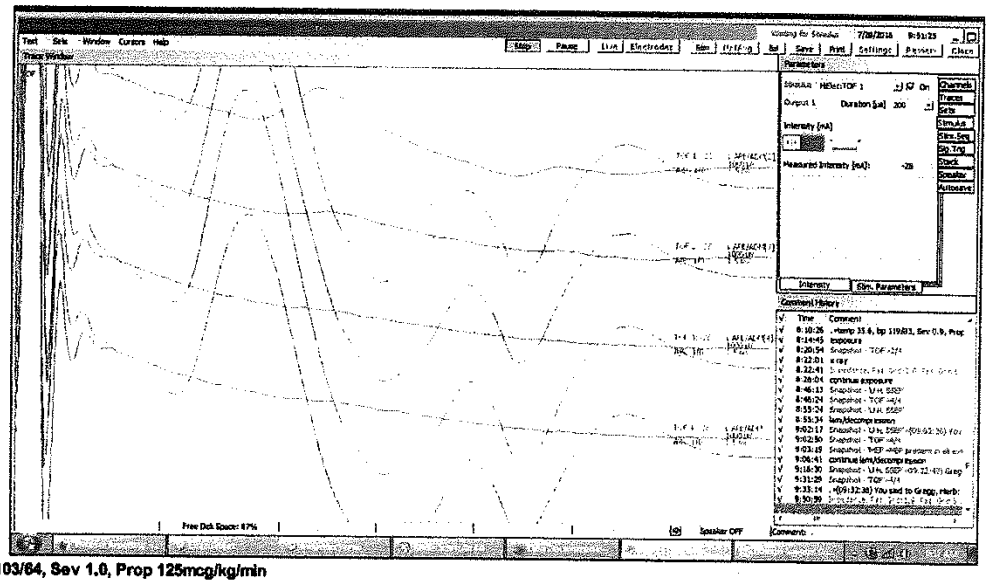
EXHIBIT
Jones 5.1
exhibitsticker.com

09:51:03 .»patient is stable, continue procedure, bite block is out

09:51:25 Snapshot - 'TOF'»1/4

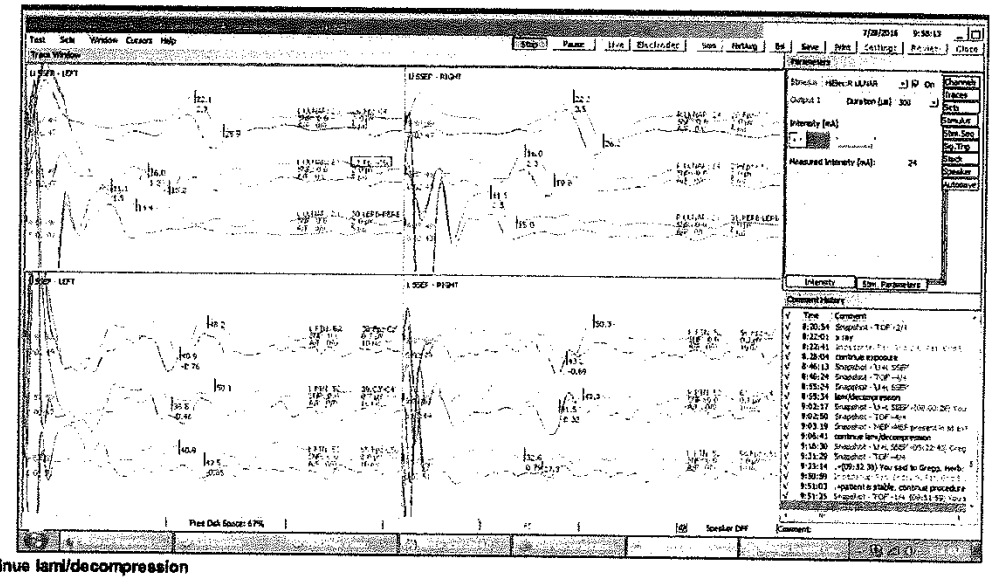
(09:51:59) You said to Gregg, Herb:
they got pt stable now and proceeding w/ procedure. will keep paralytics on board for remainder

(09:53:54) Gregg, Herb said to you:
ty



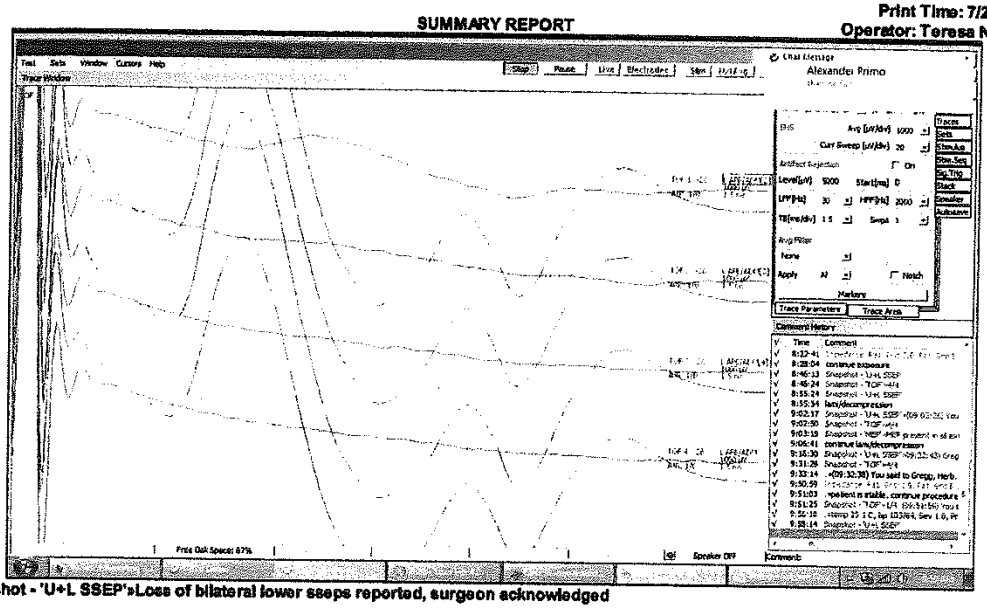
09:56:18 .»bp 103/64, Sev 1.0, Prop 125mcg/kg/min

09:58:14 Snapshot - 'U+L SSEP'

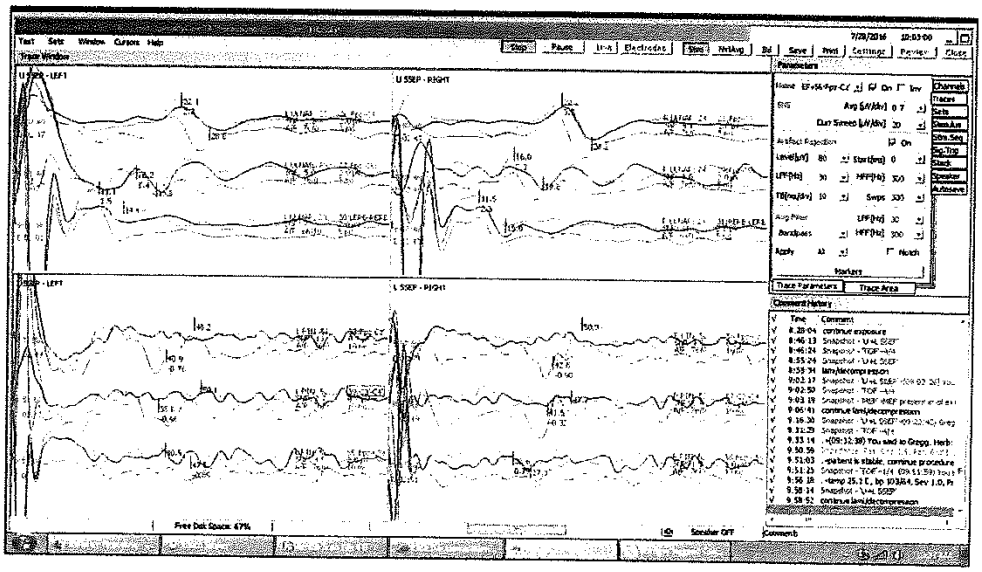


09:58:52 continue lami/decompression

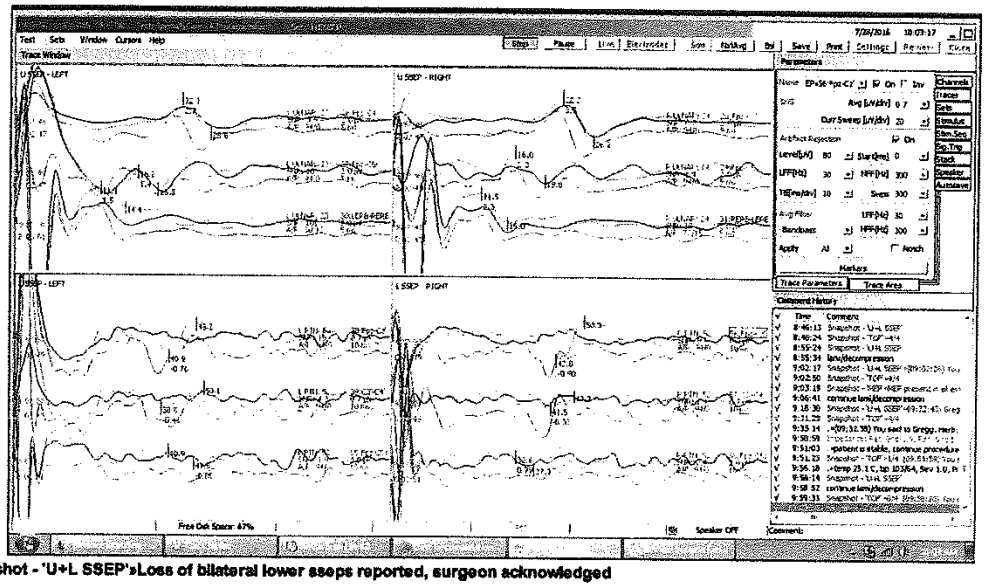
09:59:33 Snapshot - 'TOF'»0/4
(09:58:20) You said to Gregg, Herb:
ssep stable at this time
(10:01:47) Gregg, Herb said to you:
agree. thanks



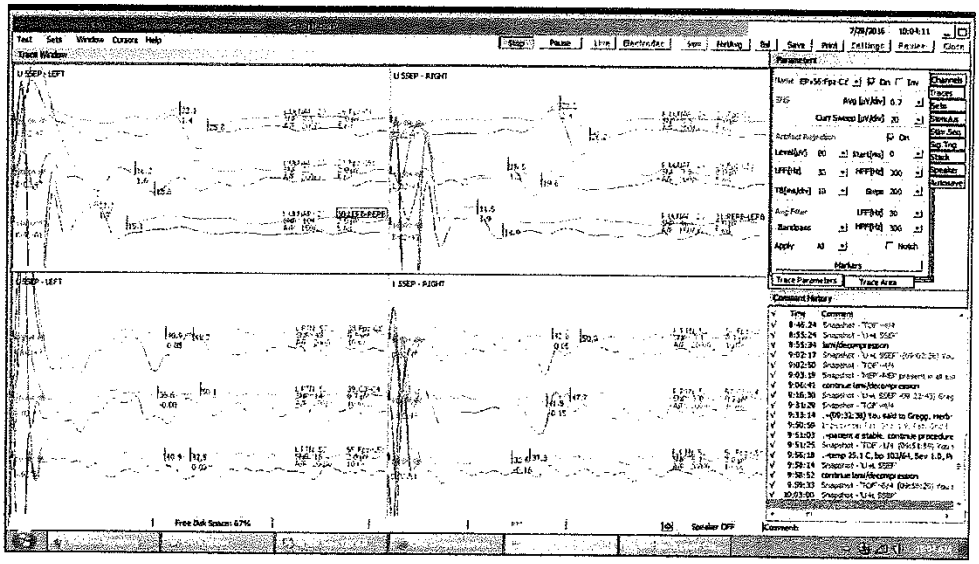
10:03:00 Snapshot - 'U+L SSEP'»Loss of bilateral lower sseps reported, surgeon acknowledged



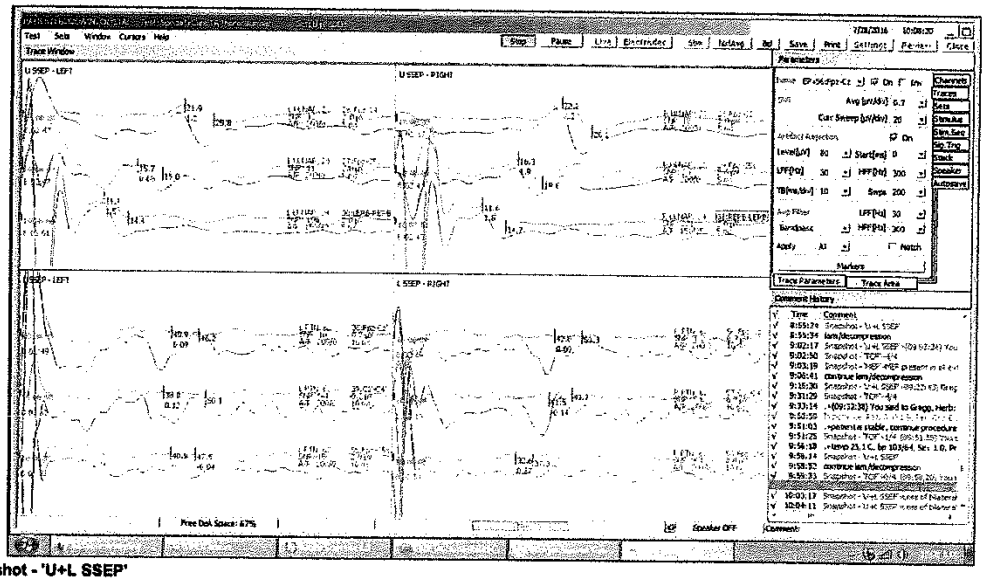
10:03:17 Snapshot - 'U+L SSEP'»Loss of bilateral lower sseps reported, surgeon acknowledged



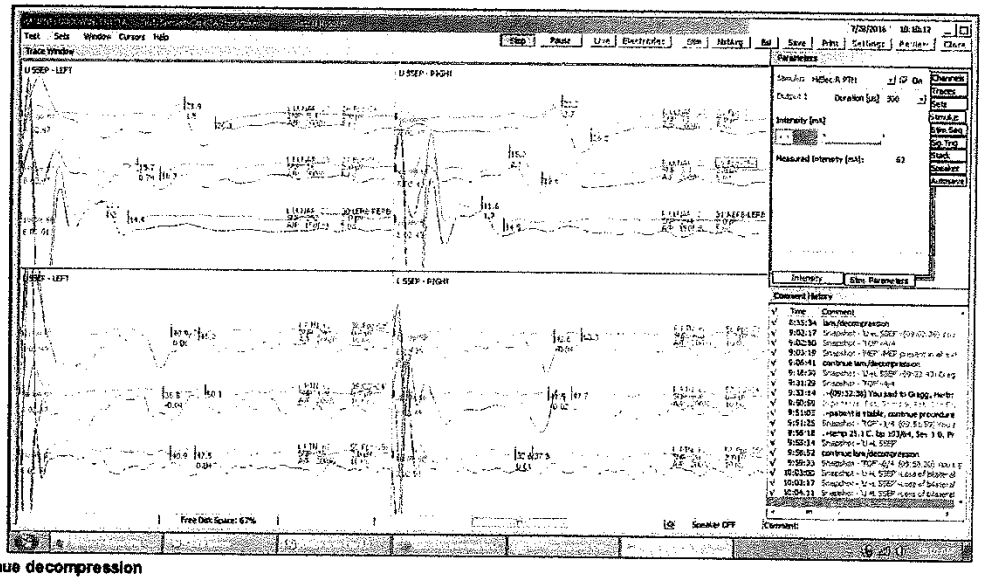
10:04:11 Snapshot - 'U+L SSEP'»Loss of bilateral lower sseps reported, surgeon acknowledged



10:08:20 Snapshot - 'U+L SSEP'

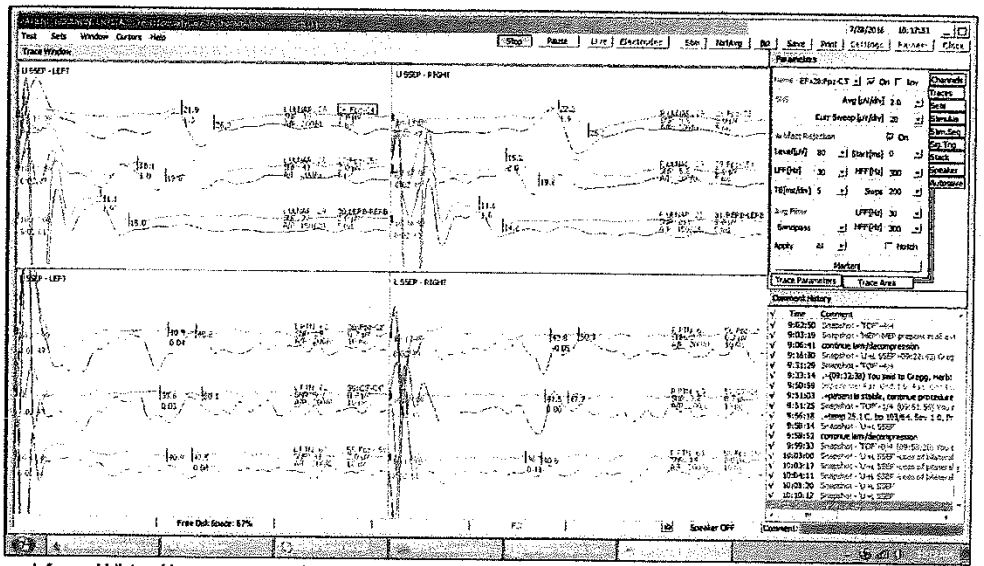


10:10:12 Snapshot - 'U+L SSEP'



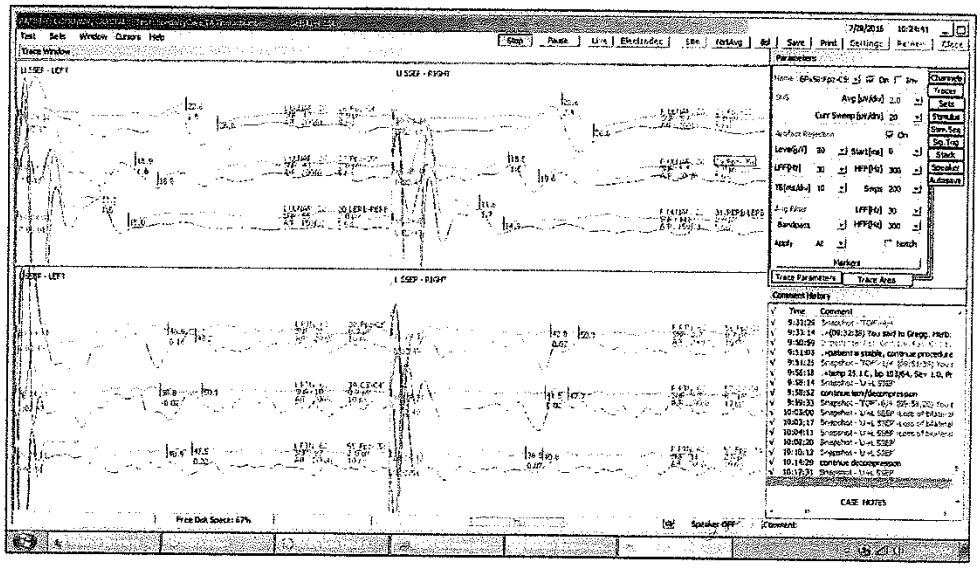
10:14:29 continue decompression

10:17:31 Snapshot - 'U+L SSEP'



10:17:34 .»surgeon informed bilateral lower sseps remain out, surgeon stated he was not around the cord when lower sseps reported to be lost.

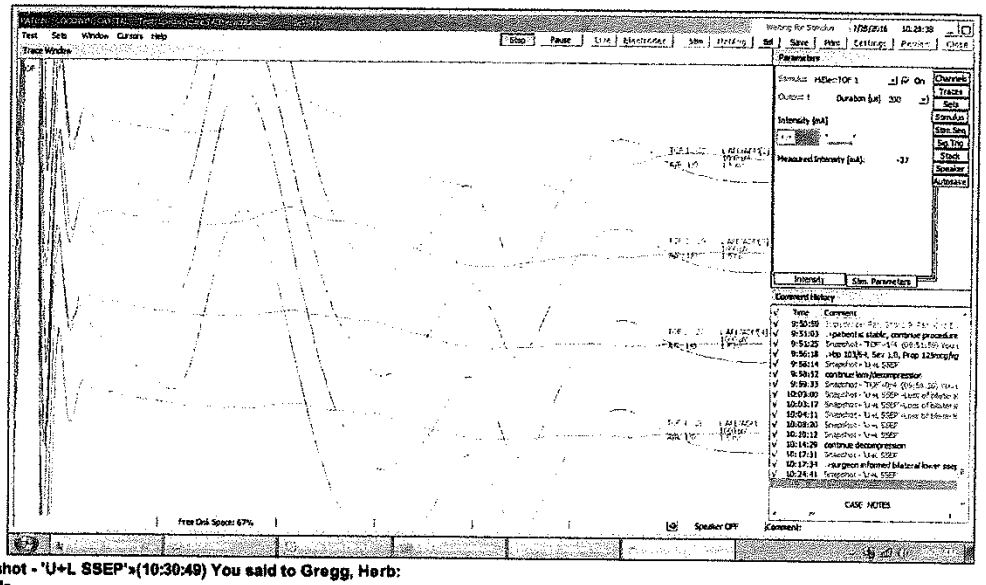
10:24:41 Snapshot - 'U+L SSEP'



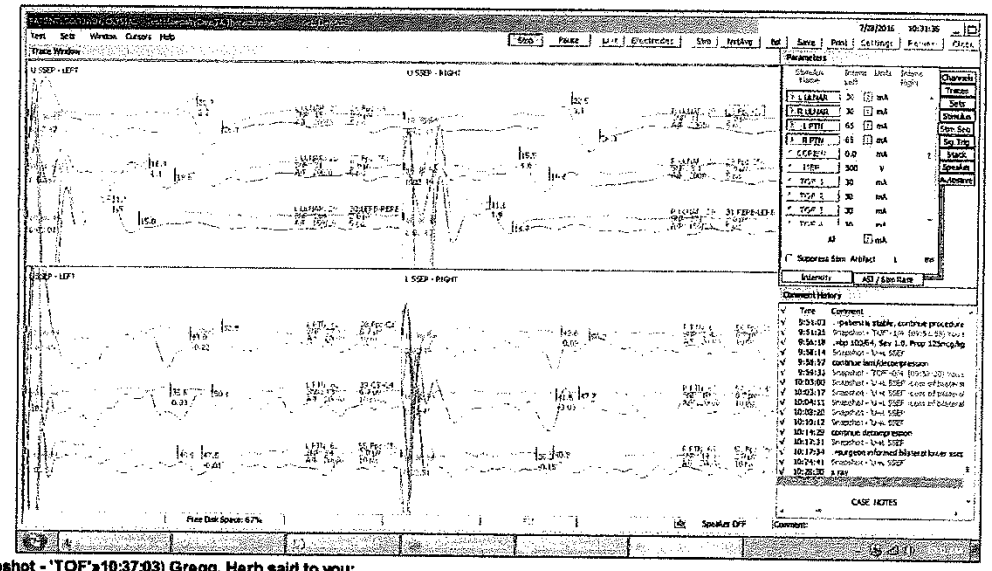
10:28:30 x ray

Thank you.

