IN THE UNITED STATES DISTRICT COURT

FOR THE DISTRICT OF IDAHO

JASON TROWBRIDGE and JAIME TROWBRIDGE, individually and as natural parents of J.N.T., a minor child,	)	Case No. CV 07-32-S-REB
Plaintiffs,	)	**MEMORANDUM DECISION, FINDINGS OF FACT, AND CONCLUSIONS OF LAW,**
v.	)	
UNITED STATES OF AMERICA,	)	
Defendant.	)	

I. BACKGROUND[1]

On January 18, 2007, Plaintiffs Jason, Jamie, and J.N.T. Trowbridge filed this medical malpractice action against the United States and St. Luke's Magic Valley Regional Medical Center ("Magic Valley RMC"). Complaint (Docket No. 1). Plaintiffs later stipulated to dismiss the claims against Magic Valley RMC. (Docket No. 53).

The claims remaining against the United States allege that J.N.T., the daughter of Jason and Jamie Trowbridge, suffers from cerebral palsy as a result of Dr. Samuel Ogden's negligence in treating Jamie Trowbridge in August 2004 during her labor and J.N.T.'s delivery at Magic Valley RMC, in Twin Falls, Idaho. Amended Complaint (Docket No. 3).

[1] This section contains a brief summary of the Findings of Fact and exhibits discussed and cited in Section III, *infra*. To the extent these facts are not discussed below, they are hereby incorporated by reference.

On August 5, 2004, Jamie Trowbridge was admitted to Magic Valley RMC for labor induction. Robyn Ho Chee, R.N., Nancy Bowman, R.N., and Susan Forsgren, R.N., assisted Dr. Ogden with the labor at various times during that day and the following morning. Around 9 a.m. on August 5th, nurse Ho Chee started administering the drug Pitocin to Jamie pursuant to Dr. Ogden's order for "Pitocin per protocol." (Ho Chee testimony; Ogden testimony, Days 5, 6). Pitocin is a drug used to stimulate labor. (Hall testimony, Day 1). The Pitocin dosage was increased at various times through 5:17 p.m. *See* Ex. 5001. Additionally, because Jamie Trowbridge was Strep B positive, she also received Ampicillan, an antibiotic. (Ogden testimony, Day 6).

Beginning at about 12:40 p.m., the contraction pattern reflected tachysystole, meaning there were greater than five contractions in a ten minute period. (Ho Chee testimony; Hall testimony, Day 1; Ogden testimony, Day 6; Ex. 5001, p. 57).

Around 2:30 p.m., Jamie Trowbridge received an epidural, a method of pain relief administered by a small catheter inserted into the back near the spine. (Ho Chee testimony; Hall testimony, Day 2; Ogden testimony, Day 6; Ex. 5001, p. 72).

Jamie's labor was initially monitored with the use of an external monitor. However, the external monitor was not tracing well from about 7:00 p.m. to about 8:45p.m. in the evening. (Forsgren testimony). Around 8:45 p.m., Dr. Ogden placed a fetal scalp electrode and intrauterine pressure catheter to monitor the contractions and fetal heart rate (FHR). (Hall testimony).

At approximately 8:45 p.m., Mrs. Trowbridge's temperature began to rise. Ex. 5001(B), pp. 117, 122, 133; Ex. 5000, p. 261; Forsgren testimony. Shortly thereafter, the FHR became tachycardic, meaning a heart rate above 160 beats per minute. (Hall testimony, Day 2; Depp

testimony, Day 3). Dr. Ogden suspected that Jamie had chorioamnionitis, an infection, and ordered the administration of an antibiotic. Dr. Ogden believed the tachycardia was due to the maternal fever. (Ogden testimony, Day 6).

On August 6, 2005, at approximately 12:50 a.m., the FHR reflected bradycardia, a drop in FHR below 110 beats per minute. (Depp testimony, Day 3; Ogden testimony). Dr. Donald E. Smith, the ob/gyn on call, and Dr. Ogden, determined that an emergency C-section delivery was necessary. Jamie Trowbridge was taken to the operating room and at 1:14 a.m. the baby, J.N.T., was delivered via C-section. The umbilical cord was wrapped once around J.N.T.'s neck at delivery, a condition known as a "nuchal cord." (Smith testimony).