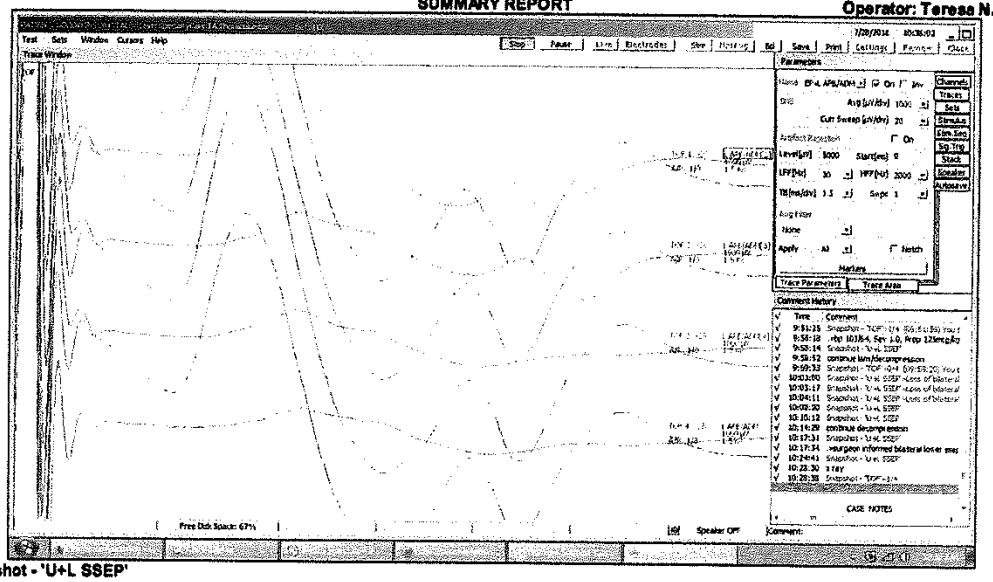
10:28:38 Snapshot - 'TOF'»1/4



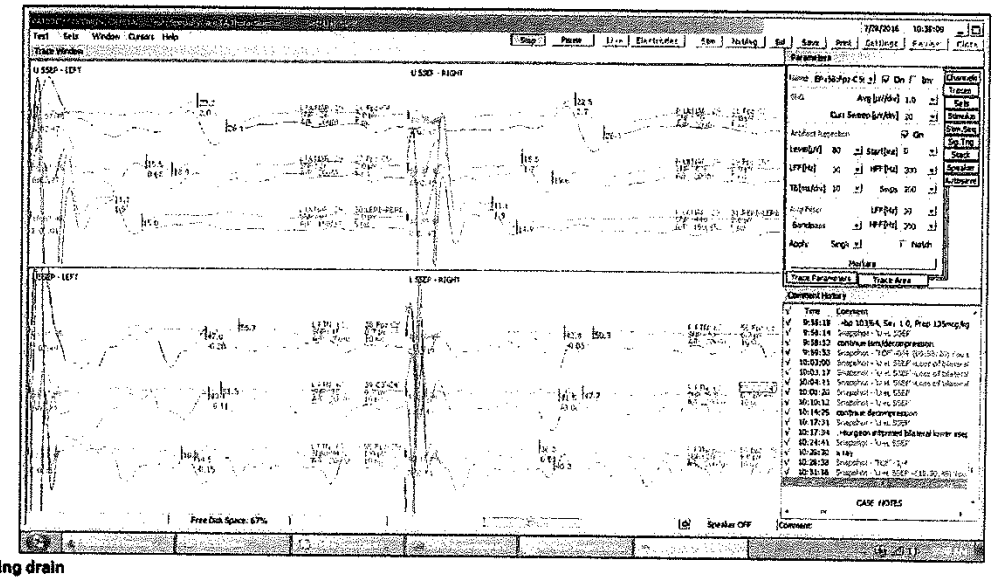
10:31:36 Snapshot - 'U+L SSEP'»(10:30:49) You said to Gregg, Herb:
L/upper is stable
(10:31:43) Gregg, Herb said to you:
yes



10:36:02 Snapshot - 'TOF'»10:37:03) Gregg, Herb said to you:
upper ssepps stable
(10:37:07) You said to Gregg, Herb:
ty agree



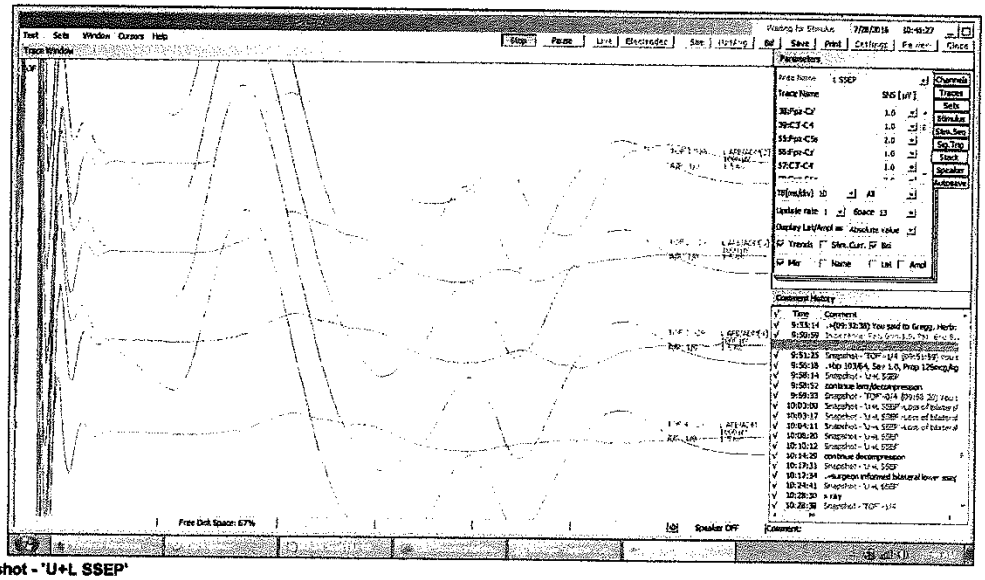
10:38:09 Snapshot - 'U+L SSEP'



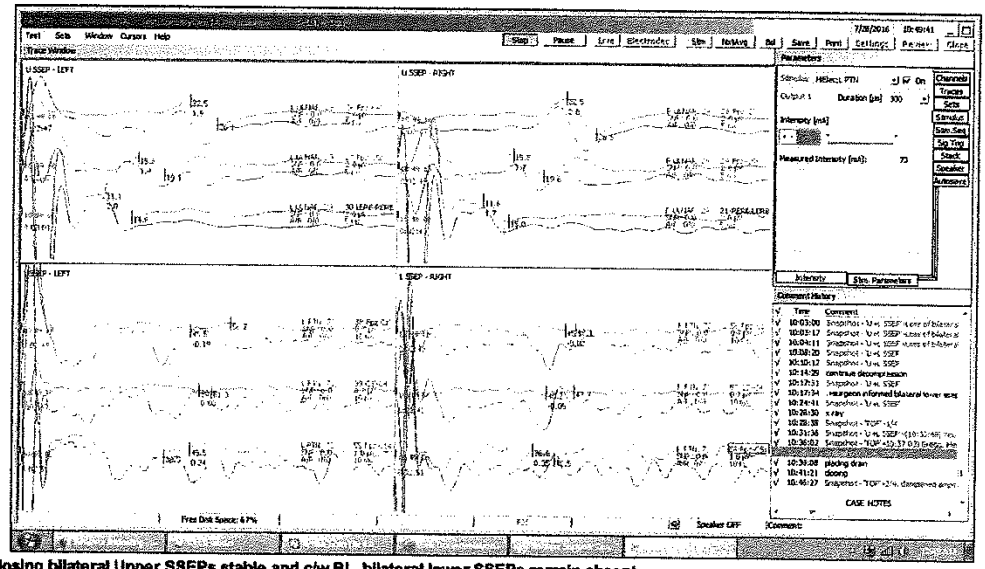
10:39:08 placing drain

10:41:21 closing

10:46:27 Snapshot - 'TOF'»2/4, dampened amps, bite block removed, due to patient airway issues.



10:49:41 Snapshot - 'U+L SSEP'

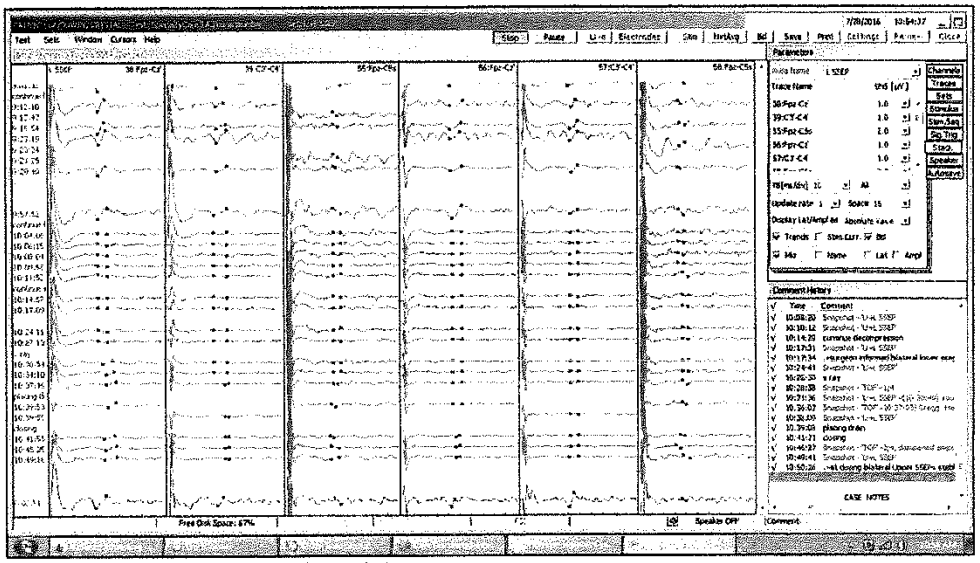


10:50:26 .»at closing bilateral Upper SSEPs stable and c/w BL, bilateral lower SSEPs remain absent
(10:50:40) Gregg, Herb said to you:
upper sseps stable
(10:50:46) Gregg, Herb said to you:
lowers absent bilaterally
(10:51:13) Gregg, Herb said to you:
motors not obtained post decompression/change in sseps
(10:51:42) You said to Gregg, Herb:
ty agree

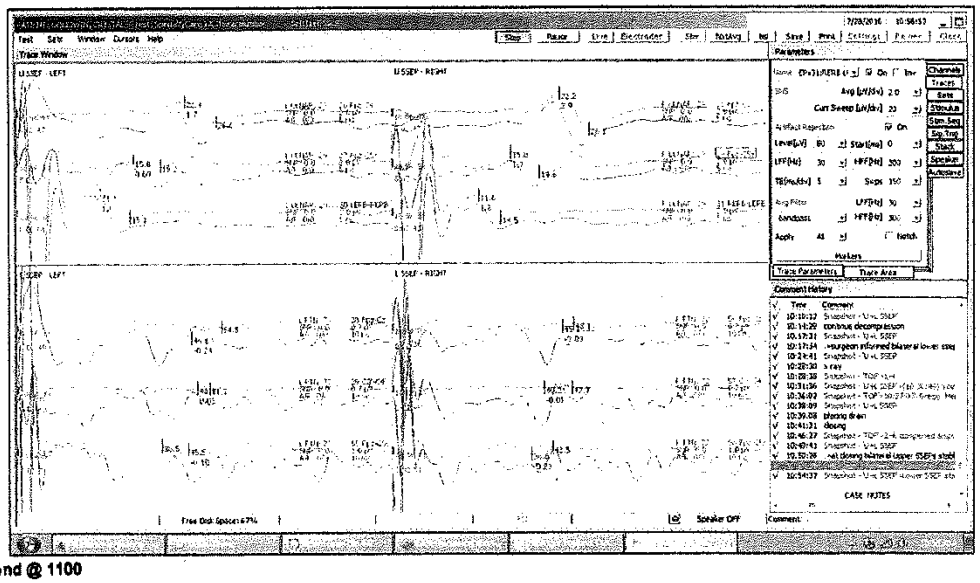
10:53:39 .»surgeon informed and aware of closing findings

10:54:37 Snapshot - 'U+L SSEP'»Lower SSEP stack

10:53:07) Gregg, Herb said to you:
957 present 1004 absent with no indication that we would lose them
(10:53:32) You said to Gregg, Herb:
agreed



10:56:53 Snapshot - 'U+L SSEP's(10:57:25) You said to Gregg, Herb:
ok final run, lowers remain absent, and uppers stable
(10:57:52) Gregg, Herb said to you:
agree. thank you



10:59:30 IOM end @ 1100

COMMENT:

CONFIDENTIALITY NOTICE: This report may contain confidential health information that is privileged and legally protected from disclosure by federal law and the Health Insurance Portability and Accountability Act (HIPAA).This report may also contain other non-health information that is intended only for the use of the designated recipients. If you are not the intended recipient, you are hereby notified that reading, disseminating, disclosing, distributing, copying, acting upon or otherwise using the information contained in this facsimile is strictly prohibited. If you have received this report in error, please notify the sender immediately.

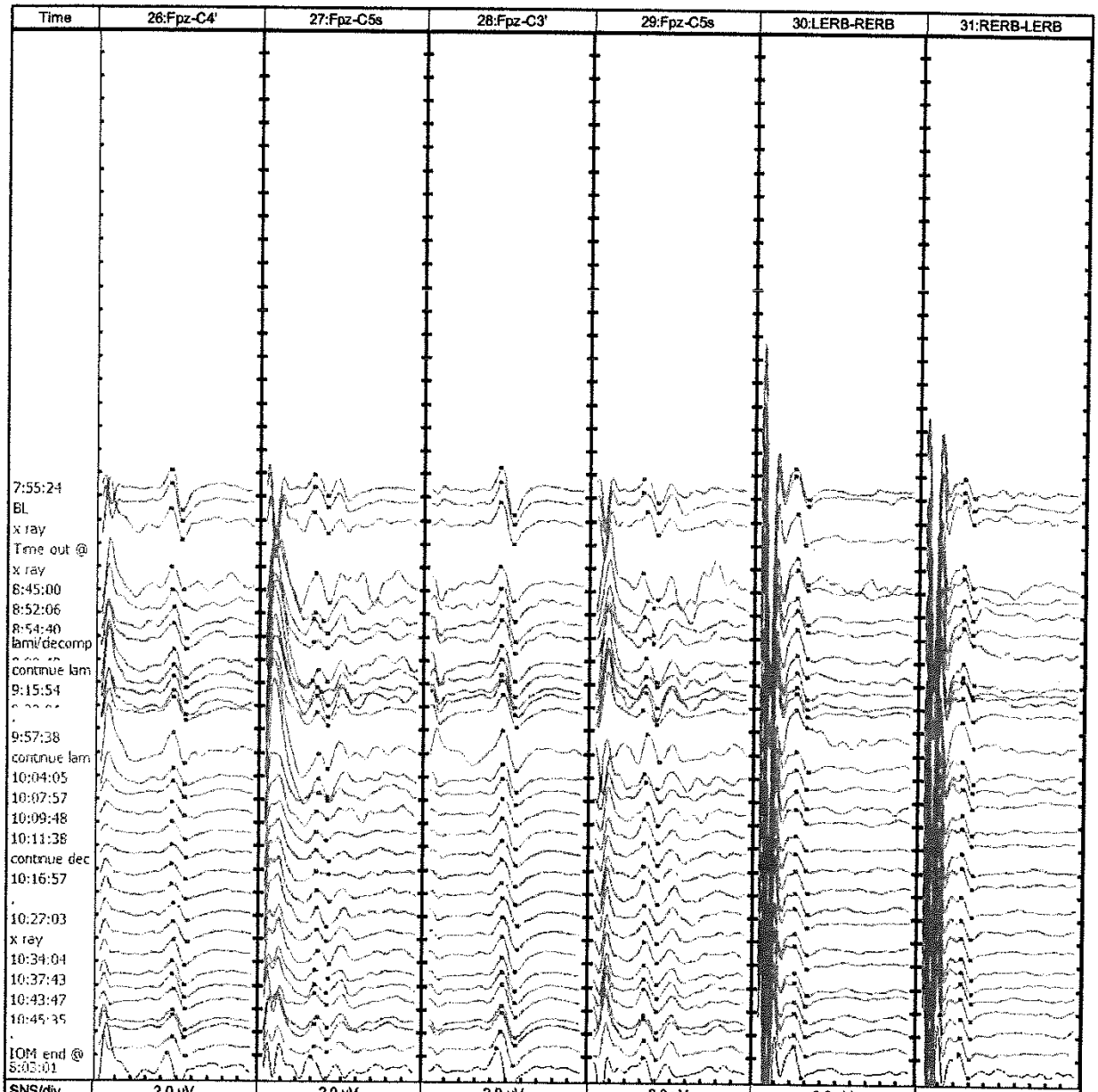
Pat: CRYSTAL GOODWIN
ID: 072816-1

SpecialtyCare TA Thoracolumbar

STACK REPORT

Data Time: 7/28/2016 11:00:56
Print Time: 7/28/2016 11:00:56
Operator: Teresa N. Adkins, CNIM

U SSEP



SNS/div	2.0 µV	2.0 µV	2.0 µV	2.0 µV	2.0 µV	2.0 µV
TB [ms/div]	5.0	5.0	5.0	5.0	5.0	5.0
StimName	L ULNAR	L ULNAR	R ULNAR	R ULNAR	L ULNAR	R ULNAR
LF-HF [Hz]	30 - 300	30 - 300	30 - 300	30 - 300	30 - 300	30 - 300
Notch/Avg.	Off / Bandpass	Off / Bandpass	Off / Bandpass	Off / Bandpass	Off / Bandpass	Off / Bandpass

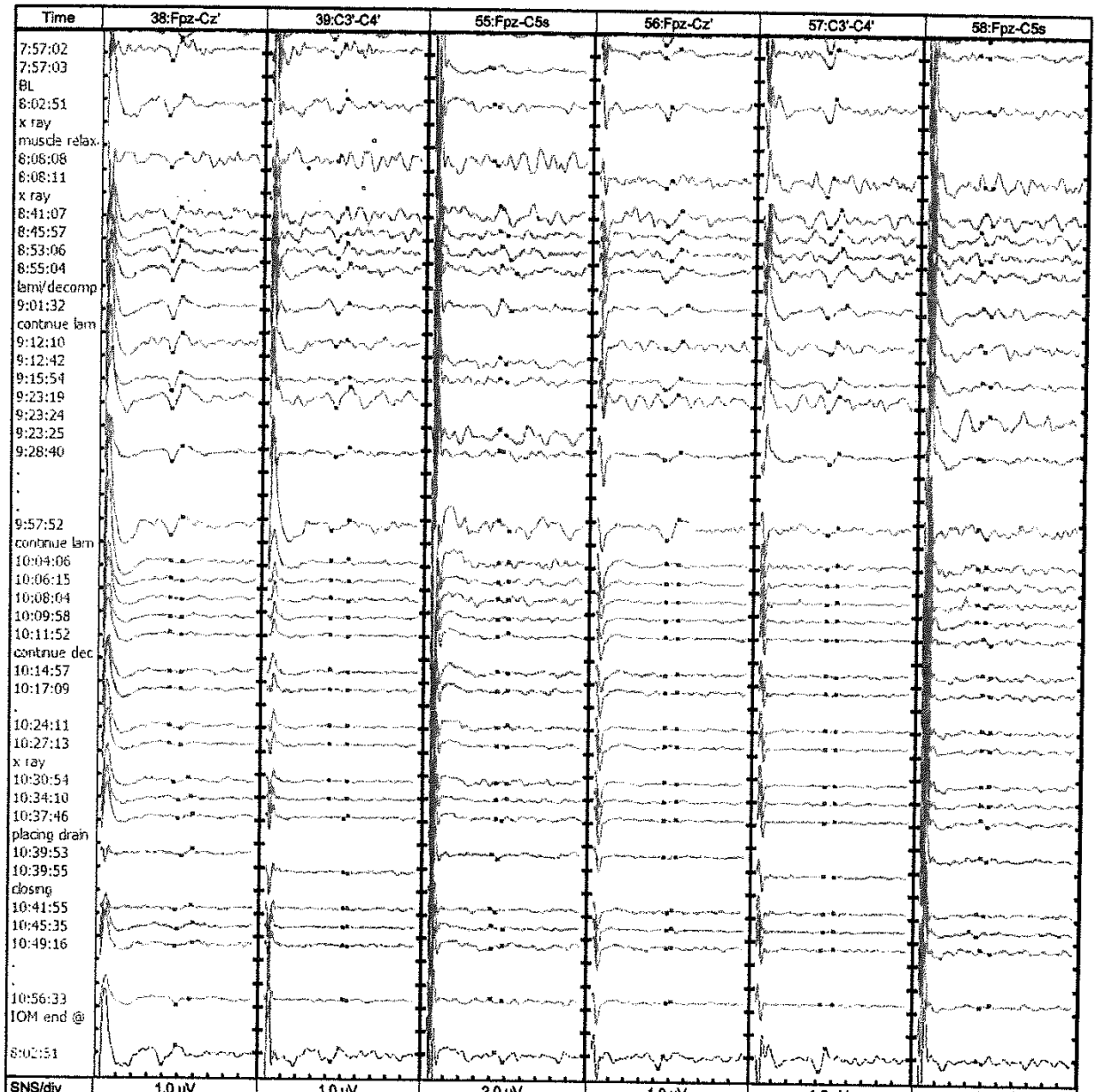
Pat: CRYSTAL GOODWIN
ID: 072816-1

SpecialtyCare TA Thoracolumbar

STACK REPORT

Data Time: 7/28/2016 11:00:57
Print Time: 7/28/2016 11:00:57
Operator: Teresa N. Adkins, CNIM

L SSEP



SNS/div	1.0 µV	1.0 µV	2.0 µV	1.0 µV	1.0 µV	2.0 µV
TB [ms/div]	10	10	10	10	10	10
StimName	L PTN	L PTN	L PTN	R PTN	R PTN	R PTN
LF-HF [Hz]	30 - 300	30 - 300	30 - 300	30 - 300	30 - 300	30 - 300
Notch/Avg.	Off / Bandpass	Off / Bandpass	Off / Bandpass	Off / Bandpass	Off / Bandpass	Off / Bandpass

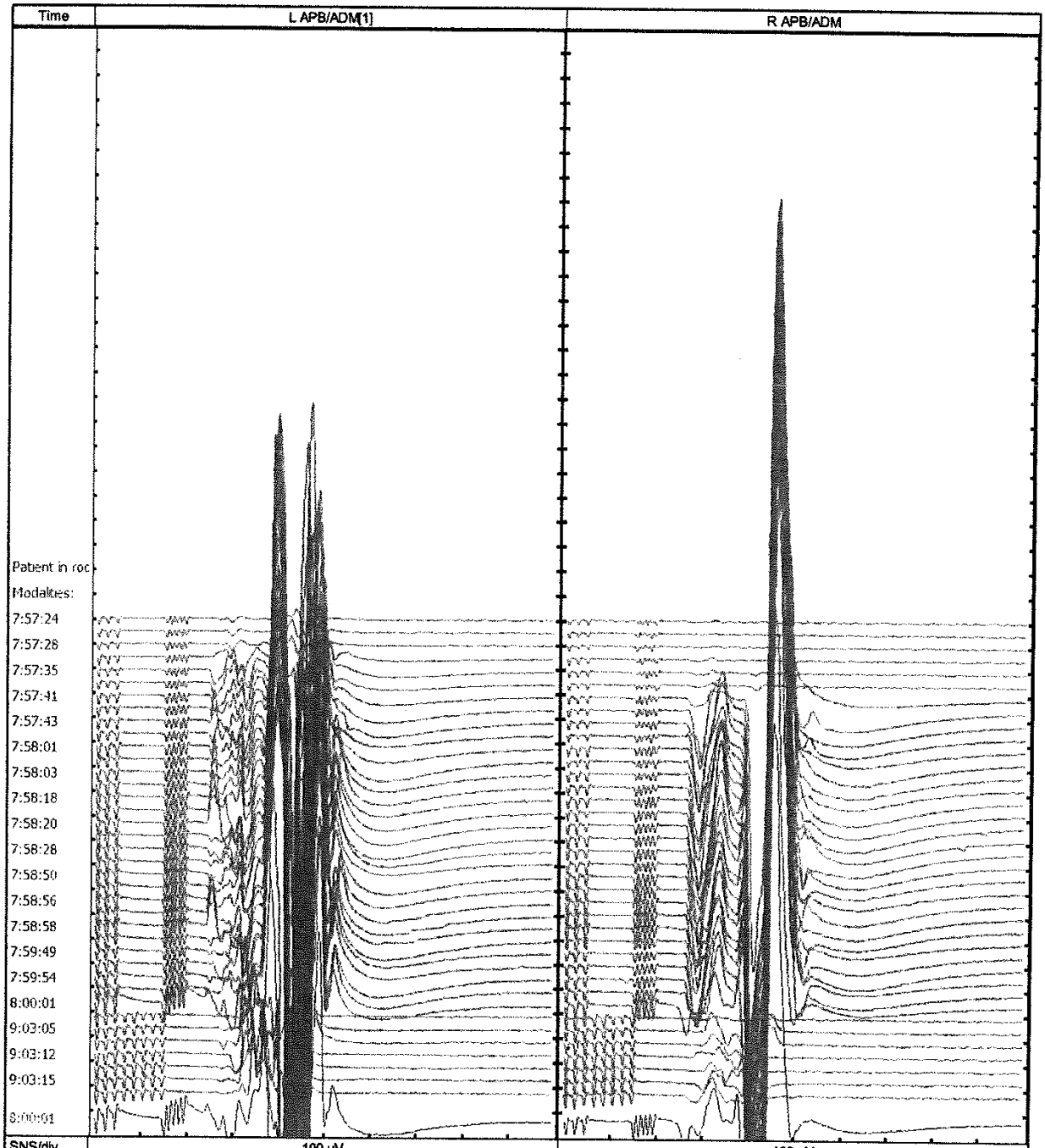
Pat: CRYSTAL GOODWIN
ID: 072816-1

SpecialtyCare TA Thoracolumbar

STACK REPORT

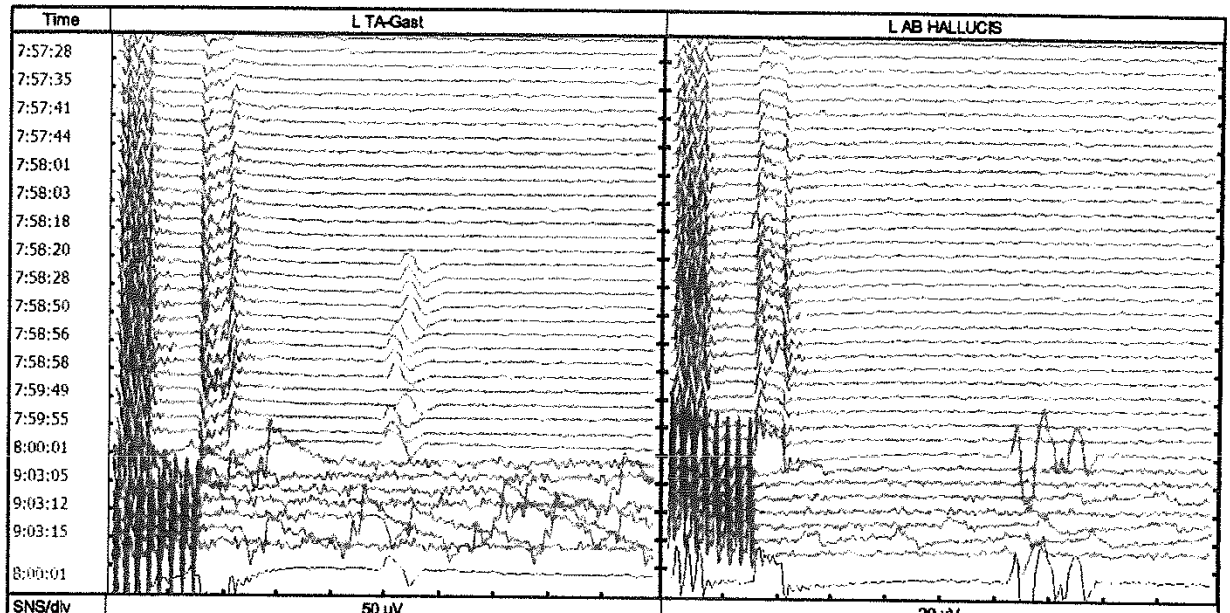
Data Time: 7/28/2016 11:00:57
Print Time: 7/28/2016 11:00:57
Operator: Teresa N. Adkins, CNIM

U MEP



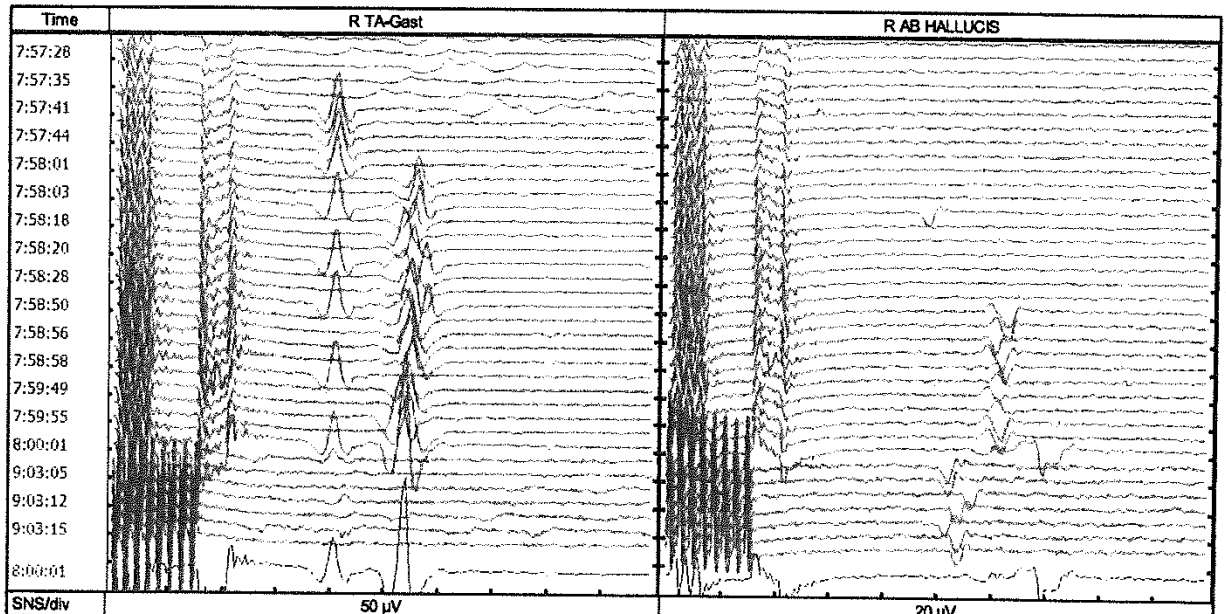
SNS/div	100 µV	100 µV
TB [ms/div]	10	10
StimName	MEP	MEP
LF-HF [Hz]	30 - 1000	30 - 1000
Notch/Avg.	Off / None	Off / None

L MEP



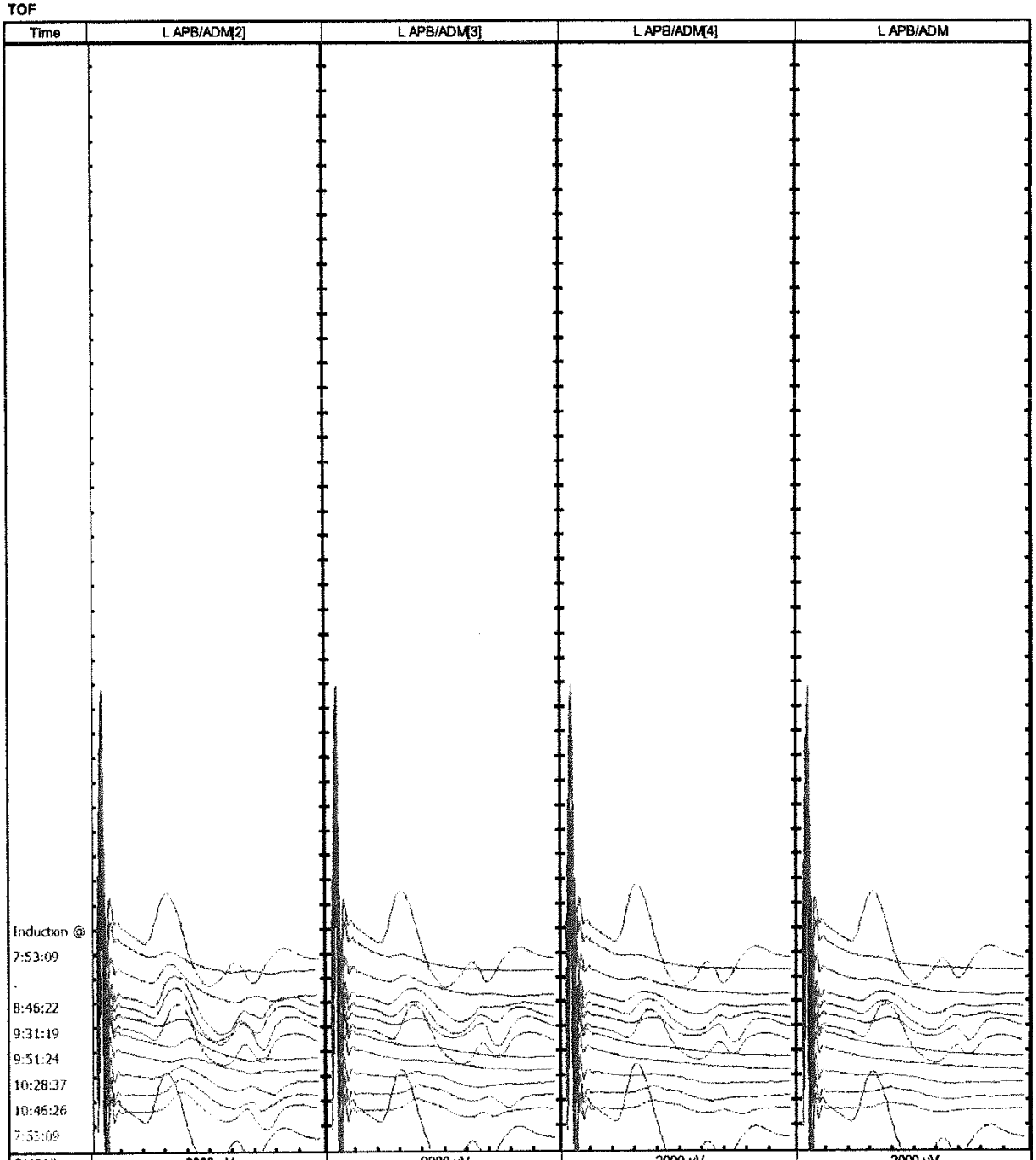
SNS/div	50 µV	20 µV
TB [ms/div]	10	10
StimName	MEP	MEP
LF-HF [Hz]	30 - 1000	30 - 1000
Notch/Avg.	Off / None	Off / None

L MEP



SNS/div	50 µV	20 µV
TB [ms/div]	10	10
StimName	MEP	MEP
LF-HF [Hz]	30 - 1000	30 - 1000
Notch/Avg.	Off / None	Off / None

TOF



SNS/div	2000 µV	2000 µV	2000 µV	2000 µV
TB [ms/div]	1.5	1.5	1.5	1.5
StimName	TOF 1	TOF 2	TOF 3	TOF 4
LF-HF [Hz]	30 - 2000	30 - 2000	30 - 2000	30 - 2000
Notch/Avg.	Off / None	Off / None	Off / None	Off / None

COMMENT:

Bomgar Remote Monitoring Log

Session ID 182833
Start Time 07/28/16 6:47:05AM
Monitor (Physician/Audiologist/Consultant) Gregg, Herb E
Account Description Prisma Health Columbia
Neurophysiologist/Clinician Adkins, Teresa

Find | View 100 | First 1-50 of 118 Last

	Event Time	Performed By	Destination	Event Data Name	Event Data Value
1	07/28/2016 10:13:59AM	System	Everyone	body	Gregg, Herb has stopped viewing the customer's screen.
2	07/28/2016 10:13:56AM	Teresa Adkins, CNIM	Everyone	body	chat w/ you in a bit
3	07/28/2016 10:13:52AM	Teresa Adkins, CNIM	Everyone	body	yw
4	07/28/2016 10:13:46AM	Gregg, Herb E	Everyone	body	thank you
5	07/28/2016 10:07:10AM	Teresa Adkins, CNIM	Everyone	body	yes agreed, will find out something soon and will let you know
6	07/28/2016 10:04:39AM	Gregg, Herb E	Everyone	body	still have upper sseps so would have to be either so medial as not to affect them or low enough that they could possibly be spared
7	07/28/2016 10:03:44AM	Gregg, Herb E	Everyone	body	would have to be something that caused issue with medial portion of the posterior columns
8	07/28/2016 10:02:50AM	Teresa Adkins, CNIM	Everyone	body	that's really the only thing I can think of
9	07/28/2016 10:01:52AM	Gregg, Herb E	Everyone	body	yes
10	07/28/2016 10:01:37AM	Teresa Adkins, CNIM	Everyone	body	could it poss be from head repositioning and got extended?
11	07/28/2016 10:00:41AM	Teresa Adkins, CNIM	Everyone	body	yw, will do.
12	07/28/2016 10:00:32AM	Gregg, Herb E	Everyone	body	thanks. please let me know what happens post op
13	07/28/2016 9:59:36AM	Teresa Adkins, CNIM	Everyone	body	IOM end 11:00
14	07/28/2016 9:57:52AM	Gregg, Herb E	Everyone	body	agree. thank you
15	07/28/2016 9:57:25AM	Teresa Adkins, CNIM	Everyone	body	ok final run, lowers remain absent, and uppers stable
16	07/28/2016 9:53:40AM	Gregg, Herb E	Everyone	body	ok, thank you
17	07/28/2016 9:53:32AM	Teresa Adkins, CNIM	Everyone	body	agreed
18	07/28/2016 9:53:07AM	Gregg, Herb E	Everyone	body	957 present 1004 absent with no indication that we would lose them
19	07/28/2016 9:51:55AM	Gregg, Herb E	Everyone	body	may I see the lower stacks again around the time that lowers were lost
20	07/28/2016 9:51:42AM	Teresa Adkins, CNIM	Everyone	body	ty agree
21	07/28/2016 9:51:13AM	Gregg, Herb E	Everyone	body	motors not obtained post decompression/change in sseps
22	07/28/2016 9:50:46AM	Gregg, Herb E	Everyone	body	lowers absent bilaterally
23	07/28/2016 9:50:40AM	Gregg, Herb E	Everyone	body	upper sseps stable
24	07/28/2016 9:47:11AM	Teresa Adkins, CNIM	Everyone	body	and the bite block is out so will not be running anymore MEP, and ToF not fully back either.
25	07/28/2016 9:41:18AM	Teresa Adkins, CNIM	Everyone	body	he is starting closure
26	07/28/2016 9:39:55AM	Teresa Adkins, CNIM	Everyone	body	me too, poss subcort on right and cortical on left
27	07/28/2016 9:39:08AM	Gregg, Herb E	Everyone	body	The possible waves you are marking for the lowers are very concerning if correct. The absent lowers are making me anxious.

28	07/28/2016 9:37:07AM	Teresa Adkins, CNIM	Everyone	body	ty agree
29	07/28/2016 9:37:03AM	Gregg, Herb E	Everyone	body	upper ssepps stable
30	07/28/2016 9:31:43AM	Gregg, Herb E	Everyone	body	yes
31	07/28/2016 9:30:49AM	Teresa Adkins, CNIM	Everyone	body	L/upper is stable
32	07/28/2016 9:29:22AM	Teresa Adkins, CNIM	Everyone	body	yes. its starting to come back. It was 0/4 at 0959
33	07/28/2016 9:28:52AM	Gregg, Herb E	Everyone	body	see that there is still nmb
34	07/28/2016 9:28:22AM	Teresa Adkins, CNIM	Everyone	body	yes, he i just reported that the lowers remain out and he said they were no where near the cord when the loss was reported.
35	07/28/2016 9:27:39AM	Gregg, Herb E	Everyone	body	surgeon knows what we have?
36	07/28/2016 9:27:23AM	Gregg, Herb E	Everyone	body	would think vascular is less likely in the posterior columns if there is the usual pattern of separate vessels to each side
37	07/28/2016 9:26:11AM	Gregg, Herb E	Everyone	body	Also there was a sudden change in bilateral lower sseps. If that is not a technical issue would expect something that can happen quickly like a vascular or traumatic cause
38	07/28/2016 9:25:32AM	Teresa Adkins, CNIM	Everyone	body	nasal which came out so its inaccurate.
39	07/28/2016 9:24:06AM	Gregg, Herb E	Everyone	body	where are they getting that reading?
40	07/28/2016 9:23:35AM	Teresa Adkins, CNIM	Everyone	body	its at 32.1 right now
41	07/28/2016 9:23:26AM	Teresa Adkins, CNIM	Everyone	body	maybe temp?
42	07/28/2016 9:21:40AM	Gregg, Herb E	Everyone	body	ok
43	07/28/2016 9:20:43AM	Teresa Adkins, CNIM	Everyone	body	going to try a reboot
44	07/28/2016 9:19:58AM	Teresa Adkins, CNIM	Everyone	body	didnt see anything about C spine
45	07/28/2016 9:19:44AM	Teresa Adkins, CNIM	Everyone	body	they had to reposition her some to the the airway good. and head was turned slightly to the side.
46	07/28/2016 9:18:08AM	Gregg, Herb E	Everyone	body	do we know if the pt has any cspine disease?
47	07/28/2016 9:17:54AM	Gregg, Herb E	Everyone	body	the left upper is interesting. looks like cervical is also affected but not much change in erbs
48	07/28/2016 9:14:58AM	Teresa Adkins, CNIM	Everyone	body	left upper is starting to sag as well
49	07/28/2016 9:11:37AM	Teresa Adkins, CNIM	Everyone	body	I ran a set and they came in after hooking everything back up
50	07/28/2016 9:11:13AM	Teresa Adkins, CNIM	Everyone	body	get switched?

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Goodwin_SpecialtyCare_0053

Bomgar Remote Monitoring Log

Session ID 182833
Start Time 07/28/16 8:47:05AM
Monitor (Physician/Audiologist/Consultant) Gregg, Herb E
Account Description Prisma Health Columbia
Neurophysiologist/Clinician Adkins, Teresa

Find | View 100 | First 51-100 of 118 Last

Event Time	Performed By	Destination	Event Data Name	Event Data Value
51 07/28/2016 9:10:59AM	Gregg, Herb E	Everyone	body	should show at the end anyhow
52 07/28/2016 9:10:40AM	Gregg, Herb E	Everyone	body	they are building averages? that did not get switched?
53 07/28/2016 9:09:52AM	Teresa Adkins, CNIM	Everyone	body	decompression
54 07/28/2016 9:09:47AM	Gregg, Herb E	Everyone	body	what are they doing surgically?
55 07/28/2016 9:09:36AM	Teresa Adkins, CNIM	Everyone	body	I dont think so, they gave paralytics
56 07/28/2016 9:09:33AM	Gregg, Herb E	Everyone	body	still with NMB probably
57 07/28/2016 9:08:58AM	Gregg, Herb E	Everyone	body	are you getting twitches at the feet?
58 07/28/2016 9:08:10AM	Gregg, Herb E	Everyone	body	glad you informed surgeon
59 07/28/2016 9:07:52AM	Teresa Adkins, CNIM	Everyone	body	everything is hooked up
60 07/28/2016 9:07:45AM	Teresa Adkins, CNIM	Everyone	body	IDK, it was just in and then it went out
61 07/28/2016 9:07:36AM	Gregg, Herb E	Everyone	body	what happened to the lowers?
62 07/28/2016 9:07:11AM	Teresa Adkins, CNIM	Everyone	body	uppers are stable
63 07/28/2016 9:06:29AM	Teresa Adkins, CNIM	Everyone	body	lower sseps remain out
64 07/28/2016 9:05:00AM	Teresa Adkins, CNIM	Everyone	body	surgeon informed and aware
65 07/28/2016 9:02:48AM	Teresa Adkins, CNIM	Everyone	body	just lost lower sseps
66 07/28/2016 9:01:52AM	Teresa Adkins, CNIM	Everyone	body	yw!
67 07/28/2016 9:01:47AM	Gregg, Herb E	Everyone	body	agree, thanks
68 07/28/2016 8:58:20AM	Teresa Adkins, CNIM	Everyone	body	ssep stable at this time
69 07/28/2016 8:55:47AM	Teresa Adkins, CNIM	Everyone	body	yw!
70 07/28/2016 8:53:54AM	Gregg, Herb E	Everyone	body	ty
71 07/28/2016 8:51:59AM	Teresa Adkins, CNIM	Everyone	body	they got pt stable now and proceeding w/ procedure. will keep paralytics on board for remainder
72 07/28/2016 8:32:38AM	Teresa Adkins, CNIM	Everyone	body	anesthesia is having issues w/ moving airway. going to give paralytics.
73 07/28/2016 8:23:03AM	Teresa Adkins, CNIM	Everyone	body	Ty agree
74 07/28/2016 8:22:43AM	Gregg, Herb E	Everyone	body	sseps stable
75 07/28/2016 8:03:46AM	Teresa Adkins, CNIM	Everyone	body	ty agree, I made some adjustments, so will change back.
76 07/28/2016 8:03:23AM	Gregg, Herb E	Everyone	body	meps in all ext
77 07/28/2016 8:02:36AM	Teresa Adkins, CNIM	Everyone	body	ty!
78 07/28/2016 8:02:32AM	Gregg, Herb E	Everyone	body	sseps stable, agree
79 07/28/2016 8:02:26AM	Teresa Adkins, CNIM	Everyone	body	ssep stable at this time
80 07/28/2016 7:36:23AM	Teresa Adkins, CNIM	Everyone	body	troubleshooting all this noise.

Goodwin_SpecialtyCare_0054

Bomgar Remote Monitoring Log

81	07/28/2016 7:00:55AM	Teresa Adkins, CNIM	Everyone	body	agree on SSEP, mep present in all ext as wa8
82	07/28/2016 6:59:42AM	Gregg, Herb E	Everyone	body	and low amp right foot
83	07/28/2016 6:59:38AM	Teresa Adkins, CNIM	Everyone	body	400
84	07/28/2016 6:59:37AM	Gregg, Herb E	Everyone	body	meps present in bilateral upper ext, also with bilateral gastrocs - higher amplitude on the right
85	07/28/2016 6:57:25AM	Gregg, Herb E	Everyone	body	sseps present in all ext
86	07/28/2016 6:52:57AM	Teresa Adkins, CNIM	Everyone	body	ssep, mep, tof
87	07/28/2016 6:52:54AM	Teresa Adkins, CNIM	Everyone	body	Crystal Goodwin, dob 03.02.1978, CaseID: 100000927513. Thoracic lami decompression T9-T12
88	07/28/2016 6:52:46AM	Teresa Adkins, CNIM	Everyone	body	gmt
89	07/28/2016 6:48:46AM	Gregg, Herb E	Everyone	body	good morning
90	07/28/2016 6:48:18AM	System	Everyone	body	Gregg, Herb can now only view the customer's screen.
91	07/28/2016 6:48:17AM	System	All Customers	body	This session has been transferred to Gregg, Herb.
92	07/28/2016 6:48:17AM	System	All Representatives	body	This session has been transferred to Gregg, Herb.
93	07/28/2016 6:47:05AM	System	All Customers	body	Your reader will be with you shortly.
94	07/28/2016 6:47:05AM	System	All Customers	body	A secure encrypted SSL connection has been established.
95	07/28/2016 10:14:46AM	Gregg, Herb E			
96	07/28/2016 10:14:46AM				
97	07/28/2016 10:14:01AM	Teresa Adkins, CNIM			
98	07/28/2016 6:48:17AM	Gregg, Herb E		public_name	Gregg, Herb
99	07/28/2016 6:48:17AM	Gregg, Herb E		username	2062474
100	07/28/2016 6:48:17AM	Gregg, Herb E		private_ip	192.168.0.2

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Bomgar Remote Monitoring Log

Session ID 182833
Start Time 07/28/16 6:47:05AM
Monitor (Physician/Audiologist/Consultant) Gregg, Herb E
Account Description Prisma Health Columbia
Neurophysiologist/Clinician Adkins, Teresa

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	Event Time	Performed By	Destination	Event Data Name	Event Data Value
101	07/28/2016 6:48:17AM	Gregg, Herb E		public_ip	24.194.23.185:59251
102	07/28/2016 6:48:17AM	Gregg, Herb E		hostname	SC-WS-MG00FBA9
103	07/28/2016 6:48:17AM	Gregg, Herb E		os	Windows 7 Enterprise x64
104	07/28/2016 6:48:17AM	Gregg, Herb E		support_teams	;1=IONM Freeman;11=IONM Read Only;14=IONM Southeast;2=IONM GWUH;4=IONM Memphis;8=IONM North Central;
105	07/28/2016 6:48:17AM	Gregg, Herb E		user_id	32
106	07/28/2016 6:48:17AM		2062474	owner	Gregg, Herb
107	07/28/2016 6:48:17AM	Gregg, Herb E		private_name	Gregg, Herb
108	07/28/2016 6:47:13AM				
109	07/28/2016 6:47:05AM				
110	07/28/2016 6:47:05AM		IONM Southeast	owner	IONM Southeast
111	07/28/2016 6:47:05AM	Teresa Adkins, CNIM		state	connected
112	07/28/2016 6:47:05AM	Teresa Adkins, CNIM		customer_info	;name=Teresa Adkins, CNIM,company=Palmetto Health Baptist;company_code=Dr. Thomas J. Holbrook, MD;details=Gregg, Herb E\nthoracic lami decomp T9-T12;issue=Southeast Monitoring,
113	07/28/2016 6:47:05AM	Teresa Adkins, CNIM		name	Teresa Adkins, CNIM
114	07/28/2016 6:47:05AM	Teresa Adkins, CNIM		private_ip	10.20.75.120
115	07/28/2016 6:47:05AM	Teresa Adkins, CNIM		public_ip	204.116.44.213:16581
116	07/28/2016 6:47:05AM	Teresa Adkins, CNIM		hostname	SC-LT-4B136423H
117	07/28/2016 6:47:05AM	Teresa Adkins, CNIM		os	Windows 7 Enterprise x86
118	07/28/2016 6:47:05AM		System	owner	Customer Pre-wait Conference

Return to Search

Goodwin_SpecialtyCare_0056

Intraoperative Neurophysiological Monitoring Report

SpecialtyCare

CASE INFORMATION

Patient Name	Goodwin, Crystal	**DOB**	03/02/1978
Patient ID	1620200813	**MRN**	000275536
Date of Surgery	07/28/2016		
Hospital	2102 Palmetto Hlth Baptist-Columbia		
IONM Recordings Started	07:53	**IONM Recordings Concluded**	11:00
Post Baselines Time	08:03		
Pre-Op Diagnosis	thoracic stenosis		
Post-Op Diagnosis	thoracic stenosis		
Procedure	Thoracic laminectomy decompression T9-T12		

SURGERY/ANESTHESIA

Role	Name
Anesthesiologist	Dr. Root
Surgeon	Holbrook, Thomas

NEUROMONITORING

Staff Type	Name	Staff Role
Neurophysiologist	Adkins, Teresa	Primary
Remote Monitor	Gregg, Herb E	Primary

INTRODUCTION

Intraoperative neurophysiological monitoring was conducted at the request of the surgeon to help identify and minimize risk of neurologic injury.
Somatosensory evoked potentials were recorded to monitor the integrity of the somatosensory pathways.
Train-of-four testing was performed to assess conduction across the neuromuscular junction.
Motor evoked potentials to transcranial electrical stimulation were recorded to monitor the integrity of the corticospinal pathways.