On June 15, 2006, J.N.T. was diagnosed with cerebral palsy, a nonprogressive neurologic brain disorder that involves fixed, life-long abnormalities in posture, tone, and control of movement. (Glass testimony).

Plaintiffs contend that J.N.T.'s cerebral palsy was the tortious result of Dr. Ogden's negligence, attributable to the United States government. Plaintiffs allege, among other things, that the applicable standard of care required Dr. Ogden to monitor the contraction pattern and to reduce or turn off the Pitocin because the baby was not tolerating excessive uterine contractions caused by the drug. Plaintiffs' Trial Brief, p. 2 (Docket No. 73).

A court trial began on June 29, 2009 and ended on July 9, 2009. During trial the Court heard testimony from Plaintiffs' expert witnesses, Dr. Michael Hall, an ob/gyn, and Dr. Harvey E. Cantor, a pediatric neurologist, and from Defendant's expert witnesses, Dr. Richard Depp, an ob/gyn, Dr. Thomas P. Naidich, a neuroradiologist, and Dr. Stephen T. Glass, a pediatric neurologist. Drs. Ogden and Smith, Plaintiffs Jason and Jamie Trowbridge, and the nurses providing labor and delivery care for Jamie and J.N.T. also testified.

Plaintiffs seek damages for past and future medical care, pain and suffering, and emotional distress, along with attorneys' fees and costs. Amended Complaint, pp. 7-8 (Docket No. 3). The parties stipulated to the amount of past and future medical and care costs, in the amount of $96,467.67 for past care/costs and $3,160,239.50 for future care/costs. (*See* Ex. 13). The parties also stipulated that Medicaid paid $51,306.47 for the past medical care.

II. MEMORANDUM DECISION/SUMMARY OF RULING[2]

This is a case of difficult issues located around imperfect intersections of medicine and law. The standard of care issues are a lecture hall template for discussion of how an evolving field of medicine can create circumstances where–depending upon one's point of observation–obvious signals are missed by an inattentive physician, leading to tragic results, or artful lawyers create illusions of misdeeds in places where doctors have done everything as properly as their profession would require, but where unwanted results nonetheless can still occur. Such is the landscape of the labor and delivery ward of the hospital, where modern diagnostic and monitoring tools allow more opportunities for physicians to predict and protect against dangers to the mother and the baby, and perhaps more opportunities for their judgments in doing so to be criticized and second-guessed in the cases that turn badly.

Indeed, in the trial of this case, the Court heard from multiple well-credentialed and extensively experienced medical experts who expressed widely divergent opinions either as to whether the labor of Jamie Trowbridge was progressing in a normal manner, with every expectation for the arrival of a healthy new baby, or whether that delivery was a runaway train

[2] To the extent any of the facts or conclusions stated in this section can be considered Findings of Fact or Conclusions of Law and are not restated in sections III or IV, they are incorporated by reference into the relevant section below.

headed for a disastrous crash unless a medical provider took notice and applied the brakes. And, as is standard grist in the mill of a lawsuit such as this, medical treatises and journal articles are put forward as evidence to bulwark or erode the propriety of the doctor's acts, and sometimes–as was found in this case with the evidence of the work of the ACOG[3] committee on standards for the interpretation of FHR strips–to frame the glossary of the medical arts involved.

In such a trial setting, it is not surprising that the respective cases of the Plaintiffs and the Government–presented and argued as they were by lawyers practicing in the best measures of their craft–would be difficult to reconcile and difficult to decide upon. Each side felt strongly about the respective strengths of their positions, yet, like imperfect veneers on a dining table, a repeated viewing of the same spaces of testimony and exhibits left room for closer study and glimpses of both solid craft and of imperfection.