NEUROMONITORING TECHNIQUES AND BASELINE RESULTS

Neuromonitoring Modalities	Side	Description Nerve/Muscle/Level	Baseline Data
Somatosensory Evoked Potentials (SSEP) - Lower Extremity / Trunk (LE/T)	Bilateral	Posterior Tibial Nerve	All Recordings Monitorable -
Somatosensory Evoked Potentials (SSEP) - Upper Extremity (UE)	Bilateral	Ulnar Nerve	All Recordings Monitorable -
Train Of Four Testing (TOF)	Left	Abductor Pollicis Brevis	All Recordings Monitorable -
Transcranial Electric Motor Evoked Potentials (tcMEP) - Lower Extremity / Trunk	Bilateral	Tibialis Anterior, Gastrocnemius, Abductor Hallucis	All Recordings Monitorable -

Intraoperative Neurophysiological Monitoring Report

SpecialtyCare

NEUROMONITORING TECHNIQUES AND BASELINE RESULTS

Neuromonitoring Modalities	Side	Description Nerve/Muscle/Level	Baseline Data
Transcranial Electric Motor Evoked Potentials (tcMEP) - Upper Extremity	Bilateral	Abductor Pollicis Brevis, Abductor Digiti Minimi	All Recordings Monitorable -

ADDITIONAL BASELINE NOTES

SSEP were reliable w/SNR>2 and amplitudes of 0.25uV or greater in all extremities, ToF 4/4, MEPs were present in all extremities.

INTRAOPERATIVE NEUROMONITORING COURSE

Neuromonitoring changes:

During the decompression portion of the procedure (and shortly after a repositioning and post administration of neuromuscular blockade for airway management reasons), there was a loss of the bilateral lower extremity SSEPs. The lower extremity SSEPs were present/stable at 9:57 a.m. and absent at 10:04 with no identified incident that would cause their loss (times per the on-site surgical neurophysiologist machine). The surgeon was notified. Troubleshooting to exclude any technical confounds was performed. The bilateral lower extremity SSEPs, however, remained absent through the remainder of monitoring.

Motor evoked potentials were not assessed again after the change in SSEPs because of the persistent of the effects of the neuro-motor blocking medications.

There were no other significant neuromonitoring changes during the procedure. The surgeon was informed of the patient's neurophysiologic status throughout the procedure.

IMPRESSION

There were remarkable neuromonitoring changes during the course of the procedure. The loss of bilateral lower extremity somatosensory evoked potentials suggests dysfunction in the bilateral sensory pathways to the lower extremities. While the findings cannot be precisely localized, they would be consistent with localizations that include the surgical site. Motor function could not be assessed because of the required neuromuscular blockade.

Thank you for the opportunity to participate in the surgical management of this patient. If you need any additional information, please do not hesitate to contact us.

Sincerely,

Remote Monitor	Gregg, Herb E - MD	eSigned on	08/02/2016 16:34:12	(Central Time)
Clinician	Adkins, Teresa - CNIM	eSigned on	08/03/2016 06:57:16	(Central Time)

Case Clinical Modalities Alerts/PedScreen Safety Remote Log Anesth Billing Attachments Interp Rpt

Case Documentation System (CDS) Return to Search

Case ID 100000827513

INTRAOPERATIVE NEUROPHYSIOLOGICAL MONITORING REPORT

Save

Edit Report

Patient Name Goodwin, Crystal
Patient ID 1620200813
Patient MRN 000275536
Patient DOB 03/02/1978
Date of Surgery 07/26/2016
Hospital 2102 Palmetto Hlth Baptist-Columbia
Interp Status Finalized

Pre-Op Diagnosis thoracic stenosis

Post-Op Diagnosis thoracic stenosis

Procedure Thoracic laminectomy decompression T9-T12

Role	Name	NPI ID	Primary	If not in list, enter Name
Anesthesiologist			✓	Dr. Root
Surgeon	Holbrook, Thomas	1770695860	✓	

Type	Staff Name	Empl ID	Staff Role
Remote Monitor	Gregg, Herb E	2062474	Primary
Clinician	Adkins, Teresa	2063585	Primary

Introduction

Intraoperative neurophysiological monitoring was conducted at the request of the surgeon to help identify and minimize risk of neurologic injury.
Somatosensory evoked potentials were recorded to monitor the integrity of the somatosensory pathways
Train-of-four testing was performed to assess conduction across the neuromuscular junction.
Motor evoked potentials to transcranial electrical stimulation were recorded to monitor the integrity of the corticospinal pathways.

Neuromonitoring Techniques and Baseline Results

Neuromonitoring Modalities	Side	Description Nerve/Muscle/Level	Baseline Data
Somatosensory Evoked Potentials (SSEP) - Upper Extremity (UE)	Bilateral	Ulnar Nerve	All Recordings Monitorable -
Somatosensory Evoked Potentials (SSEP) - Lower Extremity / Trunk (LE/T)	Bilateral	Posterior Tibial Nerve	All Recordings Monitorable -
Train Of Four Testing (TOF)	Left	Abductor Pollicis Brevis	All Recordings Monitorable -
Transcranial Electric Motor Evoked Potentials (tcMEP) - Upper Extremity	Bilateral	Abductor Pollicis Brevis, Abductor Digiti Minimi	All Recordings Monitorable -
Transcranial Electric Motor Evoked Potentials (tcMEP) - Lower Extremity / Trunk	Bilateral	Tibialis Anterior, Gastrocnemius, Abductor Hallucis	All Recordings Monitorable -

Testing / Mapping Performed

Testing / Mapping Performed	Additional Description

Additional Baseline Notes

SSEP were reliable w/SNR>2 and amplitudes of 0.25uV or greater in all extremities. ToF 4/4. MEPs were present in all extremities.

Intraoperative Neuromonitoring Course

Neuromonitoring changes:

During the decompression portion of the procedure (and shortly after a repositioning and post administration of neuromuscular blockade for airway management reasons), there was a loss of the bilateral lower extremity SSEPs. The lower extremity SSEPs were present/stable at 9:57 a.m. and absent at 10:04 with no identified incident that would cause their loss (times per the on-site surgical neurophysiologist machine). The surgeon was notified. Troubleshooting to exclude any technical

Case | Clinical | Modalities | Alerts/PedScrew | Safety | Remote Log | Anesth | Billing | Attachments | Interp Rpt

Case Documentation System (CDS) Return to Search

Case ID 100000927513

INTRAOPERATIVE NEUROPHYSIOLOGICAL MONITORING REPORT

Save

Edit Report

Patient Name Goodwin, Crystal
Patient ID 1620200813
Patient MRN 000275536
Patient DOB 03/02/1978
Date of Surgery 07/28/2016
Hospital 2102 Palmetto Hlth Baptist-Columbia
Interp Status Finalized

Pre-Op Diagnosis thoracic stenosis

Post-Op Diagnosis thoracic stenosis

Procedure Thoracic laminectomy decompression T9-T12

Surgery / Anesthesia

Role	Name	NPI ID	Primary	If not in list, enter Name
Anesthesiologist			✓	Dr. Root
Surgeon	Holbrook, Thomas	1770895660	✓	

Neuromonitoring

Type	Staff Name	Empl ID	Staff Role
Remote Monitor	Gregg, Herb E	2062474	Primary
Clinician	Adkins, Teresa	2063585	Primary

Introduction

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Neuromonitoring Modalities	Side	Description Nerve/Muscle/Level	Baseline Data
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Somatosensory Evoked Potentials (SSEP) - Lower Extremity / Trunk (LE/T)	Bilateral	Posterior Tibial Nerve	All Recordings Monitorable -
Train Of Four Testing (TOF)	Left	Abductor Pollicis Brevis	All Recordings Monitorable -
Transcranial Electric Motor Evoked Potentials (tcMEP) - Upper Extremity	Bilateral	Abductor Pollicis Brevis, Abductor Digiti Minimi	All Recordings Monitorable -
Transcranial Electric Motor Evoked Potentials (tcMEP) - Lower Extremity / Trunk	Bilateral	Tibialis Anterior, Gastrocnemius Abductor Hallucis	All Recordings Monitorable -

Testing / Mapping Performed

Testing / Mapping Performed	Additional Description

Additional Baseline Notes

SSEP were reliable w/SNR>2 and amplitudes of 0.25uV or greater in all extremities, ToF 4/4, MEPs were present in all extremities

Intraoperative Neuromonitoring Course

Neuromonitoring changes

During the decompression portion of the procedure (and shortly after a repositioning and post administration of neuromuscular blockade for airway management reasons), there was a loss of the bilateral lower extremity SSEPs. The lower extremity SSEPs were present/stable at 9:57 a.m. and absent at 10:04 with no identified incident that would cause their loss (times per the on-site surgical neurophysiologist machine). The surgeon was notified. Troubleshooting to exclude any technical

confounds was performed. The bilateral lower extremity SSEPs, however, remained absent through the remainder of monitoring.

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Summary

There were remarkable neuromonitoring changes during the course of the procedure. The loss of bilateral lower extremity somatosensory evoked potentials suggests dysfunction in the bilateral sensory pathways to the lower extremities. While the findings cannot be precisely localized, they would be consistent with localizations that include the surgical site. Motor function could not be assessed because of the required neuromuscular blockade

Thank you for the opportunity to participate in the surgical management of this patient. If you need any additional information, please do not hesitate to contact us.

Verification / eSignature

Type	Empl ID	Name	Verify	Status
Remote Monitor	2062474	Gregg, Herb E	Verify	Verified
Clinician	2063585	Adkins, Teresa	Verify	Verified

Save

Make Checks Payable To:

Remote Neuromonitoring Physicians PC
Dept 2105 Po Box 11407
Birmingham, AL 35246-2105
ENCOUNTER INVOICE 80849

ADDRESSEE:
Goodwin, Crystal J
903 Greenlawn Dr
Columbia, SC 29209

STATEMENT DATE	PAY THIS AMOUNT	ACCOUNT NBR
03/25/2020	$0.00	73640
Tax id: 262188574	SHOW AMOUNT PAID HERE $	

REMIT TO:
Remote Neuromonitoring Physicians PC
Dept 2105 Po Box 11407
Birmingham, AL 35246-2105
USA

☐ Please check box if above address is incorrect or insurance information has changed and indicate change(s) on reverse side.

PLEASE DETACH AND RETURN TOP PORTION WITH YOUR PAYMENT

DATE	PATIENT NAME	PROVIDER	CPT4	DIAG	DESCRIPTION OF SERVICE	AMOUNT
07/28/16	Goodwin, Crystal	Gregg, Herbert	9593826-26	M48.04	SOMATOSENSORY TESTING	$684.00
07/28/16	Goodwin, Crystal	Gregg, Herbert	9593926-26	M48.04	C MOTOR EVOKED UPRLWR LIMBS	$1,659.00
07/28/16	Goodwin, Crystal	Gregg, Herbert	95941	M48.04	IONM REMOTE/>1 PT OR PER HR (QT\	$3,402.00
08/29/16					Insurance Payment	$0.00
08/29/16					Insurance Payment	-$352.52
08/29/16					Insurance Payment	$0.00
11/23/16					Insurance Payment	-$40.16
11/23/16					Insurance Payment	-$388.95
11/23/16					Insurance Payment	-$105.64
11/23/16					Insurance Payment	$352.52
08/11/16					Contractual Allowance	-$1,459.05
08/11/16					Contractual Allowance	-$2,901.24
08/11/16					Contractual Allowance	-$588.77
08/29/16					Contractual Allowance	$0.00
08/29/16					Contractual Allowance	$2,901.24
08/29/16					Contractual Allowance	$0.00
11/23/16					Contractual Allowance	$588.77
11/23/16					Contractual Allowance	$2,901.24
11/23/16					Contractual Allowance	$1,459.05
11/23/16					Contractual Allowance	-$2,901.24

Account Number	Charges	Payments	Refunds Adjustments	Estimated Balance Due From Insurance	Balance Due From Patient
73640	$5,745.00	-$534.75	$0.00	$5,210.25	$0.00

MESSAGE:
Office Hours Are 7:00am To 3:30pm CST
(800) 344-4973

Please Pay This AMOUNT >>>> $0.00

** PAYMENT DUE UPON RECEIPT *THANK YOU **
ENCOUNTER INVOICE
Printed by 2065739 (506) on 3/25/2020 1:42:43 PM

SpecialtyCare

Remote Neuromonitoring Physicians PC

3 Maryland Farms
Suite 200
Brentwood, TN 37027-5780
USA
(800) 344-4973

PATIENT INFORMATION

NAME (Last, First Middle)		MRN	SSN#	BIRTHDATE	LANGUAGE	SEX
Goodwin, Crystal J		82839	###-##-2070	03/02/1978		F

LOCAL ADDRESS	CITY, STATE ZIP	REFERRING PHYSICIAN	SECONDARY/BILLING ADDRESS	ETHNICITY
903 Greenlawn Dr	Columbia, SC 29209			

HOME PHONE	DAY PHONE	EMAIL ADDRESS	PRIMARY CARE PROVIDER	CITY, STATE ZIP	RACE
(803) 743-9407					

MARITAL STATUS	STUDENT STATUS	SMOKER (Y/N)?	VETERAN (Y/N)?	EMERGENCY CONTACT NAME	CONTACT PHONE	HOME PHONE
Married	☐ Full-Time ☐ Part-Time	N	N			

SEXUAL ORIENTATION	PREFERRED PRONOUN	GENDER IDENTITY	

PRIMARY EMPLOYER	SECONDARY EMPLOYER (If Applicable)
ADDRESS	ADDRESS
CITY, STATE ZIP	CITY, STATE ZIP
WORK PHONE	WORK PHONE

RESPONSIBLE PARTY INFORMATION (if Different than above)

NAME (Last, First Middle)		SSN#	BIRTHDATE	LANGUAGE	SEX

LOCAL ADDRESS	CITY, STATE ZIP	SECONDARY/BILLING ADDRESS (If Applicable)

HOME PHONE	DAY PHONE	EMAIL ADDRESS	CITY, STATE ZIP

MARITAL STATUS	STUDENT STATUS	SMOKER (Y/N)?	VETERAN (Y/N)?	PRIMARY CARE PROVIDER	HOME PHONE
	☐ Full-time ☐ Part-time				

RELATIONSHIP TO PATIENT	

PRIMARY INSURANCE

NAME OF INSURANCE COMPANY		POLICY#
BCBS TN 00890		ZCW052657245612
NAME OF INSURED		GROUP#
Goodwin, James D		
ADDRESS OF INSURANCE COMPANY		COPAY AMT
1 Cameron Hill, Circle 0002		
CITY, STATE ZIP	PHONE	DEDUCTIBLE
Chattanooga, TN 37402-2555	(800) 924-7141	$0.00
RELATIONSHIP TO PATIENT		EFFECTIVE DATE / EXPIRATION DATE
Spouse		

SECONDARY INSURANCE (If Applicable)

NAME OF INSURANCE COMPANY		POLICY#
NAME OF INSURED	SSN# / BIRTHDATE / GROUP#	
ADDRESS OF INSURANCE COMPANY		COPAY AMT
CITY, STATE ZIP	PHONE	DEDUCTIBLE
RELATIONSHIP TO PATIENT		EFFECTIVE DATE / EXPIRATION DATE

SIGNATURE OF PATIENT/GUARDIAN

DATE

HEALTH INSURANCE CLAIM FORM

APPROVED BY NATIONAL UNIFORM CLAIM COMMITTEE (NUCC) 02/12

BCBS TN 00890
1 Cameron Hill
Circle 0002
Chattanooga, TN 37402-2555

CARRIER

Page 01 of 01

PICA

1 MEDICARE / MEDICAID / TRICARE / CHAMPVA / GROUP HEALTH PLAN / FECA BLK LUNG / OTHER	1a INSURED'S I.D. NUMBER (For Program in Item 1)
[ ] (Medicare#) [ ] (Medicaid#) [ ] (ID#/DoD#) [ ] (Member ID#) [ ] (ID#) [ ] (ID#) [X] (ID#)	ZCW052657245612
2 PATIENT'S NAME (Last Name, First Name, Middle Initial): Goodwin Crystal J	3 PATIENT'S BIRTH DATE MM DD YY: 03 02 1978 SEX: M [ ] F [X]
4 INSURED'S NAME (Last Name, First Name, Middle Initial): Goodwin James D	
5 PATIENT'S ADDRESS (No. Street): 903 Greenlawn Dr	6 PATIENT RELATIONSHIP TO INSURED: Self [ ] Spouse [X] Child [ ] Other [ ]
7 INSURED'S ADDRESS (No., Street): 903 Greenlawn Dr	
CITY: Columbia STATE: SC	8 RESERVED FOR NUCC USE
CITY: Columbia STATE: SC	
ZIP CODE: 29209 TELEPHONE (Include Area Code): (803) 743 9407	
ZIP CODE: 29209 TELEPHONE (Include Area Code): (803) 743 9407	
9 OTHER INSURED'S NAME (Last Name, First Name, Middle Initial)	10 IS PATIENT'S CONDITION RELATED TO
11 INSURED'S POLICY GROUP OR FECA NUMBER	
a OTHER INSURED'S POLICY OR GROUP NUMBER	a EMPLOYMENT? (Current or Previous): YES [ ] NO [X]
a INSURED'S DATE OF BIRTH MM DD YY SEX: M [ ] F [ ]	
b RESERVED FOR NUCC USE	b AUTO ACCIDENT? PLACE (State): YES [ ] NO [X]
b OTHER CLAIM ID (Designated by NUCC)	
c RESERVED FOR NUCC USE	c OTHER ACCIDENT? YES [ ] NO [X]
c INSURANCE PLAN NAME OR PROGRAM NAME	
d INSURANCE PLAN NAME OR PROGRAM NAME	10d CLAIM CODES (Designated by NUCC)
d IS THERE ANOTHER HEALTH BENEFIT PLAN? YES [ ] NO [ ] If yes, complete items 9, 9a and 9d	

PATIENT AND INSURED INFORMATION

READ BACK OF FORM BEFORE COMPLETING & SIGNING THIS FORM.

12 PATIENT'S OR AUTHORIZED PERON'S SIGNATURE I authorize the release of any medical or other information necessary to process this claim. I also request payment of government benefits either to myself or to the party who accepts assignment below.
SIGNED Signature On File DATE 03/25/2020

13 INSURED'S OR AUTHORIZED PERSON'S SIGNATURE I authorize payment of medical benefits to the undersigned physician or supplier for services described below
SIGNED SIGNATURE ON FILE

14 DATE OF CURRENT ILLNESS, INJURY or PREGNANCY (LMP) MM DD YY: 07 28 16 QUAL 431	15 OTHER DATE QUAL MM DD YY
16 DATES PATIENT UNABLE TO WORK IN CURRENT OCCUPATION MM DD YY FROM TO	
17 NAME OF REFERRING PROVIDER OR OTHER SOURCE: DN Holbrook Jr Thomas	17a D05445 / 17b NPI 1770695660
18 HOSPITALIZATION DATES RELATED TO CURRENT SERVICES MM DD YY FROM 07 28 16 TO	
19 ADDITIONAL CLAIM INFORMATION (Designated by NUCC)	20 OUTSIDE LAB? YES [ ] NO [X] $ CHARGES
21 DIAGNOSIS OR NATURE OF ILLNESS OR INJURY Relate A-L to service line below (24E) ICD Ind. 0: A M4804 B C D E F G H I J K L	22 RESUBMISSION CODE ORIGINAL REF NO
	23 PRIOR AUTHORIZATION NUMBER

24 A DATE(S) OF SERVICE From MM DD YY To MM DD YY	B PLACE OF SERVICE	C EMG	D PROCEDURES, SERVICES, OR SUPPLIES (Explain Unusual Circumstances) CPT/HCPCS	MODIFIER	E DIAGNOSIS POINTER	F $ CHARGES	G DAYS OR UNITS	H EPSDT Family Plan	I ID QUAL	J RENDERING PROVIDER ID #
1 07 28 2016 07 28 2016	21		95939	26	A	1,659 00	1		NPI	6046856 1558525766
2 07 28 2016 07 28 2016	21		95938	26	A	684 00	1		NPI	6046856 1558525766
3 07 28 2016 07 28 2016	21		95941		A	3,402 00	3		NPI	6046856 1558525766
4									NPI	
5									NPI	
6									NPI	

PHYSICIAN OR SUPPLIER INFORMATION

25 FEDERAL TAX I.D. NUMBER SSN EIN	26 PATIENT'S ACCOUNT NO.	27 ACCEPT ASSIGNMENT? (For govt. claims, see back)	28 TOTAL CHARGE	29 AMOUNT PAID	30 Rsvd for NUCC use
262188574 [ ] [X]	001700080849	[X] YES [ ] NO	$ 5,745 00	$	5,745 00

31 SIGNATURE OF PHYSICIAN OR SUPPLIER INCLUDING DEGREES OR CREDENTIALS (I certify that the statements on the reverse apply to this bill and are made a part thereof.)	32 SERVICE FACILITY LOCATION INFORMATION	33 BILLING PROVIDER INFO & PH#
Gregg MD, Herbert E 03/25/2020 SIGNED DATE	Palmetto Hlth Baptistcolumbia 1330 Taylor Street Columbia SC 29201-2915 a 1336353408 b	Remote Neuromonitoring Physicians Dept 2105 Po Box 11407 Birmingham AL 35246-2105 (800) 344-4973 a 1124253075 b 6013113

NUCC Instruction Manual available at: www.nucc.org

PLEASE PRINT OR TYPE

APPROVED OMB-0938-1197 FORM 1500 (02-12)

CERTIFICATION OF AUTHENTICITY OF RECORDS
OF REGULARLY CONDUCTED ACTIVITY

The undersigned declarant hereby declares, certifies, verifies or states under penalty of perjury the following:

1. The declarant is a records custodian or other qualified person who can provide a written declaration regarding the records of regularly conducted business activity which are the subject of this certification;
2. The records of regularly conducted business activity (hereinafter "records") which are the subject of this certification are numbered.
3. The records are originals or duplicate copies of domestic business records, which include medical and/or billing records, which are true and correct copies of the original records prepared and/or maintained by SpecialtyCare, Inc.
4. The records were made at or near the time of the time of the occurrence of the matters set forth by, or from information transmitted by, a person with knowledge of those matters;
5. The records were kept in the course of a regularly conducted business activity; and
6. The records were made as a regular practice in the course of regularly conducted business activity.
7. No films or diagnostic studies are maintained by SpecialtyCare, Inc.

I hereby declare, certify or state, under penalty of perjury, that the foregoing is true and correct. Executed on April 16, 2020.

Signature of Declarant

Patricia Falte
Printed Name

Medical Records Coordinator
Title

SpecialtyCare, Inc.
3 Maryland Farms, Suite 200
Brentwood, Tennessee 37027
615.345.5551

EXHIBIT
JONES P 5
3/30/23

Goodwin_SpecialtyCare_0001

Case | Clinical | Modalities | Alerts/PedScrew | Safety | Remote Log | Anesth | Billing | Attachments | Interp Rpt

Case Documentation System (CDS)

Return to Search

Case ID 100000927513

Patient Information

Save | Bomgar Team

Patient Last Name Goodwin | Billing Submit | Bomgar

Patient First Name [redacted] | Create [redacted]

Patient ID 1620200813 | Go to Postop Info

Patient MRN 000275536

Gender Male • Female | Void Case?

Date of Birth 03/02/1978

Case Information

Date of Procedure 07/28/2016

Account 2102 Prisma Health Columbia

Product Line IOM

Region South IONM Ops Group South Atlantic IONM Team Palmetto IONM

Case Status • Case Monitored Baselines Only Setup Only Case Not Monitored Case Cancelled Remote Monitoring Only

Comments

Customer ID 2102N01 Prisma Health Columbia

Surgeons / Referring Physicians / Anesthesiologists

Role	Name	NPI ID	Primary	If not in list, enter Name
Anesthesiologist			✓	Dr. Root
Surgeon	Holbrook, Thomas	1770695680	✓	

Monitoring and Clinical Staff

Type	Staff Name	Empl ID	Staff Role	Arrival Date	Arrival Time	Departure Date	Departure Time
Remote Monitor	Gregg, Herb E	2062474	Primary				
Clinician	Adkins, Teresa	2063585	Primary	07/28/2016	6:24AM	07/28/2016	12:45PM

Equipment

Equipment Type	Non-SC Owned	SC Tag #	Model	Serial No	Brand	Comment
Master		SC2005	Eclipse IONM system E4	SC2005	Medtronic	
Controller		00876	ECLC Controller-NIM Eclipse	070618 E1	Medtronic	
Amplifier		01887	DAQ916 Eclipse Amp	0842281D	Medtronic	
Amplifier		02843	DAQ916 Eclipse Amp	062231C	Medtronic	
Stimulator		05768	EEX901	0915047B	Medtronic	
Stimulator		05835	EEX901	070474A1	Medtronic	

Save

Case | Clinical | Modalities | Alerts/PedScrew | Safety | Remote Log | Anesth | Billing | Attachments | Interp Rpt

CDS Post Op Info

Case Documentation System (CDS) - Post Op Data Go to Case Info Return to Search

Case ID 100000927513 Date of Procedure 07/28/2016 Patient Name Goodwin, Crystal

Postop Information Find | View All First 1 of 1 Last

Date of Entry 07/29/2016

Entered By Adkins, Teresa

Time of Neuro Status Check: Postop day 1

Source of Information: Other Name of Info Provider: Maurio Riley, PA

Postop Status
- ○ NO new neuro deficit noted postoperatively
- ◉ New neuro deficit noted postoperatively

Provide additional details if new deficited noted postoperatively.
- ◉ Initial report of postop deficit - immediate onset
- ○ Initial report of postop deficit - delayed onset
- ○ Follow-up: deficit completely resolved
- ○ Follow-up: deficit partly resolved - improvement from previous report
- ○ Follow-up: deficit partly resolved - no improvement from previous report
- ○ Follow-up: deficit unresolved from initial report

(Select all that apply)

☐ Pain

Motor and Sensory Deficit Details (Select all that apply)

☑ Sensory Severity: Severe

☑ Somatosensory

☐ Head ☐ Neck ☐ Trunk ☐ L Face ☐ R Face ☐ L UE ☐ R UE
☐ L LE ☑ R LE ☐ Sacral ☐ Other (describe)

☐ Other Sensory

Comments re Sensory Deficit

patient has no feeling from waist down on the right side.

☑ Motor Severity: Severe

☑ Weakness

☐ L UE ☐ R UE ☑ L LE ☑ R LE ☐ Trunk ☐ Other (describe)

☐ Other Motor/Sensorimotor Disorder

Ambulatory Status: Unknown at this Time

Comments re Motor Deficit

Patient cannot move legs

☐ Mental Status Change

Additional Comments

Follow up w/ PA. PA stated Dr. Holbrook ended up taking her back into OR because she couldn't move her legs when she woke up. Lumbar MRI showed cord edema in the surgical region. Right now, she cant move her legs and has no feeling from the waist down on the right side.

Save

Case | Clinical | Modalities | Alerts/PedScrew | Safety | Remote Log | Anesth | Billing | Attachments | Interp Rpt

Case Documentation System (CDS) Return to Search

Case ID 100000927513 Patient Name Goodwin, Crystal

Save

Pre-Op Diagnosis thoracic stenosis

Patient presents secondary to trauma		Yes	* No	Unknown
Patient presents for treatment of tumor/mass		Yes	* No	Unknown
Etiology of pathology	Congenital	Idiopathic	* Not Specified	NA
Treatment Encounter	Initial	Subsequent	* Not Specified	NA

Find | First 1 of 1 Last

Additional Diagnostic Information | Spine Details

Related Organ System	Diagnostic Descriptor	Laterality	Information Source	Additional Comments
Skeletal-Spine-Other	Stenosis - Spinal	Bilateral	Chart	

Post-Op Diagnosis thoracic stenosis

Procedure Category Spine

- All Extradural
- Cervical
- ✓ Thoracic
- Lumbosacral

Procedure Code SPIPHTHOR Posterior Thoracic

* Spine Levels

Level
17 T9
18 T10
19 T11
20 T12

Procedure Description Thoracic laminectomy decompression T9-T12

Stereotactic Frame Type

Procedure Approach 1 - Open

Maintenance Anesthesia (2) Mixed IV and Inhalational

Technical IONM	* No	Yes - Resolved	Yes - Unresolved	?
Confounds				
Anesthetic IONM	No	Yes - Resolved	* Yes - Unresolved	?
Confounds				
Alert Status				
Pedicle Wall / Screw Stimulation	* No	Yes		
Testing/Mapping	* No	Yes		

*Will the CDS Interp Rpt be used? No * Yes

Will Remote Monitors verify the Interp Report? No * Yes

Comments paralytics were given during airway issues and bite block was removed. unable to obtain MEPs once patient was stable

Save

Case | Clinical | Modalities | Alerts/PedScrew | Safety | Remote Log | Anesth | Billing | Attachments | Interp Rpt

Additional Diagnostic Information | Spine Details

Find | First 1 of 1 Last

Related Organ System	Diagnostic Descriptor	Anatomic Level(s)	Myelopathy	Radiculopathy
Skeletal-Spine-Other	Stenosis - Spinal	T9-T12	Unspecified	Unspecified

Return

Case Documentation System (CDS) Return to Search

Case ID 100000927513 Patient Name Goodwin, Crystal

Modalities

Modalities Save

Description
✓ Somatosensory Evoked Potentials (SSEP)
Other Sensory Evoked Potentials (OSP)
✓ Train Of Four Testing (TOF)
Spontaneous Electromyography (spEMG)
Stimulus Triggered Electromyography (tEMG)
✓ Transcranial Electric Motor Evoked Potentials (tcMEP)
Direct Cortical Motor Evoked Potentials (dcMEP)
Trans-spinal / Neurogenic Evoked Potentials (tsNEP)
Other Monitoring Modalities
Electroencephalography (EEG)
Single/Multi-unit Recording

Somatosensory Evoked Potentials (SSEP)

	Description	Side	Monitorability	Likely Cause if Unmonitorable	Comments
✓	Ulnar Nerve	Bilateral	All Recordings Monitorable		
	Median Nerve				
	Radial Nerve				
	Dermatomal UE (List Level in Comments)				
	Other UE SSEP				
✓	Posterior Tibial Nerve	Bilateral	All Recordings Monitorable		
	Femoral Nerve				
	Peroneal Nerve				
	Dermatomal LE/T (List Level in Comments)				
	Saphenous Nerve				
	Sural Nerve				
	Other LE SSEP				

Train Of Four Testing (TOF)

	Description	Side	Monitorability	Likely Cause if Unmonitorable	Comments
	First Dorsal Interosseous				
✓	Abductor Pollicis Brevis	Left	All Recordings Monitorable		
	Thenar Eminence				
	Abductor Digiti Minimi				
	Tibialis Anterior				
	Gastrocnemius				
	Abductor Hallucis				
	Extensor Digitorum Brevis				

Transcranial Electric Motor Evoked Potentials (tcMEP)

Description	Side	Monitorability	Likely Cause if Unmonitorable	Comments
Trapezius				

	Deltoid		
	Biceps Brachii		
	Extensor Carpi Radialis		
	Flexor Carpi Radialis		
	Flexor Carpi Ulnaris		
	Pronator Teres		
	Brachioradialis		
	Triceps		
	First Dorsal Interosseous		
✓	Abductor Pollicis Brevis	Bilateral	All Recordings Monitorable
✓	Abductor Digiti Minimi	Bilateral	All Recordings Monitorable
	Thenar		
	Hypothenar		
	Other UE (Describe in Comment)		
	Intercostals		
	Diaphragm - Phrenic motor nerve		
	Rectus Abdominis		
	Internal / External Oblique		
	Iliopsoas		
	Adductor Longus		
	Quadriceps		
	Quadriceps - Vastus Lateralis		
	Quadriceps - Vastus Medialis		
	Quadriceps - Rectus Femoris		
✓	Tibialis Anterior	Bilateral	All Recordings Monitorable
	Peroneus Longus		
✓	Gastrocnemius	Bilateral	All Recordings Monitorable
	Biceps Femoris		
	Gluteus Maximus / Minimus		
	External Anal Sphincter		
	Extensor Hallucis Longus		
	Extensor Digitorum Brevis		
✓	Abductor Hallucis	Bilateral	All Recordings Monitorable
	Cremaster		
	Other LE/T (Describe in Comment)		
	Inferior Rectus - CN III		
	Superior Oblique - CN IV		
	Massater - CN V		
	Temporalis - CN V		
	Lateral Rectus - CN VI		
	Frontalis - CN VII		
	Oculi - CN VII		
	Nasalis - CN VII		

Oris - CN VII

Mentalis - CN VII

Soft Palate - CN IX

Vocalis - CN X

Vocalis - RLN

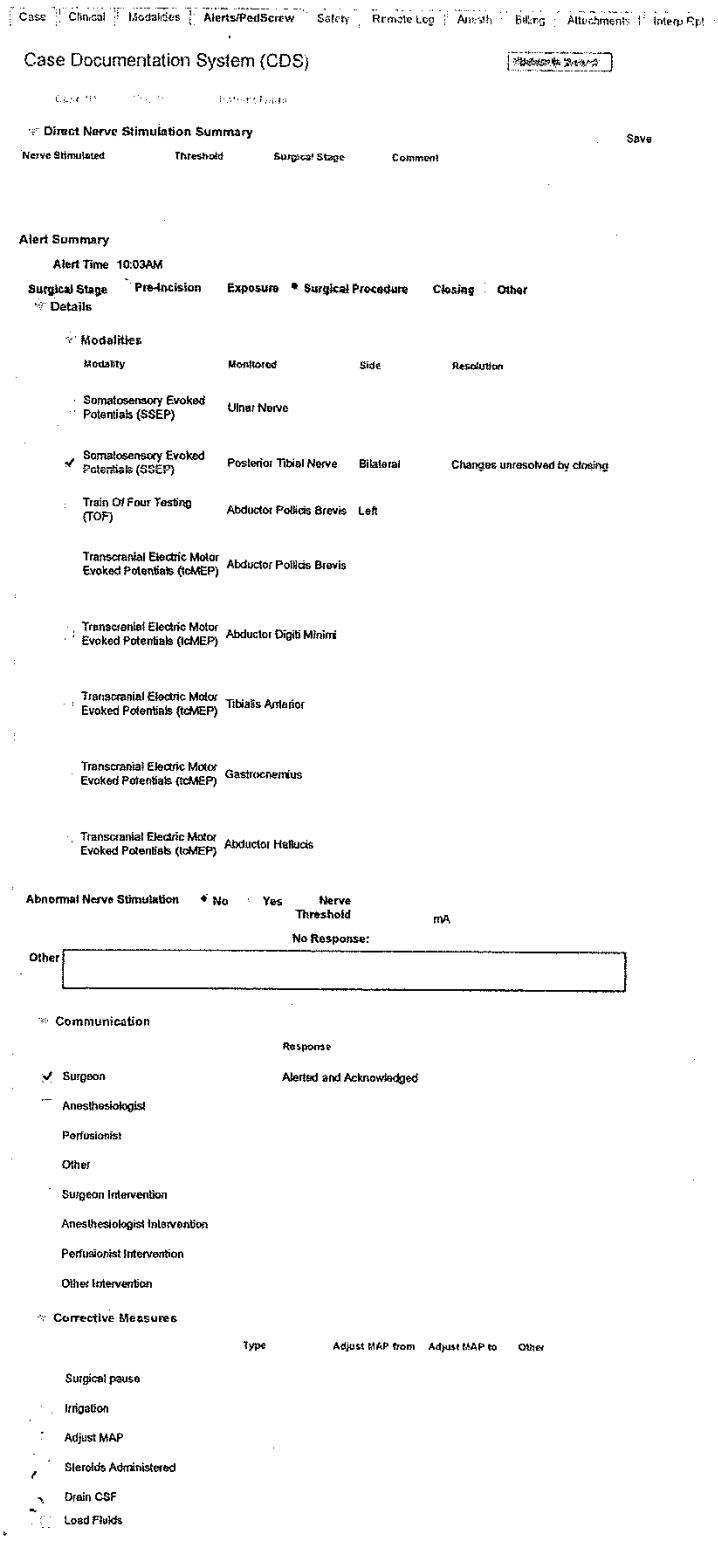
Trapezius - CN XI

Tongue - CN XII

Other CN Innervated Muscles

Save

Goodwin_SpecialtyCare_0009



Case | Clinical | Modalities | Alerts/PedScrew | Safety | Remote Log | Anesth | Billing | Attachments | Interp Rpt

Case Documentation System (CDS)

Direct Nerve Stimulation Summary

Save

Nerve Stimulated	Threshold	Surgical Stage	Comment

Alert Summary

Alert Time 10:03AM

Surgical Stage: Pre-Incision | Exposure | * Surgical Procedure | Closing | Other

Details

Modalities

Modality	Monitored	Side	Resolution
Somatosensory Evoked Potentials (SSEP)	Ulnar Nerve		
✓ Somatosensory Evoked Potentials (SSEP)	Posterior Tibial Nerve	Bilateral	Changes unresolved by closing
Train Of Four Testing (TOF)	Abductor Pollicis Brevis	Left	
Transcranial Electric Motor Evoked Potentials (tcMEP)	Abductor Pollicis Brevis		
Transcranial Electric Motor Evoked Potentials (tcMEP)	Abductor Digiti Minimi		
Transcranial Electric Motor Evoked Potentials (tcMEP)	Tibialis Anterior		
Transcranial Electric Motor Evoked Potentials (tcMEP)	Gastrocnemius		
Transcranial Electric Motor Evoked Potentials (tcMEP)	Abductor Hallucis		

Abnormal Nerve Stimulation: * No | Yes — Nerve — Threshold — mA — No Response:

Other

Communication

	Response
✓ Surgeon	Alerted and Acknowledged
Anesthesiologist	
Perfusionist	
Other	
Surgeon Intervention	
Anesthesiologist Intervention	
Perfusionist Intervention	
Other Intervention	

Corrective Measures

	Type	Adjust MAP from	Adjust MAP to	Other
Surgical pause				
Irrigation				
Adjust MAP				
Steroids Administered				
Drain CSF				
Load Fluids				

Administer Blood Products

Adjust Head/Neck position

Adjust UE position

Adjust LE position

Adjust Other Position

Decrease Weights / Traction

Adjust Instrumentation

Remove Instrumentation

Stage surgical procedure

Terminate Procedure

Procedure changes

Other

✓ None

Comments

Save

Case | Clinical | Modalities | Alerts/PedScrew | Safety | Remote Log | Anesth | Billing | Attachments | Interp Rpt

Case Clinical Modalities Alerts/PedScrew Safety Remote Log Anesth Billing Attachments Interp Rpt

Case Documentation System (CDS) Return to Search

Case ID 100000927513 Patient Name Goodwin, Crystal

Safety Checklist Save

✓ Neurophysiologist participated in surgical time out
Explain if not present for time out

Bite block placement verified N/A • Verified by Member of Anesthesia Team

Placed in Patient 23

Removed from Patient 23

✓ OR staff reminded of locations, as appropriate

✓ Removal from patient physically verified (2nd check)

✓ Removal announced to OR staff

Save

Case | Clinical | Modalities | Alerts/PedScrew | Safety | Remote Log | Anesth | Billing | Attachments | Interp Rpt

Case | Clinical | Modalities | Alerts/PedScrew | Safety | Remote Log | Anesth | Billing | Attachments | Interp Rpt

Case Documentation System (CDS)

Return to Search

Case ID 100000827513 **Patient Name** Goodwin, Crystal

View Bomgar Chat Log

Hospital Prisma Health Columbia **Date of Procedure** 07/28/2016 7:30AM

Procedure Description Thoracic laminectomy decompression T9-T12

Monitoring Start

Monitoring Stop

*Date/Time Format: mm/dd/yyyy hh:mm

Monitoring Stop Reason

In Room Monitor

Remote Monitor

Time Zone

Professional Billable Hours

Comments

By hitting SUBMIT you attest to the accuracy of hours submitted.

Submit

RNP confirmed baselines	Yes	No	N/A
RNP confirmed screw thresholds	Yes	No	N/A
RNP confirmed alerts	Yes	No	N/A
RNP confirmed closing traces	Yes	No	N/A
RNP recommended a technical change to improve signal quality	Yes	Not Indicated	
RNP recommended additional modalities or channels be monitored	Yes	Not Indicated	
RNP recommended a change to anesthesia or blood pressure to improve signal quality	Yes	Not Indicated	
RNP suggested a positional change to improve signal quality	Yes	Not Indicated	

Edit	Monitoring Start	Monitoring Stop	Monitoring Stop Reason	In Room Monitor	Name	Time Zone	Comments	Last Updated By	TimeStamp
Edit	07/28/16 7:57AM	07/28/16 11:00AM	Complete			Eastern Time (US)		Gregg, Herb E	08/01/16 11:00:35PM

Edit	Name	RNP confirmed baselines	RNP confirmed screw thresholds	RNP confirmed alerts	RNP confirmed closing traces	RNP Technical Changes	RNP Additional Modalities	RNP Anesthesia Changes	RNP Positional Change
Edit		Yes	N/A	Yes	Yes				

Save

Case | Clinical | Modalities | Alerts/PedScrew | Safety | Remote Log | Anesth | Billing | Attachments | Interp Rpt

Case Clinical Medications Alerts/PedScreen Safety Remote Log Anesth Billing Attachments Interp Rpt

Case Documentation System (CDS)

Return to Search

Case ID 100000927513 Patient Name Goodwin, Crystal

Save

Induction Agents

Date 07/28/2016 Time Agent Dosage Unit

Comments Enter

Edit	Event Date	Event Time	Induction Agent	Dosage	Unit	Comments
Edit	07/28/2016	7:30AM	Propofol	200	mg	

Maintenance / Infusion Agents

Date 07/28/2016 Time Agent Dosage Unit

Comments Enter

Edit	Event Date	Event Time	Infusion Agent	Dosage	Unit	Comments
Edit	07/28/2016	8:10AM	Propofol	125	mcg/kg/min	

Inhalation Agents

Date 07/28/2016 Time Agent Level

Comments Enter

Edit	Event Date	Event Time	Inhalation Agent	Level	Comments
Edit	07/28/2016	8:10AM	Sevoflurane	0.9	

Train of Four

Date 07/28/2016 Time Train of Four Ratio

Comments Enter

Edit	Event Date	Event Time	Train of Four	Ratio	Comments
Edit	07/28/2016	7:53AM	4	1.0 (or higher)	ToF 4/4 at BL, muscle relaxants given for exposure, see summary for individual test times and results.

Blood Pressure

Date 07/28/2016 Time Systolic Diastolic Cuff/Artline

Comments Enter

Edit	Event Date	Event Time	Systolic	Diastolic	Cuff/Artline	MAP	Comments
Edit	07/28/2016	8:10AM	119	63	Cuff	95.00	

HCT

Date 07/28/2016 Time HCT

Comments Enter

Edit	Event Date	Event Time	HCT	Comments
Edit				

Temperature

Date 07/28/2016 Time Temperature

Comments Enter

Edit	Event Date	Event Time	Temperature	Comments
Edit	07/28/2016	8:10AM	35.6	

Save

Case | Clinical | Modalities | Alerts/PedScrew | Safety | Remote Log | Anesth | Billing | Attachments | Interp Rpt

Case Clinical Modalities Alerts/PeaScrew Safety Remote Log Anesth Billing Attachments Interp Rpt

Case Documentation System (CDS)

Return to Search

Case ID 100000927513 **Patient Name** Goodwin, Crystal

Billing Information

Scheduled Start	7:30AM	**First Contact with Patient** 7:05AM	Save
Clinician Arrival	6:24AM	**Clinician Departure** 12:45PM	Billing Submit
Pt. In Room	7:24AM	**Pt. Out Room** 11:49AM	Create Billing Sheet
First Electrode Placed	7:35AM	**Last Electrode Removed** 11:15AM	
IONM Recordings Started	7:53AM	**IONM Recordings Concluded** 11:00AM	
Post Baselines	8:03AM		
Skin Incision	8:08AM	**Skin Closed** 11:02AM	
Anesthesia Start	7:19AM	**Anesthesia Stop** 11:54AM	

**All times must be based on the same clock used by OR staff **Time Format: 1525 or 0325PM

Billable Hours 5.00

Charges / Disposables

Charges

*Item ID	Description	Quantity	UOM	Comments	Status
750000		5.00			
750402	IONM Supplies-Per Case	1.00	EA		

Disposables

*Inv BU	Item ID	Description	No SC Disp Used	Lot	Serial Nbr	Quantity	UOM	Comments	Status
8594C	10004649	"DNO" Single Needle Electrode,				1	EA		
8594C	10006551	Paired Twisted Needle Electro				6	PR		
8594C	10006552	6 Lead Twisted Needle Electro				1	EA		
8594C	10007488	Paired Surface Sticky Electrod				2	PK		

Comments

Neurophysiologic Tests Performed

CPT Code	Services Rendered	Units	Explanation of Use
IONM	Intraoperative neurophysiology testing		Do not use for Functional cortical / subcortical mapping - Use Codes 95961 / 95962

Somatosensory Evoked Potentials

CPT Code	Professional Services Rendered	Units	Explanation of Use
95925	Short-latency somatosensory evoked potential study, stimulation of any/all peripheral nerves or skin sites, recording from the central nervous system; in upper limbs		Use if monitoring upper extremity SSEPs or upper extremity dermatomal SSEPs or upper extremity Phase Reversal mapping. Do not use if monitoring lower extremity SSEPs as well
95926	Short-latency somatosensory evoked potential study, stimulation of any/all peripheral nerves or skin sites, recording from the central nervous system; in lower limbs		Use if monitoring lower extremity SSEPs or lower extremity dermatomal SSEPs or lower extremity Phase Reversal mapping. Do not use if monitoring upper extremity SSEPs as well
	Short-latency somatosensory evoked		Use for epidural SSEPs, Neurogenic EPs, or

95927	potential study, stimulation of any/all peripheral nerves or skin sites, recording from the central nervous system: In the trunk or head		other intra-spinal somatosensory evoked potential recording including dorsal column stimulator mapping and trigeminal evoked potentials
95938	Short-latency somatosensory evoked potential study, stimulation of any/all peripheral nerves or skin sites, recording from the central nervous system; in upper and lower limbs.		Use if monitoring upper AND lower extremity SSEPs and/or dermatomal SSEPs with or without phase reversal. DO NOT USE 95925 and 95926

Transcranial Motor Evoked Potentials

CPT Code	Professional Services Rendered	Units	Explanation of Use
95928	Central motor evoked potential study (transcranial motor stimulation); upper limbs		Use if monitoring tceMEPs of upper extremity muscles and/or cervical D-waves ONLY Do not use if monitoring lower extremity tceMEPs as well
95929	Central motor evoked potential study (transcranial motor stimulation); lower limbs		Use if monitoring tceMEPs of lower extremity muscles and/or thoracic D-waves ONLY Do not use if monitoring upper extremity tceMEPs as well
95939	Central motor evoked potential study (transcranial motor stimulation) in upper and lower limbs		Use if monitoring tceMEPs from upper AND lower extremity muscles and/or cervical and thoracic D-waves DO NOT USE 95928 and 95929
95870	Electromyography; limited study of muscles in one extremity or non-limb (axial) muscles (unilateral or bilateral), other than thoracic paraspinal, cranial nerve supplied muscles, or sphincters		Use this code for TceMEPs from the external anal sphincter muscle.

Auditory & Visual Evoked Potentials

CPT Code	Professional Services Rendered	Units	Explanation of Use
92586	Auditory evoked potentials for evoked response audiometry and/or testing of the central nervous system; limited		Use anytime you record BAERs unilaterally.
92585	Auditory evoked potentials for evoked response audiometry and/or testing of the central nervous system; comprehensive		Use anytime you record a BAERs bilaterally.
92584	Electrocochleography		Use when doing direct 8th nerve recordings
95930	Visual evoked potential (VEP) testing central nervous system, checkerboard or flash		Use anytime you record an intraoperative VEP.
92270	Electro-oculography with interpretation and report		Use anytime you record eye movement EXCEPT for when you're monitoring CN III, IV, and VI or their respective nuclei

Neuromuscular Junction Testing (NMJ) & Stimulus

CPT Code	Services Rendered	Units (or Left)	Explanation of Use
95937	Neuromuscular junction testing (repetitive stimulation, paired stimuli), each nerve, any one method		(# Nerves Stimulated) Use for TOF monitoring. # Units= # nerves stimulated, e.g. Lt Ulnar & PTN TOF=2 units. TOF from both UE & LE=4 units.
51792	Stimulus evoked response (eg, measurement of bulbocavernosus reflex latency time)		Use whenever doing BCR Recordings (eg during cauda equina surgery or sacral plexus surgery).
92516	Facial nerve function studies (e.g electroneuronography)		Peripheral facial nerve monitoring using electroneuronography (eg parotidectomies)
NCS	Nerve conduction studies		(# Nerves Stimulated) Use for all direct and indirect nerve stimulated EMG EXCEPT pedicle screw testing. (1) Sensory or Motor Spinal Roots and Cranial Nerves stimulated directly (1 unit per nerve) OR 2) Sensory and Motor cranial / spinal nerves identified through Indirect stimulation (e.g. through tumor), OR 3) CNAPs from peripheral nerves*SEE FAQs* for details about how to count # nerves identified. If spEMG was performed, also select 95885, 95886, and 95887 as appropriate

Goodwin_SpecialtyCare_0017

ROA_2810

95885	Needle electromyography; each extremity, with related paraspinal areas, when performed, done with nerve conduction, amplitude and latency / velocity study; limited	(# Limbs) Use in conjunction with NCS when recording from 4 or fewer muscles in one limb, or when assessing 2 or fewer nerves / 3 or fewer spinal nerve levels. Do not use for thoracic stEMG or CN EMG.
95886	Needle electromyography; each extremity, with related paraspinal areas, when performed, done with nerve conduction, amplitude and latency / velocity study; complete, five or more muscles studied, innervated by three or more nerves or four or more spinal levels	(# Limbs) Use in conjunction with NCS when recording from 5 or more muscles in one limb, or when recording from multiple muscles bilaterally if innervated by 3 or more nerves or 4 or more spinal levels. Do not use for thoracic stEMG or CN EMG.
95887	Needle electromyography; non-extremity (cranial nerve supplied or axial) muscle(s) done with nerve conduction, amplitude and latency / velocity study (List separately in addition to code for primary procedure)	Use in conjunction with NCS when recording from spEMG + stEMG from non limb muscles such as from cranial nerve innervated muscles, thoracic/abdominal muscles or anal sphincter.
95905	Motor and/or sensory nerve conduction, using preconfigured electrode array (s), amplitude and latency/velocity study, each limb includes F-Wave Study	(# Limbs) Use for intraoperative F-wave or H-reflex Recording.