Additionally, this case was disputed upon more than whether or not Dr. Ogden had failed his obligations under the community's expectations for his care in August of 2004. It also was strenuously contested on whether or not his failure of care–if any such failure existed–had any causal connection under the requirements of Idaho law to the hardships now faced by J.N.T. and her parents as a result of the cerebral palsy which afflicts J.N.T.

Ultimately, however, after a thorough and careful consideration of the trial record, with an assessment of and conclusions about credibility of witnesses and the relative persuasive measures of particular witnesses and exhibits, the Court concludes that the evidence and testimony presented at trial was sufficient to establish a standard of care breached by Dr. Ogden. Plaintiffs, however, failed to establish by a preponderance of the evidence the additional element

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[3] "ACOG" stands for the American College of Obstetricians and Gynecologists.

of causation. The Court's opinion describing those decisions is set out in more detail in this section and in the Findings of Fact and Conclusions of Law set forth below.

A. Medical Texts, Articles, and Terminology

Both parties relied on articles and bulletins from the American College of Obstetrics & Gynecology ("ACOG"). ACOG's practice guidelines, set forth in Technical Bulletins, are cited throughout this decision where the reference is supported by expert testimony.

Additionally, both parties and their experts generally agreed that the Williams Obstetrics textbook and the *Fetal Heart Rate Monitoring* text written by Freeman, Garite, & Nageotte ("Freeman & Garite") are useful books setting forth the general principles involved in this case. (Depp) (commenting that Freeman & Garite is a "very good book," and agreeing that Williams is a "commonly used" text, but largely a "protocol book" that does not set the standard of care); (Hall, Day 2). The parties stipulated to admit into evidence the following texts as generally reliable authorities: Obstetrics, Normal and Problem Pregnancies, 2002, by Steven G. Gabbe, Jennifer R. Niebyl, and Joe Leigh Simpson ("Gabbe") (Ex. 85); Danforth's Obstetrics and Gynecology ("Danforth") 2003 (Ex. 88); Danforth (unknown year) (Ex. 5026); and Williams Obstetrics 2001 (Ex. 87). Accordingly, the Court also has relied on these authorities.

The evidence in this case was heavily weighted with medical definitions. The Court has used definitions drawn from the testimony and from the sources described above. In addition, the medical apparatus most directly addressed by the evidence in this case is the fetal heart monitoring machine. This machine, which produces the FHR strip, or tracing, has two probes. One monitors the fetal heart rate and the other monitors uterine activity. The information obtained by the probes is recorded to the machine and displayed in the FHR strip. (Ogden testimony).

The monitoring of uterine activity results in a chart of contractions. Tachysystole, a term of frequent use by the witnesses in this case, refers to a circumstance where the mother is experiencing more than five contractions per ten minute period, averaged over thirty minutes. (Depp; Hall). The Plaintiffs' standard of care expert witness also referred to tachysystole as, essentially, synonymous with hyperstimulation. (Hall testimony). Dr. Ogden defined hyperstimulation as tachysystole in the presence of a non-reassuring FHR, while the standard of care expert witness who testified in the Government's case defined hyperstimulation as tachysystole combined with late decelerations (Depp).

Hypertonus refers to an aberration in the muscle tone of the uterus in the time between contractions. (Hall direct testimony). Normal resting pressure is about 15 to 20 millimeters of mercury; a pressure above that level is considered abnormal and referred to as hypertonus. (*Id*.)

The "strip" or "tracing" produced by the monitor also contains information about the fetal heart rate. During labor, the monitoring of fetal heart rate is a window into the well-being of the fetus. A reactive or reassuring FHR strip is one with a normal baseline, moderate variability, and accelerations. (Hall testimony); *see also* Freeman & Garite, Fig. 6.33 (accelerations). The baseline is the fetus's predominate heart rate in a ten minute period going horizontally across a strip between accelerations on top and decelerations on bottom. (Depp). Variability refers to the "waviness" of the FHR tracing, produced by the beat-to-beat irregularity (or variation) caused by the normal variance in intervals between consecutive cardiac cycles. Freeman & Garite, p. 65-66 (Ex. 5020); (Depp direct testimony). Moderate variability is defined as 6 to 25 beats per minute. (Depp; Hall). As a general statement, variability is reassuring of a normal labor process. A moderate amount of variability reflects that the fetus's oxygenation is normal. (Depp).