EEG Electroencephalography/Cortical Mapping

CPT Code	Professional Services Rendered	Units	Explanation of Use
95812	Electroencephalogram (EEG) extended monitoring 41-60 minutes.		Use for EEG monitoring for 1st 41-60min any time there is significant risk for changes in cerebral perfusion ,(Intracranial AVMs / Aneurysms / Tumors / Chiaria, Spine Cases with high risk for cerebrovascular compromise) EXCEPT during carotid / cardiac / aortic aneurysm cases (use 95955 for those). Also select 95813 if EEG monitoring >1hr
95813	Electroencephalogram (EEG) extended monitoring greater than 1 hour.		Use for EEG monitoring > 1 hour any time there is significant risk for changes in cerebral perfusion ,(Intracranial AVMs / Aneurysms / Tumors / Chiaris, Spine Cases with high risk for cerebrovascular compromise) EXCEPT during carotid / cardiac / aortic aneurysm cases (use 95955 for those). Also select 95812
95955	Electroencephalogram (EEG) during non intracranial surgery: (e.g. Carotid Surgery)		Use for EEG monitoring: 1) carotid artery surgery 2) cardiac 3) aortic aneurysm surgery. All other cases where EEG is used to monitor cerebral perfusion use 95813
95961	Functional cortical and subcortical mapping by stimulation and/or recording of electrodes on brain surface, or of depth electrodes, to provoke seizures or identify vital brain structures; initial hour		Use for motor, sensory and/or speech cortex mapping: 1) direct cortical stimulation with tceMEPS, 2) direct cortical stimulation for speech/language arrest, 3) deep brain stimulation for Parkinsons or other movement disorders. 1st Hr. Only - additional hours use 95962; DO NOT USE 95920
95962	Functional cortical and subcortical mapping by stimulation and/or recording of electrodes on brain surface, or of depth electrode each additional hour.		Same as 95961. Use 95961 for the first hour Units = total time minus 1 hour. 1st hour charge is CPT 95961; DO NOT USE 95920
95829	Electrocorticogram at surgery (separate procedure)		Use for cases involving electrocorticography for identification of seizure foci during epilepsy surgery.

Transcranial Doppler

CPT Code	Professional Services Rendered	Units	Explanation of Use
93888	Transcranial Doppler study of the intracranial arteries; Limited Study		Use when recording TCD during cardiac or other vascular surgery or during neurosurgery for management of cerebral aneurysm OR in the ICU.

Electromyography (EMG)

CPT Code	Professional Services Rendered	Units	Explanation of Use
95870	Electromyography; limited study of muscles in one extremity or non-limb (axial) muscles (unilateral or bilateral), other than thoracic paraspinal, cranial nerve supplied muscles, or sphincters		(# Limbs Monitored)Use for spEMG monitoring or pedicle screw testing when recording from 4 or fewer muscles in one limb, or when assessing 2 or fewer nerves / 3 or fewer spinal nerve levels. Bill 1 unit per limb. DO NOT USE THIS CODE if you also did direct nerve stEMG (use code 95885)

Goodwin_SpecialtyCare_0018

ROA_2811

95870	Electromyography: limited study of muscles in one extremity or non-limb (axial) muscles (unilateral or bilateral), other than thoracic paraspinal, cranial nerve supplied muscles, or sphincters	Use for spEMG monitoring for thoracic nerve roots and/or pedicle screws testing (intercostals, rectus abdominis, external / internal obliques). DO NOT USE THIS CODE if you also did direct nerve stEMG (use code 95887)
95860	Electromyography: One Extremity with or without paraspinal areas	Use for spEMG or pedicle screw testing from 5 or more muscles in ONE Upper or Lower extremity (e.g. spEMG monitoring during peripheral nerve surgery, shoulder surgery, etc. DO NOT USE THIS CODE if you also did direct nerve stEMG (use code 95886)
95861	Electromyography: Two Extremities with or without paraspinal areas	Use for spEMG or pedicle screw testing from 5 or more muscles PER limb. If less than 5 muscles PER limb use 95870 with 2 units. DO NOT USE THIS CODE if you also did direct nerve stEMG (use code 95886)
51785	Electromyography of anal or urethral sphincter, any technique.	Use for spEMG from anal sphincter muscles with subdermal needle electrodes (lumbosacral surgeries). DO NOT USE THIS CODE if you also did direct nerve stEMG (use code 95887)
51784	Electromyography of anal or urethral sphincter other than needle, any technique.	Use for spEMG from the anal or urethral sphincter muscles (lumbosacral surgeries) with foam anal plug electrode, urethral catheter electrode, etc. DO NOT USE THIS CODE if you also did direct nerve stEMG (use code 95887)
95869	Electromyography: Thoracic paraspinal muscles (excluding T1 or T12)	Use for spEMG monitoring from thoracic paraspinal muscles only. DO NOT USE THIS CODE in conjunction with 95907 - 95913. For spEMG from abdominal wall (rectus abdominis, external / internal obliques) or intercostals, use 95870
95863	Electromyography: Three Extremities with or without paraspinal areas	Use for spEMG or pedicle screw testing from 5 or more muscles PER limb. If less than 5 muscles PER limb use 95870 with 3 units. DO NOT USE THIS CODE if you also did direct nerve stEMG (use code 95886)
95864	Electromyography: All Four Extremities with or without paraspinal areas	Use for spEMG or pedicle screw testing from 5 or more muscles PER limb. If less than 5 muscles PER limb use 95870 with 4 units. DO NOT USE THIS CODE if you also did direct nerve stEMG (use code 95886)
95865	Electromyography: muscles of the larynx	Use for spEMG from laryngeal muscles for thyroidectomy, ACD, posterior fossa tumors, etc . DO NOT USE THIS CODE if you also did direct nerve stEMG (use code 95887)
95867	Electromyography: cranial nerve supplied muscle(s), unilateral	spEMG monitoring of all CN supplied muscles monitored unilaterally (except CN 3,4,6 see 92265 or CN10 see 95865). DO NOT USE THIS CODE if you also did direct nerve stEMG (use code 95887)
95868	Electromyography: cranial nerve supplied muscle(s), bilateral	Use for spEMG monitoring of all CN supplied muscles monitored bilaterally (except CNs 3, 4,6 see 92265 or 10 see CPT 95865). DO NOT USE THIS CODE if you also did direct nerve stEMG (use code 95887)
92265	Needle oculoelectromyography , one or more extraocular muscles, one or both eyes, with interpretation and report	Use for spEMG from extraocular muscles when monitoring any or all upper CNs 3,4, 6 during posterior fossa surgery. DO NOT USE THIS CODE if you also did direct nerve stEMG (use code 95887)
95866	Electromyography: Hemidiaphragm	Use for spEMG from electrodes placed by surgeon into the diaphragm. DO NOT USE THIS CODE if you also did direct nerve stEMG (use code 95887)

CPT Code	Professional Services Rendered	Units	Explanation of Use
95970	Electronic analysis of implanted neurostimulator pulse generator system; simple or complex brain, spinal cord, or peripheral neurostimulator pulse generator/transmitter, without reprogramming		FOR CLINICAL STUDIES ONLY - Office programming of stimulator

Goodwin_SpecialtyCare_0019

ROA_2812

95971	Electronic analysis of implanted neurostimulator pulse generator system; simple spinal cord, or peripheral neurostimulator pulse generator/transmitter, with intraoperative or subsequent programming	FOR CLINICAL STUDIES ONLY - Office programming of stimulator
95972	Electronic analysis of implanted neurostimulator pulse generator system; complex spinal cord, or peripheral neurostimulator pulse generator/transmitter, with intraoperative or subsequent programming, first hour	FOR CLINICAL STUDIES ONLY - Office programming of stimulator
95973	Electronic analysis of implanted neurostimulator pulse generator system; complex spinal cord, or peripheral; complex brain, spinal cord, or peripheral neurostimulator pulse generator/transmitter, with intraoperative or subsequent programming, additional 30 minutes after hour	FOR CLINICAL STUDIES ONLY - Office programming of stimulator
95885	Needle electromyography : each extremity, with related paraspinal areas, when performed, done with nerve conduction, amplitude and latency/velocity study; limited	FOR CLINICAL STUDIES ONLY - Use in conjunction with 95907-95913 when recording from 4 or fewer muscles in each limb. Do not use for thoracic stEMG or CN EMG
95886	Needle electromyography:each extremity, with related paraspinal areas, when performed, done with nerve conduction, amplitude and latency/velocity study; complete, five or more muscles studied, innervated by three or more nerves or four or more spinal levels	FOR CLINICAL STUDIES ONLY - Use in conjunction with 95907-95913 when recording from five or more muscles, innervated by three or more nerves or four or more spinal levels. Do not use for thoracic stEMG or CN EMG
95887	Needle electromyography : non-extremity (cranial nerve supplied or axial) muscle(s) done with nerve conduction, amplitude and latency/velocity study (List separately in addition to code for primary procedure)	FOR CLINICAL STUDIES ONLY - Use in conjunction with 95907-95913 when recording from spEMG + stEMG from cranial nerve, thoracic/abdominal muscles or anal sphincter
NCS	Nerve conduction studies	(# Nerves Stimulated) Use for all direct and indirect nerve stimulated EMG EXCEPT pedicle screw testing: (1) Sensory or Motor Spinal Roots and Cranial Nerves stimulated directly (1 unit per nerve) OR 2) Sensory and Motor cranial / spinal nerves identified through indirect stimulation (e.g. through tumor). OR 3) CNAPs from peripheral nerves*SEE FAQs* for details about how to count # nerves identified. If spEMG was performed, also select 95885, 95886, and 95887 as appropriate
95999	Unlisted neurological or neuromuscular diagnostic procedure	Use when performing DSEPs per nerve root. Or specify in the notes section other specific testing not found in other sections above.

Goodwin_SpecialtyCare_0020

ROA_2813

PALMETTO HEALTH BAPTIST

TAYLOR AND MARION ST
COLUMBIA, SC 29220

INPATIENT ADMISSION FORM

PATIENT ACCOUNT NO.	SERVICE DATE & TIME	DISCHARGE DATE & TIME	PT TYPE	AC	SV CODE	ADMIT SOURCE	TYPE	FIN CLASS	STATION	ROOM	BED	MEDICAL RECORD NO.
1620200813	07/28/2016 00:30		PAB		SUR	1	3	72	OPS			000275536

ACCIDENT TYPE	ACCIDENT DATE & TIME	DENOMINATION	CHURCH	PUBLICITY	LIVING WILL
		None	NONE	YES DIRECTORY	No

NAME AND ADDRESS
GOODWIN, CRYSTAL JAQUAY
903 GREENLAWN DRIVE
COLUMBIA SC 29209

SOCIAL SECURITY NUMBER: 251492070
COUNTY: Richland
PHONE: (803)743-9407

EMPLOYER: UNEMPLOYED
OCCUPATION: UNEMPLOYED
STATUS: Not Employed
PHONE:

SEX	RACE	MARITAL STATUS	DATE OF BIRTH	AGE	DATE OF LAST VISIT	MOTHER'S MAIDEN NAME	PLACE OF BIRTH
F	81	M	03/02/1978	38Y	05/14/2014	JACKSON	SC

GUARANTOR NAME AND ADDRESS
GOODWIN, CRYSTAL JAQUAY
903 GREENLAWN DRIVE
COLUMBIA SC 29209

SOCIAL SECURITY NUMBER: 251-49-2070
RELATIONSHIP: Self
PHONE: (803)743-9407

GUARANTOR EMPLOYER: UNEMPLOYED
OCCUPATION: UNEMPLOYED
STATUS: Not Employed
PHONE:

NOTIFY IN CASE OF EMERGENCY
GOODWIN' JAMES D
903 GREENLAWN DRIVE
COLUMBIA SC 29209

RELATIONSHIP: Spouse
PHONE: (803)743-9407

NEXT OF KIN:
RELATIONSHIP:
PHONE:

INSURANCE 1
BCBS PPC/PREFERRED BLUE
GOODWIN, JAMES D
ZCW052657245612
PO BOX 100300
COLUMBIA SC 29202
INSURED DOB: 03/23/1978

INSURANCE 2
1500 BCBS PPC
GOODWIN, JAMES D
ZCW052657245612
PO BOX 100300
COLUMBIA SC 29202
INSURED DOB: 03/23/1978

INSURANCE 3
INSURED DOB:

INSURANCE 4
INSURED DOB:

ADMITTING DIAGNOSIS/CHIEF COMPLAINT: THORACIC STENOSIS
DATE OF LAST VISIT: 05/14/2014

ADMITTING PHYSICIAN: 437 HOLBROOK, THOMAS J JR
ADM PHY PHONE: (803)794-3700

ORGAN DONOR: N
Shared Care Physician:
Primary Care Physician:

THIS SECTION FOR INPATIENT USE (ER/OUTPATIENT OPTIONAL)

FINAL DIAGNOSIS
HX RESISTANT ORG

DATE	OPERATION/SPECIAL PROCEDURES

CONSULTATION WITH

CODE NUMBER

DRG DATA
PROVISIONAL DRG:
ALOS:
DATE ASSIGNED:
DISCHARGE STATUS:
PROJECTED
1.= HOME/SELF CARE (ROUTINE)
2.= ANOTHER SHORT TERM GENERAL HOSPITAL
3.= SNF
4.= ICF
5.= HOSPITAL OTHER THAN SHORT TERM
6.= HOME WITH HOME HEALTH CARE SERVICE AID
FINAL
1.= HOME/SELF CARE (ROUTINE)
2.= ANOTHER SHORT TERM GENERAL HOSPITAL
3.= SNF
4.= ICF
5.= HOSPITAL OTHER THAN SHORT TERM/GENERAL
6.= HOME WITH HOME HEALTH CARE SERVICE AID
7.= LEFT AMA
20.= EXPIRED

RESULTS
RECOVERED
NOT TREATED
IMPROVED
NOT IMPROVED
DIED UNDER 48 HOURS
DIED OVER 48 HOURS
AUTOPSY

INFECTIONS
NOSOCOMIAL
POST-OP
OTHER
COMMUNITY ACQUIRED

"I certify that the narrative descriptions of the principal and secondary diagnoses and the major procedures performed are accurate and complete to the best of my knowledge."

DATE _____ ATTENDING PHYSICIAN _____

Printed on 07/21/2016 06:31 AM

Goodwin_SpecialtyCare_0021

PALMETTO HEALTH
HISTORY and PHYSICAL

GOODWIN, CRYSTAL JAQUAY
B1620200813
MR 000275536 HOLBROOK, THOMAS
03/02/1978 38Y F

* **Name** _____ **Age** _____ **Sex** _____
* **Chief Complaint** Back and leg pain
* **History of Present Illness (Onset, Duration, Cause)** Left knee pain exacerbated by standing for long periods of time.

Family History Non-contributory
Habits and Social History Never-smoker, married
* **Past Medical History(Injuries, Operations, etc)** HTN, Arthritis
* **Review of Systems** Negative
* **Allergies** NKDA
* **Current Medications** _____

* **Physical Exam** **Temp** _____ **Pulse** _____ **Resp** _____ **BP** _____ **Weight** _____
HEENT NC/AT
* **Mental Status (Alert, Oriented, etc)** A+Ox3. Speech is clear
* **Heart & Lungs** RRR; CTAB
Abdomen Normal Active Bowel sound
Genitourinary _____
Breast _____
Extremities: _____
Labs: _____
Other Pertinent Findings S/S pain in upper + lower. Sensation intact. No SOB

Indication for Surgical Procedure Failed Conservative Treatment
Informed Consent Discussed prior to procedure, if indicated: Yes ✓ **NA** _____
* **Admitting Diagnosis** Thoracic Stenosis
* **Plan** Thoracic Decompression T9-T12
Physician Signature Marissa Kelly MD/ **Date/Time** 7/22/16 / 7:05 AA

* **DENOTES REQUIRED INFORMATION**

10026Smr r2/03 r5/14 r7/14

PH80

SpecialtyCare
partners for life

CONSENT FOR TREATMENT - ASSIGNMENT OF BENEFITS - AUTHORIZATION

Informed Consent for Intraoperative Neurophysiological Monitoring (IONM)

1. The nature, purpose, benefits, and risks of IONM have been explained to me by the clinician. We also discussed possible alternatives to IONM. No guarantee or assurance has been given as to the results that may be obtained.

2. IONM, as with all medical procedures, is not without risk. The potential risks, which have been explained to me, include, but may not be limited to, seizure, skin burn/tear, tongue bite, dental damage, hematoma/bruising, infection, missed detection of neurologic injury/paralysis/neurologic loss, and device malfunction/failure.

3. This procedure may include remote neuromonitoring by a physician or other neuromonitoring professional utilizing telemedicine and working with a neurophysiologist who will be in the operating room. The potential risks associated with telemedicine, which have been explained to me, include, but may not be limited to, information transmitted may not be sufficient to allow for appropriate medical decision making, delays in treatment could occur due to deficiencies or failure of equipment, software or connectivity, security protocols could fail which may result in unintended disclosure of my confidential medical information, and a *lack of access to complete medical records that may result in errors in medical judgment.*

4. I recognize that unforeseen conditions arising during the course of IONM may necessitate additional or different procedures or an extension of IONM. I further authorize and request that such additional or different procedures as are clinically appropriate be performed on me.

5. Having read this form and talked to the clinician, my signature below acknowledges that I voluntarily give my authorization and consent for IONM.

6. The foregoing information has been explained to me in terms that I understand and I have been given an opportunity to ask questions.

X _____	X _____	X _____
Patient/Authorized Party Signature	Clinician	Signature Witness
Print Name: Crystal Goodwin	Print Name: Teresa Adkins CNIM	Print Name: Mauricio Rila/
Date: 7/28/16 Time: 7:09	Date: 7/28/2016 Time: 7:09	Date: 7/28/16 Time: 0709

If signed by person other than patient, relationship of Authorized Party: _____

If applicable, to be completed SpecialtyCare clinician:

Patient/Authorized Person unable to sign because: _____

Clinician name: _____ **Date:** _____ **Time:** _____

Financial Responsibility - Assignment of Benefits - Release of Records

I understand that my physician has ordered the services of SpecialtyCare and/or its affiliates (Active Diagnostics, Active Diagnostics of Nevada, Remote Neuromonitoring Physicians, SpecialtyCare IOM Services, and Surgical Monitoring Associates (collectively, "Providers")) to provide IONM during my procedure. Regarding the IONM services, I hereby assign to Providers all medical benefits, insurance reimbursement, and fiduciary duty and other legal claims concerning medical expenses incurred. I hereby authorize and direct my insurance carrier(s), including private insurance and any other health/medical plan, to issue payment check(s) directly to Providers for medical services rendered to myself and/or my dependents regardless of my insurance benefits, if any. I understand that I am responsible for any amount not covered by insurance, including, but not limited to, deductible and co-insurance amounts, and any increased financial obligations if Providers are out-of-network. I hereby authorize the release by Providers of my medical records to my insurer(s) for claims processing purposes, and to my referring physician and other healthcare providers involved in my care.

X _____ Date: 7/28/16 Time: 7:09
Patient/Authorized Party Signature

Medicare Authorization of Benefits

I hereby authorize Providers to file claims to Medicare and I authorize Medicare to issue payment check(s) directly to Providers for eligible, covered medical services rendered to me and acknowledge personal responsibility to pay for related non-covered deductible and co-insurance amounts due, if any up to the Medicare allowable amount. I hereby authorize the release by Providers of my medical records to Medicare for claims processing purposes, and to my referring physician and other healthcare providers involved in my care. I permit a copy of this authorization to be used in place of the original.

X _____ Date: 7/28/16 Time: 7:09
Patient/Authorized Party Signature

Consent for Use and Disclosure of Information

I hereby give my consent for Providers to use and disclose protected health information ("PHI") about me to carry out treatment, payment and health care operations ("TPO"). I acknowledge that my de-identified PHI may be used by Providers or disclosed to third parties for research, educational and other purposes that are not TPO.

X _____ Date: 7/28/16 Time: 7:09
Patient/Authorized Party Signature

Florida Only: To report suspected Medicaid fraud, please call AHCA Medicaid Program Integrity toll-free at (888) 419-3456 or the Attorney General toll free at (866) 966-7226. To report a complaint regarding the services you receive, please call AHCA toll-free at (888) 419-3456. To report abuse, neglect, or exploitation, please call the Florida Abuse Hotline toll-free at (800) 962-2873. The AHCA license number for Remote Neuromonitoring Physicians, PC (RNP) is 9786 and the Medical Director for RNP is Dr. Jason Soriano.
Pursuant to Fla. Stat. §626.9892 the Department of Financial Services may pay rewards up to $25,000 to persons providing information leading to the arrest and conviction of persons committing crimes investigated by the Division of Insurance arising from violations of §§ 440.105, 624.15, 626.9541, 626.989 or 817.234, Fla. Stat.

Physician Order

I authorize Providers to perform IONM services for the above patient, which services I deem medically necessary.

X _____ Date: 7/28/16 Time: 1057
Physician Signature

GOODWIN, CRYSTAL JAQUAY
B1620200813
MR 000275536 HOLBROOK, THOMAS J JR
03/02/1978 38Y F

SpecialtyCare

Purchase Request

Date	07-27-2016
Hospital	Palmetto Health Baptist
City, State	Columbia, SC
Physician	Dr. Holbrook, MD

GOODWIN, CRYSTAL JAQUAY
S1620200813
MR 000275536 HOLBROOK, THOMAS J JR
03/02/1978 38Y F

	X	**Bill Only**
		Shelf Order
		Other
		Rush

Reference #	Lot #	Description	Qty.	Unit/Hrs	Price	Price Total
		IOM Time: Patient In 09:24	5.0	Hrs	$150.00	$500.00 (capped)
		Patient out 11:49				
		Supplies	1		$50.00	$50.00
					Total $	550.00

Please Submit to: SpecialtyCare IOM Services, LLC. Department 1614 P.O Box 11407 Birmingham, Al 35246-161614

Technologist:	Teresa N. Adkins, CNIM
Contact Number:	803-414-6404

Procedure:	Thoracic Lami Decomp T9-12
Chart #:	000275536
Comments:	SSEP, MEP, TOF

ROA_2817

Goodwin_SpecialtyCare_0024

Print Time: 7/28/2016 11:00:57

PATIENT INFORMATION REPORT

Personal

PATIENT ID:	072816-1	SEX:	Female	ADDRESS:	903 GREENLAWN DR
LAST NAME:	GOODWIN	DATE OF BIRTH:	03/02/1978	CITY:	COLUMBIA
FIRST NAME:	CRYSTAL	HEIGHT:		STATE:	SC
M.I.:	J.	WEIGHT:		ZIP:	29209
SSN:	251-49-2070	HOME PHONE:		CELL PHONE:	
MEDICAL REC.:	000275536				
PHYSICIAN:	Dr. Thomas J. Holbrook MD				

NOTES: dx: Thoracic stenosis
Thoracic lami decompression T9-T12
Remote Monitoring: Gregg, Herb E

Preop: no contraindications for MEP noted, pt states having a little bit of back pain, bilateral leg pain, bilateral numbness/tingling in legs and feet, pt denies pain/numbness/tingling in upper extremities.
Clinical hx: 38-year-old female w/ back pain and leg pain, left knee pain exacerbated by standing for long periods of time. pt returns for thoracic stenosis.

Pat: CRYSTAL GOODWIN
ID: 072816-1

SpecialtyCare TA Thoracolumbar

SUMMARY REPORT

Data Time: 7/28/2016 11:00:57
Print Time: 7/28/2016 11:00:57
Operator: Teresa N. Adkins, CNIM

06:58:19 Patient in room @»0724

06:58:21 Procedure:»Crystal Goodwin, dob 03.02.1978, CaseID: 100000927513, Thoracic lami decompression T9-T12

06:58:23 Modalities:»Surgeon and anesthesia consulted, surgeon accepted SSEP, MEP, Tof. MEP stimulated at surgeon's request only during procedure. Soft bite block placed by CRNA, CONFIRMED

06:58:27 Remote monitoring:»Gregg, Herb E

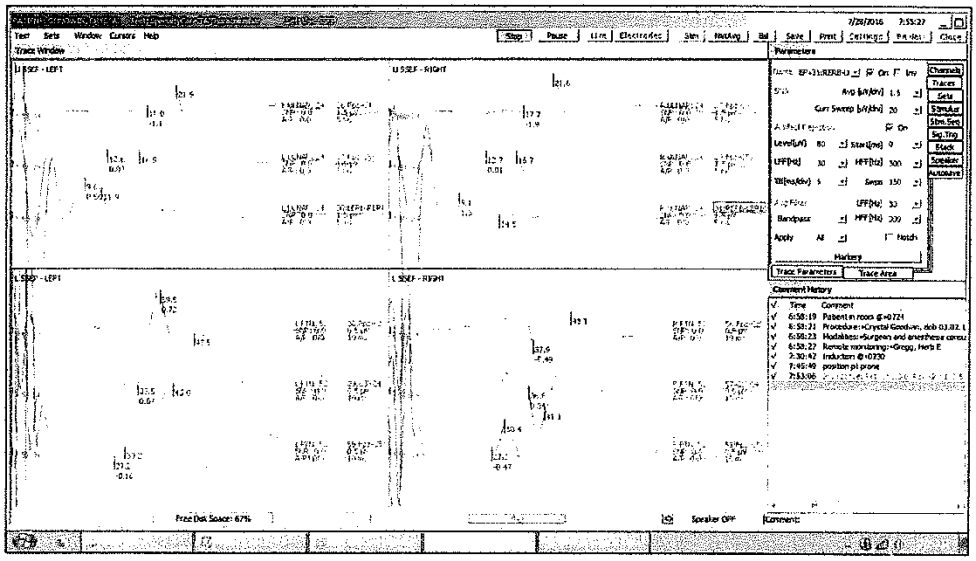
07:30:42 Induction @»0730

07:45:49 position pt prone

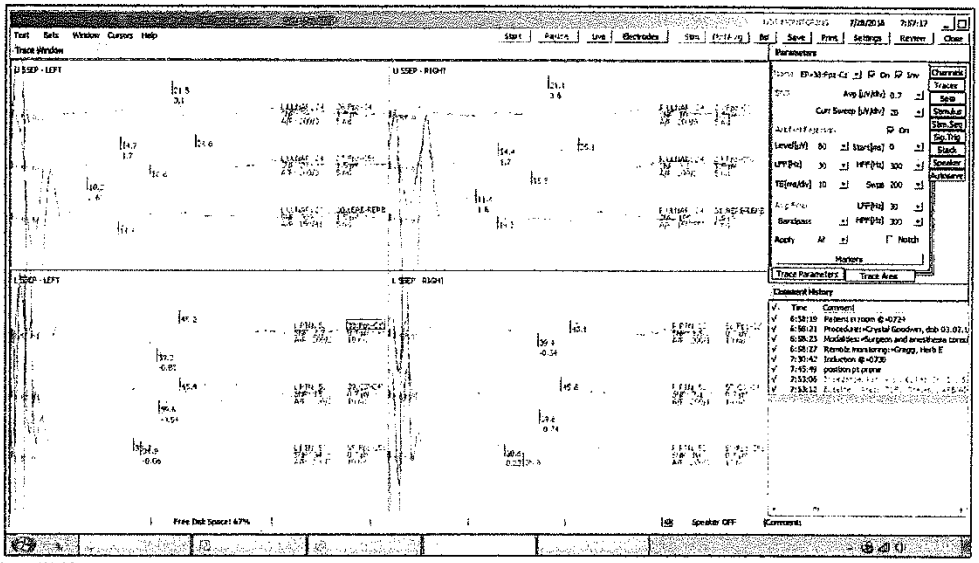
07:53:06 Impedance: Pat. Gnd:3.0, Pat. Gnd B:2.5,
Fpz:1.0, Cz':1.0, C3':1.1, C4':0.6, C5s:1.0, LERB:1.1, RERB:1.7,
LAPB:1.4, RAPB:1.2,
LADM:1.8, RADM:1.3,
LIc+:Open, LI+:Open, LRA+:Open, LSa+:Open, RIc+:Open, RI+:Open, RRA+:Open, RSa+:Open,
LIc-:Open, LI-:Open, LRA-:Open, LSa-:Open, RIc-:Open, RI-:Open, RRA-:Open, RSa-:Open,
LQ+:Open, LTA+:1.5, LAH+:1.1, ANS+:Open, RQ+:Open, RTA+:1.6, RAH+:1.0,
Lq-:Open, LTA-:2.6, LAH-:0.9, ANS-:Open, RQ-:Open, RTA-:2.9, RAH-:0.9,

07:53:12 Baseline.
Areas: TOF;
Traces: L APB/ADM[2], L APB/ADM[3], L APB/ADM[4], L APB/ADM

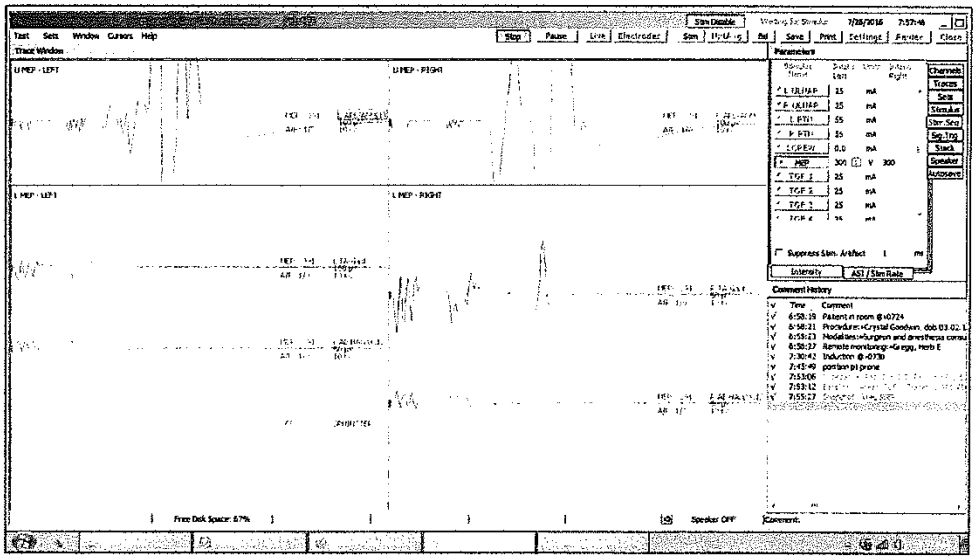
07:55:27 Snapshot - 'U+L SSEP'



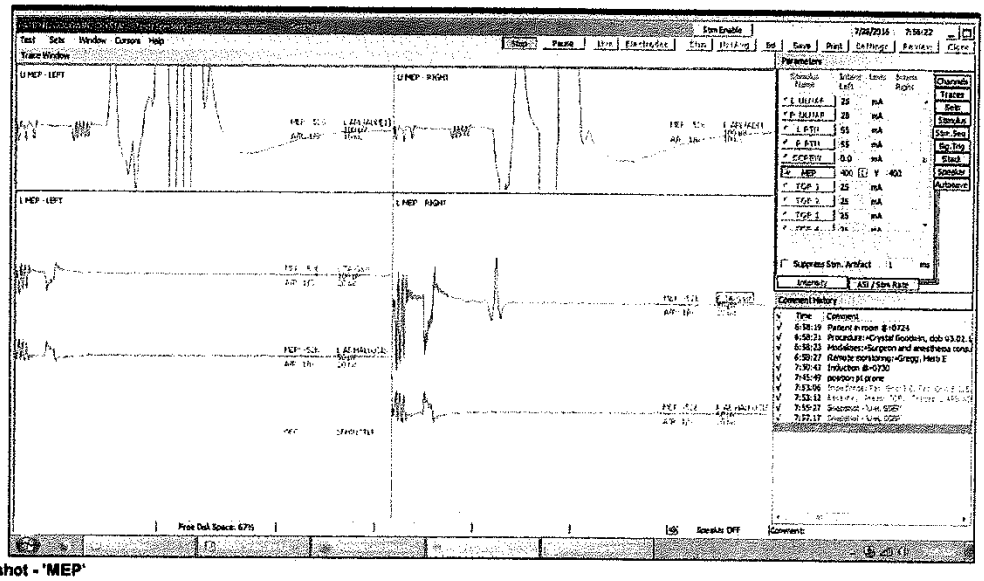
07:57:17 Snapshot - 'U+L SSEP'



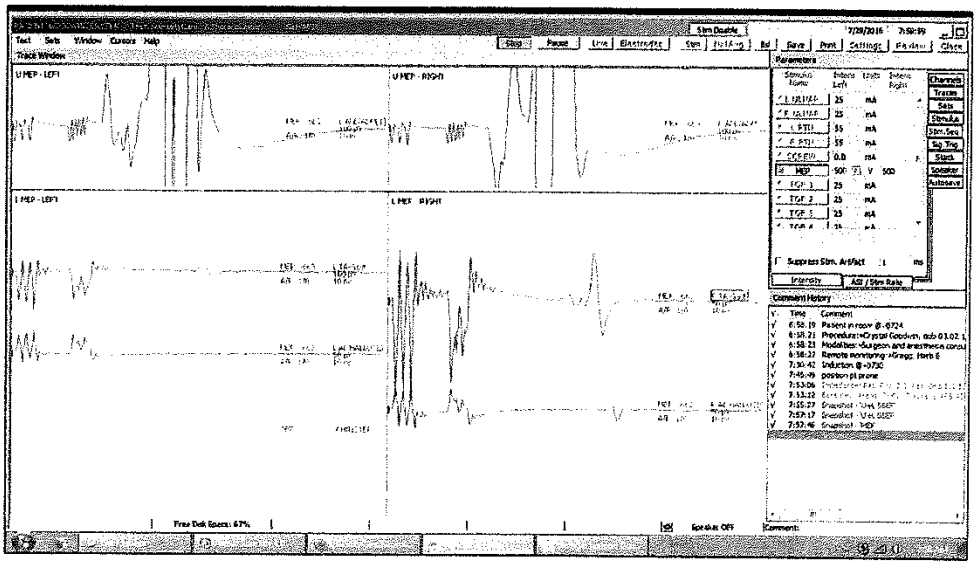
07:57:46 Snapshot - 'MEP'



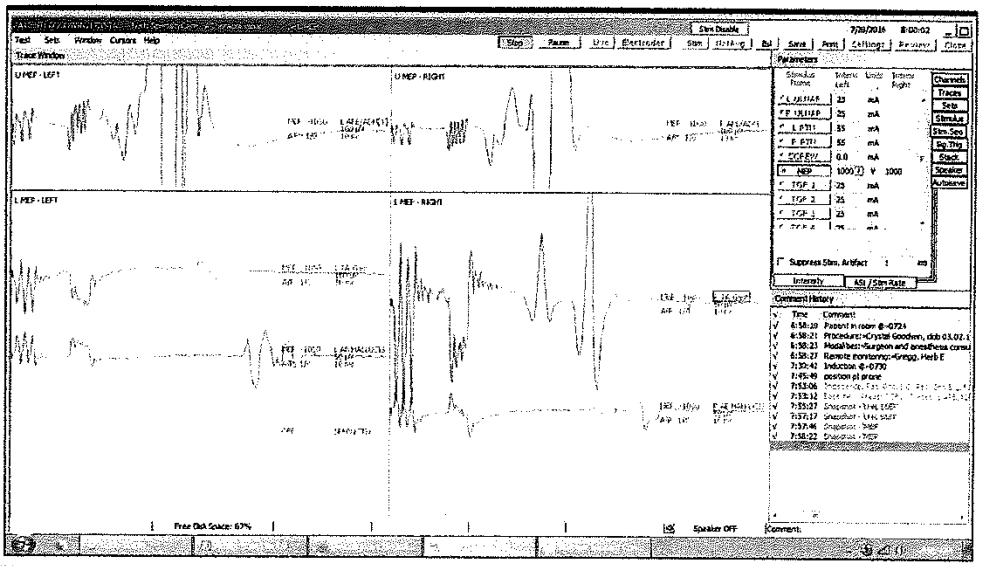
07:58:22 Snapshot - 'MEP'



07:58:59 Snapshot - 'MEP'



08:00:02 Snapshot - 'MEP'



08:00:06 Baseline.
Areas: U MEP, L MEP;
Traces: L APB/ADM[1], R APB/ADM, L TA-Gast, L AB HALLUCIS, R TA-Gast, R AB HALLUCIS

08:01:20 BL>SSEP reliable w/SNR>2 and amps 0.25uV or greater in all extremities. ToF 4/4, MEP present and reliable in all extremities.

BL reported, surgeon acknowledged

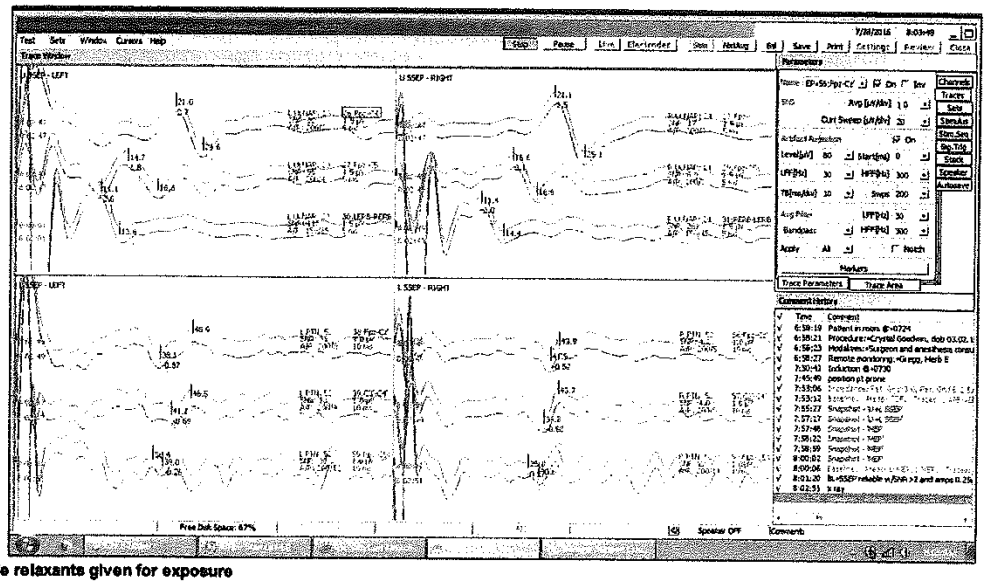
(07:57:25) Gregg, Herb said to you:
sseps present in all ext

(07:59:37) Gregg, Herb said to you:
meps present in bilateral upper ext. also with bilateral gastrocs - higher amplitude on the right

08:02:55 x ray

08:03:34 Baseline.
Areas: U SSEP, L SSEP;
Traces: 26:Fpz-C4', 27:Fpz-C5s, 28:Fpz-C3', 29:Fpz-C5s, 30:LERB-RERB, 31:RERB-LERB, 38:Fpz-Cz', 39:C3'-C4', 55:Fpz-C5s, 56:Fpz-Cz', 57:C3'-C4', 58:Fpz-C5s

08:03:49 Snapshot - 'U+L SSEP'

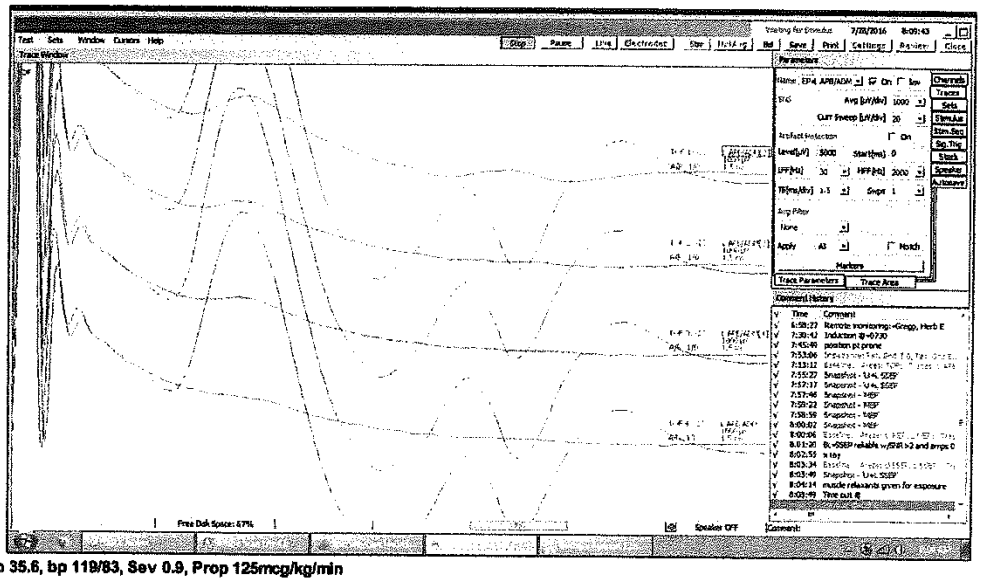


08:04:14 muscle relaxants given for exposure

08:08:49 Time out @

08:08:53 Incision @»0808

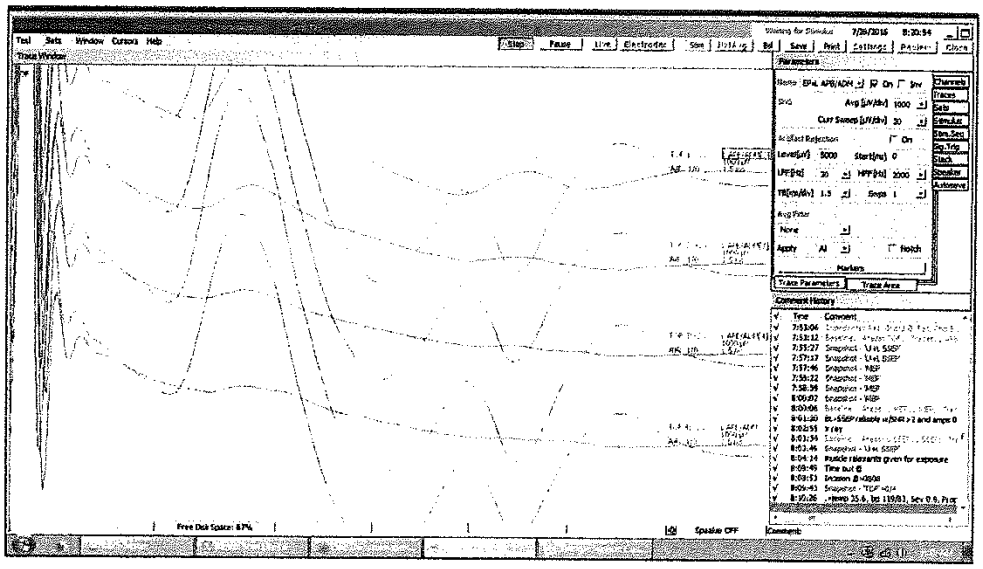
08:09:43 Snapshot - 'TOF'»0/4



08:10:26 .»temp 35.6, bp 119/83, Sev 0.9, Prop 125mcg/kg/min

08:14:45 exposure

08:20:54 Snapshot - 'TOF'=2/4

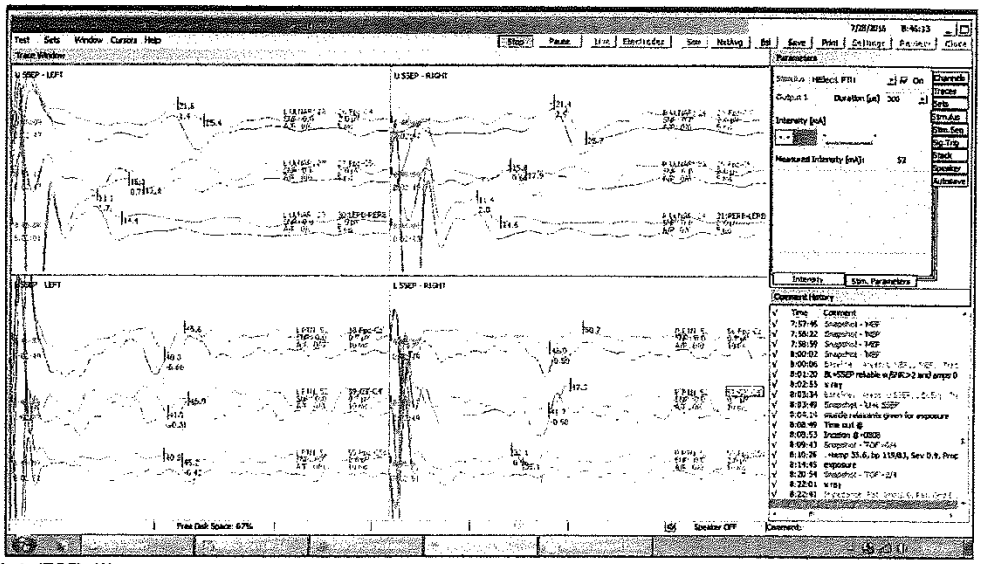


08:22:01 x ray

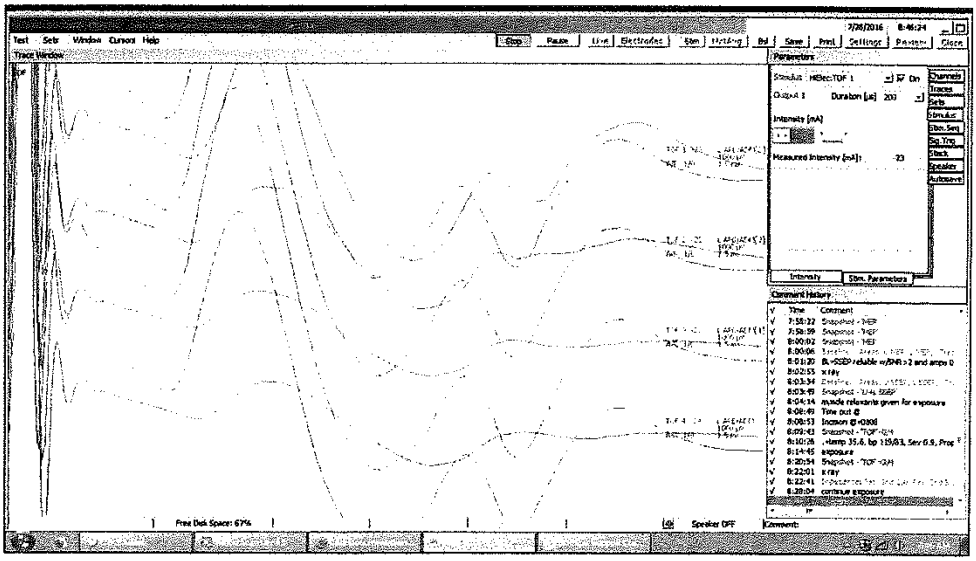
08:22:41 Impedance: Pat. Gnd:2.0, Pat. Gnd B:2.3,
Fpz:0.7, Cz':0.8, C3':0.7, C4':0.4, C5a:0.7, LERB:0.9, RERB:1.1,
LAPB:1.2, RAPB:0.9,
LADM:1.8, RADM:1.0,
Llc+:Open, Ll+:Open, LRA+:Open, LSa+:Open, Rlc+:Open, Rl+:Open, RRA+:Open, RSa+:Open,
Llc-:Open, Ll-:Open, LRA-:Open, LSa-:Open, Rlc-:Open, Rl-:Open, RRA-:Open, RSa-:Open,
LQ+:Open, LTA+:1.3, LAH+:1.0, ANS+:Open, RQ+:Open, RTA+:1.2, RAH+:1.1,
Lq-:Open, LTA-:2.7, LAH-:0.8, ANS-:Open, RQ-:Open, RTA-:2.4, RAH-:0.9,

08:26:04 continue exposure

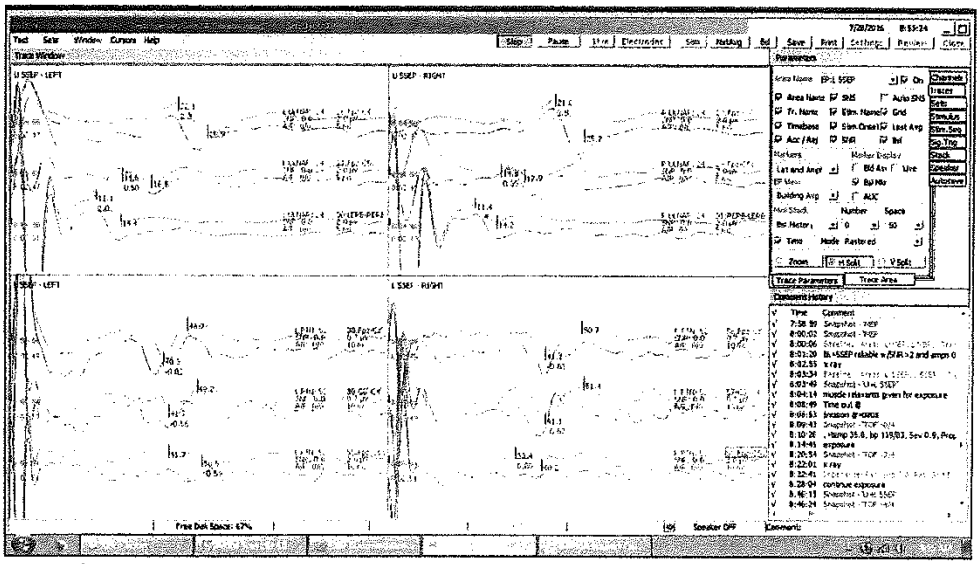
08:46:13 Snapshot - 'U+L SSEP'



08:46:24 Snapshot - 'TOF'x4/4

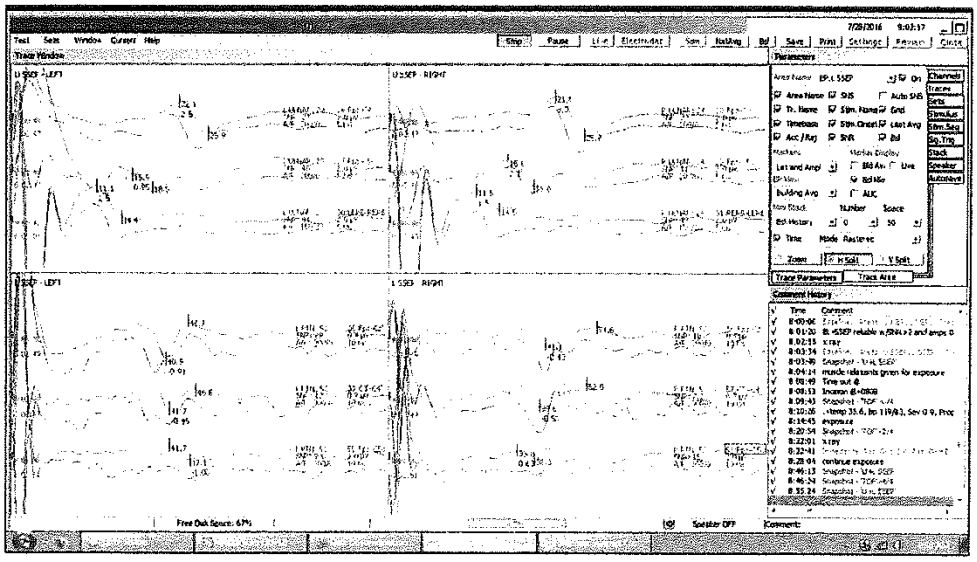


08:55:24 Snapshot - 'U+L SSEP'

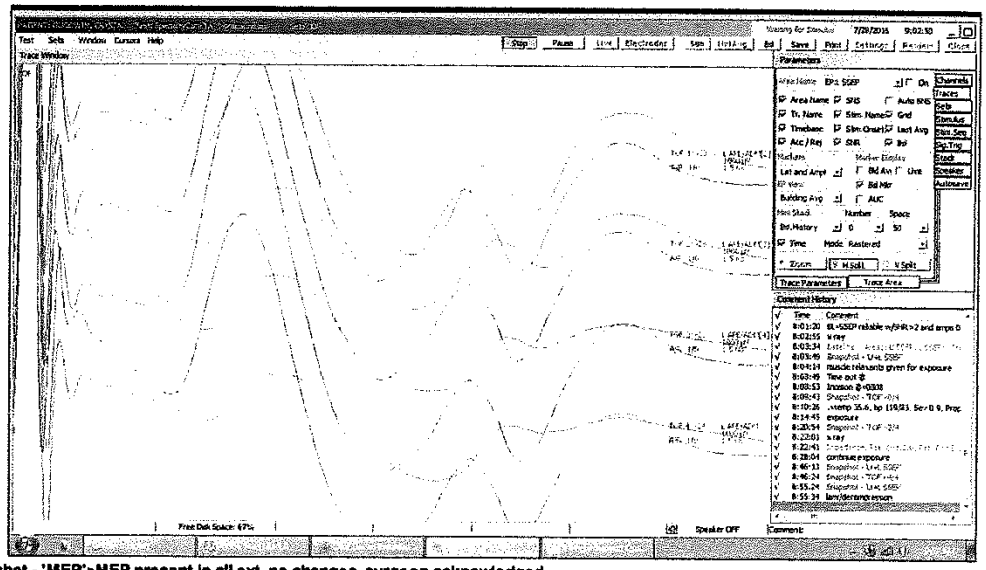


08:55:34 laml/decompression

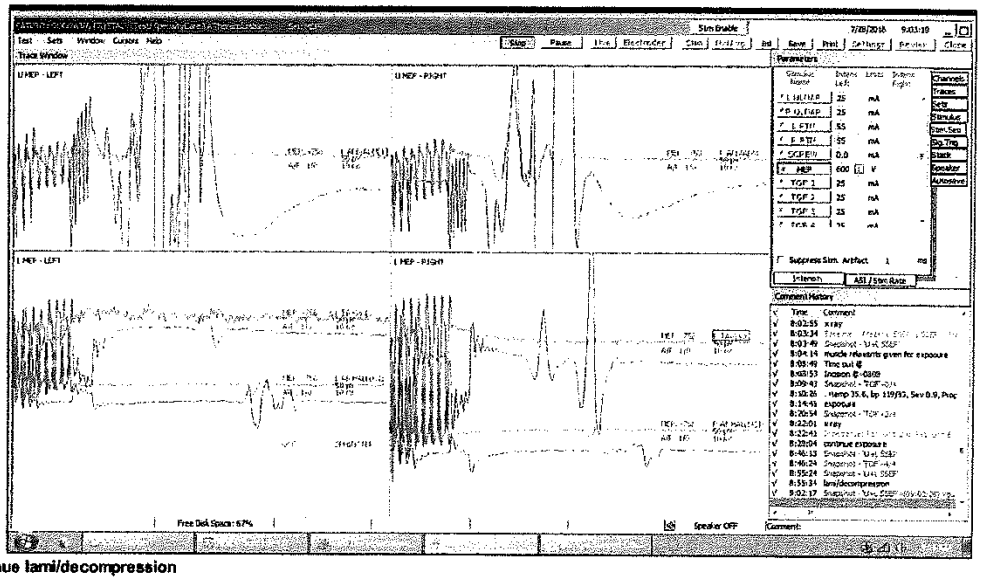
09:02:17 Snapshot - 'U+L SSEP'»(09:02:26) You said to Gregg, Herb:
ssep stable at this time
(09:02:32) Gregg, Herb said to you:
sseps stable, agree



09:02:50 Snapshot - 'TOF'»4/4



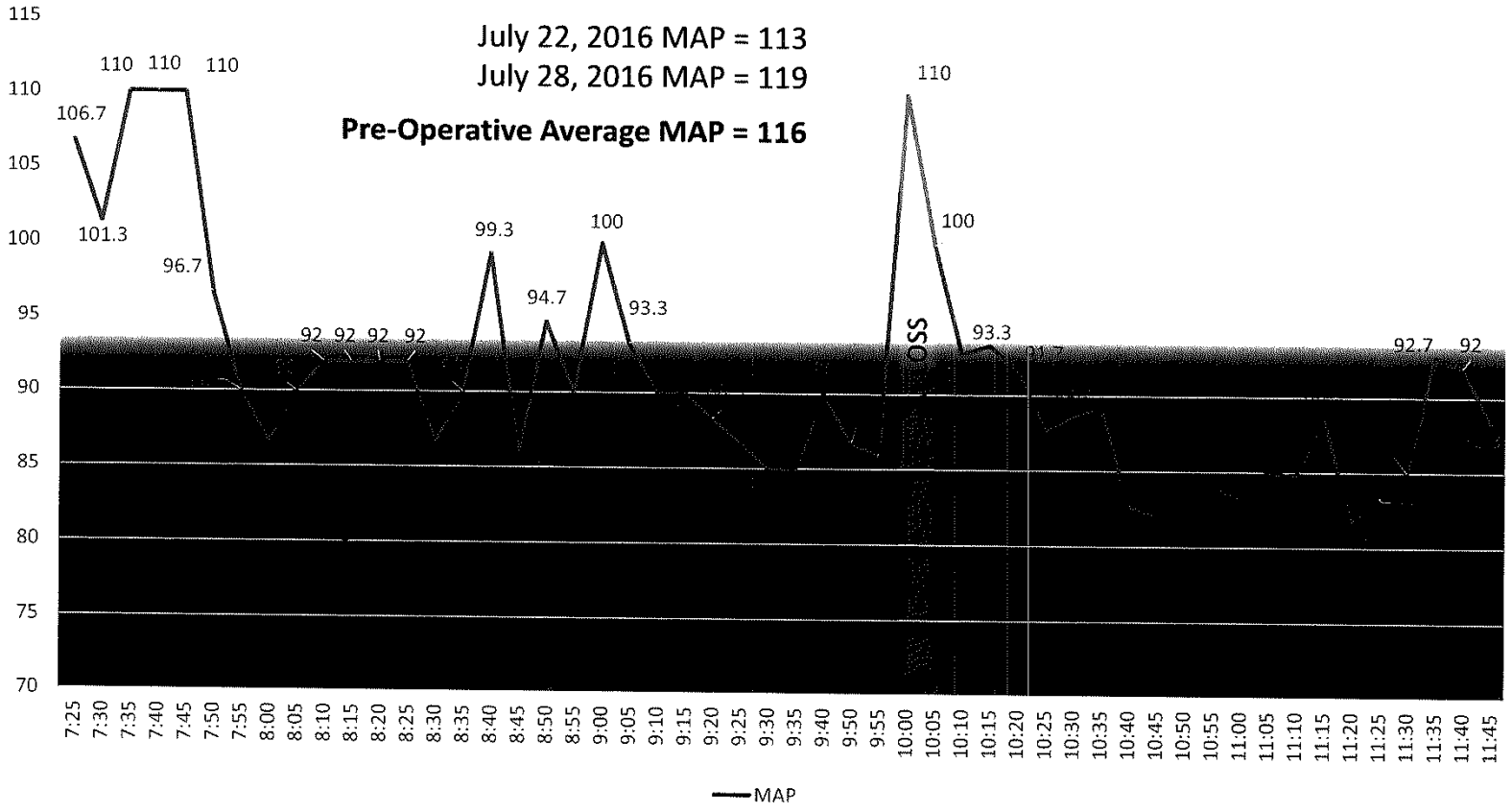
09:03:19 Snapshot - 'MEP'»MEP present in all ext, no changes, surgeon acknowledged
(09:03:23) Gregg, Herb said to you:
meps in all ext
(09:03:48) You said to Gregg, Herb:
ty agree,



09:06:41 continue lami/decompression

09:16:30 Snapshot - 'U+L SSEP'»09:22:43) Gregg, Herb said to you:
sseps stable
(09:23:03) You said to Gregg, Herb:
Ty agree

Crystal Goodwin's
Mean Arterial Pressures (MAP) During Surgery Performed by Dr. Holbrook



EXHIBIT

Jones 6A

exhibitsticker.com

ROA_2828

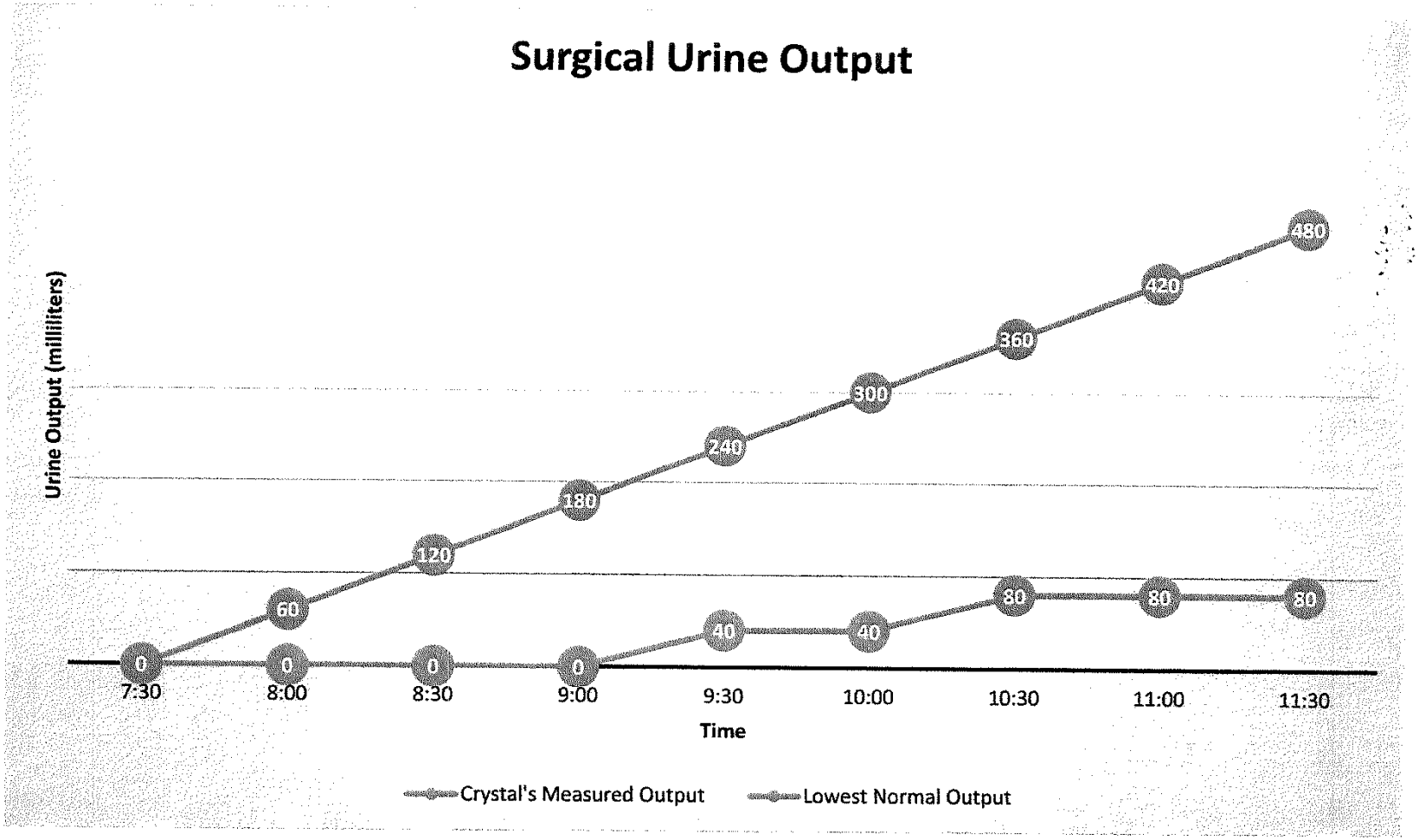


EXHIBIT
Jones P 66
3/20/23

ROA_2829

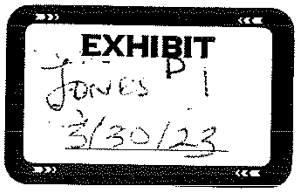
STATE OF SOUTH CAROLINA COUNTY OF RICHLAND	)	IN THE COURT OF COMMON PLEAS FOR THE FIFTH JUDICIAL CIRCUIT
Crystal Goodwin and James Goodwin, Plaintiffs, vs. Midlands Orthopaedics and Neurosurgery, Thomas J. Holbrook, Jr., M.D., Carolina Anesthesiology Associates, P.A., Jennifer R. Root, M.D., and Prisma Health, f/k/a Palmetto Health, Defendants.	)	Civil Action No.: 2019-CP-40-04185 **DEFENDANT THOMAS J. HOLBROOK, JR. MD'S SECOND AMENDED ANSWERS TO PLAINTIFFS' THIRD SET OF REQUESTS FOR ADMISSION**

TO: FRANCIS M. HINSON, IV, ESQ. AND ROBERT F. GOINGS, ESQ., ATTORNEYS FOR THE PLAINTIFFS

NOW COMES Defendant Thomas J. Holbrook, Jr., MD amending his answer to the Plaintiffs' Third Set of Request for Admission as follows:

10. Admit that the spreadsheet below accurately represents the blood pressure readings that were recorded on the handwritten anesthesia chart during the surgery performed on Crystal Goodwin on the morning of July 28, 2016, and correctly calculates the mean arterial pressure (MAP) of those blood pressure values:

Time (AM)	Blood Pressure	Mean Arterial Pressure (MAP)
7:25	140/90	106.7
7:30	140/82	101.3
7:35	130/100	110
7:40	130/100	110
7:45	130/100	110
7:50	120/85	96.7
7:55	120/75	90
8:00	110/75	86.7
8:05	120/75	90
8:10	120/78	92
8:15	120/78	92
8:20	120/78	92



8:25	120/78	92
8:30	120/70	86.7
8:35	110/80	90
8:40	118/90	99.3
8:45	118/70	86
8:50	110/87	94.7
8:55	110/80	90
9:00	120/90	100
9:05	120/80	93.3
9:10	110/80	90
9:15	110/80	90
9:20	115/75	88.3
9:25	110/75	86.7
9:30	115/70	85
9:35	115/70	85
9:40	120/75	90
9:50	120/70	86.7
9:55	118/70	86
10:00	130/100	110
10:05	120/90	100
10:10	118/80	92.7
10:15	120/80	93.3
10:20	115/80	91.7
10:25	113/75	87.7
10:30	110/78	88.7
10:35	108/80	89.3
10:40	108/70	82.7
10:45	110/68	82
10:50	108/70	82.7
10:55	108/72	84
11:00	110/70	83.3
11:05	115/70	85
11:10	110/72	84.7
11:15	110/78	88.7
11:20	105/70	81.7
11:25	110/70	83.3
11:30	115/70	85
11:35	118/80	92.7
11:40	116/80	92

11:45	115/75	88.3

ANSWER: The blood pressures and mean arterial pressures listed on the chart in Plaintiffs' Third Request to Admit number 10 appear to be identical to the blood pressures and mean arterial pressures listed by Erich Starn, CRNA in his sworn testimony and are hereby admitted.

Respectfully submitted,

Ashby W. Davis (SC Bar #1560)
Andrew K. Heitman (SC Bar #102267)
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adavis@davissnyder.com
aheitman@davissnyder.com

ATTORNEYS FOR THE DEFENDANTS MIDLANDS ORTHOPAEDICS & NEUROSURGERY AND THOMAS J. HOLBROOK, JR.,

January 29, 2021
Greenville, South Carolina.

RECEIVED
Apr 04 2024
SC Court of Appeals

STATE OF SOUTH CAROLINA
In the Court of Appeals

APPEAL FROM RICHLAND COUNTY
Court of Common Pleas

The Honorable Jocelyn Newman
Circuit Court Judge

2019-CP-40-04185

CRYSTAL GOODWIN AND
JAMES GOODWIN.....Plaintiffs - Respondents,

v.

MIDLANDS ORTHOPEDICS AND
NEUROSURGERY AND
DR. THOMAS J. HOLBROOK, M.D.....Appellants.

NOTICE OF APPEAL

Pursuant to Rule 203, SCACR, Appellants Midlands Orthopedics and Neurosurgery and Dr. Thomas J. Holbrook, M.D., hereby timely appeal from the trial court's March 22, 2024 Order Granting Plaintiff's April 26, 2023 Motion for a New Trial Based on the Thirteenth Juror Doctrine following a defense verdict on April 21, 2023. The appealed order granting Respondents' Motion for a New Trial Based on the Thirteenth Juror Doctrine is attached. Appellants received written notice of the Order granting Respondents' Motion for a New Trial Based on the Thirteenth Juror Doctrine on March 22, 2023. Appellants believe that this Order is in error and does not comply with the Thirteenth Juror Doctrine, and is further immediately appealable. *See* S.C. Code. Ann. §§ 14-3-330(2), 14-8-200; *Bailey v. Peacock*, 318 S.C. 13, 15 n.2, 455 S.E.2d 690, 692 n.2 (1995) (the granting of a new trial affects a substantial right and is immediately appealable); *Pocisk v. Sea*

Coast Constr. of Beaufort, 380 S.C. 584, 589, 671 S.E.2d 98, 101 (Ct. App. 2008) (an order meeting the requirements of section 14-3-330(2) is immediately appealable).

NELSON MULLINS RILEY & SCARBOROUGH LLP

By: */s/ C. Mitchell Brown*

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April 4, 2024

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Attorneys for Respondents

RECEIVED
Apr 04 2024
SC Court of Appeals

STATE OF SOUTH CAROLINA
In the Court of Appeals

APPEAL FROM RICHLAND COUNTY
Court of Common Pleas

The Honorable Jocelyn Newman
Circuit Court Judge

2019-CP-40-04185

CRYSTAL GOODWIN AND
JAMES GOODWIN.....Plaintiffs - Respondents,

v.

MIDLANDS ORTHOPEDICS AND
NEUROSURGERY AND
DR. THOMAS J. HOLBROOK, M.D.....Appellants.

PROOF OF SERVICE

I, the undersigned Associate of the law offices of Nelson Mullins Riley & Scarborough LLP, attorneys for Midlands Orthopedics and Neurosurgery and Dr. Thomas J. Holbrook, M.D., do hereby certify that I have served all counsel in this action with a copy of the pleading(s) hereinbelow specified, pursuant to the Supreme Court Order 2022-05-06-04, and a copy of that electronic mail is attached to this certificate.

Pleading(s): **Notice of Appeal**

Served:

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Jessica L. Gooding
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rgoings@goingslawfirm.com
jgooding@goingslawfirm.com

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Attorneys for Crystal Goodwin and James Goodwin

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April 4, 2024

Morgan Spires

From: Morgan Spires
Sent: Thursday, April 4, 2024 2:44 PM
To: rgoings@goingslawfirm.com; jgooding@goingslawfirm.com; brink@hhplawgroup.com
Cc: Mitch Brown; Matt Bogan; Roxanne Englin; Eileen Hindman
Subject: Goodwin v. Midlands Orthopedics & Neurosurgery - Case No. 2019-CP-40-04185
Attachments: Notice of Appeal (Goodwin).pdf; Proof of Service - Goodwin.pdf

Good afternoon,

Attached for service upon you in the above matter is a Notice of Appeal and Proof of Service.

Thank you,
Morgan

NELSON MULLINS

MORGAN E. SPIRES ASSOCIATE
morgan.spires@nelsonmullins.com
MERIDIAN | 17TH FLOOR
1320 MAIN STREET | COLUMBIA, SC 29201
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ELECTRONICALLY FILED - 2024 Mar 22 1:47 PM - RICHLAND - COMMON PLEAS - CASE#2019CP4004185

STATE OF SOUTH CAROLINA COUNTY OF RICHLAND Crystal Goodwin and James Goodwin, Plaintiffs, v. Midlands Orthopedics and Neurosurgery and Dr. Thomas J. Holbrook, M.D., Defendants.	IN THE COURT OF COMMON PLEAS FIFTH JUDICIAL CIRCUIT Civil Action No. 2019CP4004185 **ORDER GRANTING NEW TRIAL BASED ON THE THIRTEENTH JUROR DOCTRINE**

RECEIVED
Apr 04 2024
SC Court of Appeals

This matter comes before the Court for consideration of "Plaintiffs' Motion for a New Trial Based on the Thirteenth Juror Doctrine," which was filed on April 26, 2023. Defendants filed their "Response in Opposition to Plaintiffs' Motion for New Trial Based on the Thirteenth Juror Doctrine" on May 5, 2023. A hearing was held on this matter on June 1, 2023.

For the reasons set forth below, Plaintiff's motion is GRANTED.

FACTUAL AND PROCEDURAL BACKGROUND

Plaintiffs Crystal Goodwin ("Crystal") and James Goodwin ("James") filed this medical malpractice action July 29, 2019.[1] They amended their Complaint on January 27, 2021, alleging that Crystal was permanently injured when Defendant Dr. Thomas J. Holbrook, M.D. ("Dr. Holbrook) performed a decompressive thoracic laminectomy ("the surgery") on her on July 28, 2016. Plaintiffs also allege that as a result of the surgery, which was performed in a negligent manner, James has been deprived of the services, society, and companionship of his wife, Crystal, and has spent many hours providing care and therapeutic treatment for her. The Amended

[1] This is the date of filing of the Summons and Complaint. The Notice of Intent to File Suit was filed on April 29, 2019.

ELECTRONICALLY FILED - 2024 Mar 22 1:47 PM - RICHLAND - COMMON PLEAS - CASE#2019CP4004185

Complaint sets forth claims for medical malpractice, loss of consortium and ordinary negligence/negligent training against Dr. Holbrook and Defendant Midlands Orthopedics and Neurosurgery.

This case was tried before a jury from April 11 to April 20, 2023. At trial, Plaintiffs presented significant evidence of medical negligence and loss of consortium. Witness testimony established the appropriate standard of care and that Defendants breached the standard of care. Further, the evidence demonstrated that as a proximate result of Defendants' conduct, Crystal (and, therefore, James) was obviously permanently injured – she is effectively paralyzed from the waist down, having lost all control of her lower body.

Despite the evidence presented, the jury returned a verdict in favor of Defendants.

FINDINGS OF FACT AND CONCLUSIONS OF LAW

The South Carolina Court of Appeals described the thirteenth juror doctrine in *Youmans v. S.C. Dept. of Transp.*, 380 S.C. 263, 670 S.E.2d 1 (Ct. App. 2008).

> The thirteenth juror doctrine is a vehicle by which the trial court may grant a new trial absolute when he[2] finds that the evidence does not justify the verdict. This ruling has also been termed granting a new trial upon the facts. The effect is the same as if the jury failed to reach a verdict. The judge as the thirteenth juror "hangs" the jury.

Id. at 272, 670 S.E.2d at 5 (citing *Folkens v. Hunt*, 300 S.C. 251, 387 S.E.2d 265 (1990)). "The doctrine entitles the judge … to grant a new trial based solely upon the facts." *Lane v. Gilbert Constr. Co., LTD*, 383 S.C. 590, 597, 681 S.E.2d 879, 883 (2009) (internal quotations and citations omitted). "[A] trial judge may grant a new trial upon the facts if the judge determines the verdict 'is contrary to the fair preponderance of the evidence.'" *McEntire v. Mooregard Exterminating*

[2] Or she

Serv., Inc., 353 S.C. 629, 633, 578 S.E.2d 746, 748 (Ct. App. 2003) (quoting *Dent v. Redd*, 270 S.C. 585, 586, 243 S.E.2d 460, 460 (1978)).

Here, the Court finds that the evidence presently at trial simply does not support the jury's verdict. The Court, having heard all of the testimony and reviewed all of the evidence (and, of course, having an intimate knowledge of the applicable law), the Court is "convinced that a new trial is necessitated on the basis of the facts in the case." *Graham v. Whitaker*, 282 S.C. 393, 401, 321 S.E.2d 40, 45 (1984). Because the Court "is obligated to see that justice is done – it is duty-bound to grant a new trial" where, as here, the evidence does not support the verdict. *Ex parte Travelers Home & Marine Ins. Co. v. Stringfellow*, 427 S.C. 238, 244, 830 S.E.2d 718, 721 (Ct. App. 2019) (citing *Folkens*, 300 S.C. at 254-55, 387 S.E.2d at 267).

IT IS, THEREFORE, ORDERED that "Plaintiffs' Motion for a New Trial Based on the Thirteenth Juror Doctrine" is GRANTED, and that this case is REOPENED.

IT IS FURTHER ORDERED that this case not be placed on the Jury Trial Roster until a status conference is held to determine an appropriate trial date.

AND IT IS SO ORDERED.

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Richland Common Pleas

Case Caption: Crystal Goodwin , plaintiff, et al vs Midlands Orthopaedics And Neurosurgery , defendant, et al

Case Number: 2019CP4004185

Type: Order/Other

So Ordered

Jocelyn Newman