Variable decelerations are abrupt, visually apparent decreases in FHR below the baseline of 15 beats per minute or more, with a duration of 15 seconds or more but less than two minutes. Definitions of FHR Patterns (Ex. 5004); Hall testimony. Variable decelerations are considered nonreassuring only when they become persistent, progressively deeper, and longer lasting, or if they have a persistently slow return to baseline. ACOG Technical Bulletin, p. 457 (Ex. 5021); (Hall testimony) (generally agreeing with the definitions set forth in this ACOG Bulletin); Freeman & Garite, Fig. 6.9 (late deceleration). Occasional or intermittent late decelerations are not uncommon during labor, but when they become persistent they are considered nonreassuring, regardless of the depth. ACOG Technical Bulletin, p. 457 (Ex. 5021).

Significantly, in the context of the factual record of this case, hypoxia and acidosis can be a cause of decreased fetal heart rate variability. Freeman & Garite, p. 66 (Ex. 5020). Hypoxemia refers to the condition of decreased oxygen in the blood, while hypoxia is the condition of a decreased level of oxygen in tissue. ACOG Technical Bulletin, p. 454 (Ex. 5021); (Cantor direct testimony; Hall direct testimony). Ischemia refers to diminished blood circulation or flow to the organs of the body. (Cantor cross-exam; Hall direct).

Acidosis describes an increased concentration of hydrogen ions in tissue. Asphyxia refers to the combination of hypoxia with metabolic acidosis. ACOG Technical Bulletin, p. 454 (Ex. 5021). Metabolic acidosis develops when the fetus does not get enough oxygen, leading to a build up of lactic acid. (Depp direct testimony).

Metabolic acidosis can be identified by pH levels in the blood. When a fetus loses normal oxygenation and develops hypoxia, acidosis, and injury, the base excess goes up and pH goes down. (Depp direct). Base deficit (also referred to as base excess) is slowly corrected. Normal pH for a fetus is defined by a curve that goes down to about 7.05 on the bottom side and

up to 7.4 on the top, and the average is somewhere in the middle. (Depp). A pH of less than seven reflects an increasing risk of central nervous system injury as a result of hypoxia. (Depp).

Depletion of reserves refers to that condition, in a fetus, where metabolic acidosis has developed, and results in the fetus being unable to drive its heart rate down or back up promptly. (Depp testimony, p. 157).

A normal fetal heart rate is between 110 and 160 beats per minute. Anything above 160 reflects tachycardia and anything below 110 is bradycardia. (Depp). To determine a fetus's baseline heart rate, physicians look at the predominant heart rate over a continuous 10 minute period of time. (Depp; Hall).

Chorioamnionitis is an infection of the placenta and amniotic fluid around the baby. (Hall testimony). Such a condition can cause a fever in the mother. In turn, a maternal fever generally increases a fetal heart rate by ten beats per minute for every Fahrenheit degree elevation of the mother's temperature. (Depp direct).

When the umbilical cord becomes wrapped around the neck of the fetus, such as occurred with J.N.T., the condition is referred to as a "nuchal cord". The fetus relies on the umbilical cord to supply oxygen. However, the vein in the umbilical cord is easily compressed. When a fetus has a nuchal cord, contractions constrict the vessels inside the umbilical cord and the oxygen supply to the fetus is diminished. (Cantor testimony).

B. Summary of Witnesses' Testimony, Opinions, & Credibility

Dr. Ogden, the family practice physician who was in charge of Jamie Trowbridge's labor and delivery, testified that he did not observe anything on the FHR strip that caused him to believe the fetal tachycardia was a sign of hypoxia. He stated that he observed good variability

and accelerations, and he did not observe any late decelerations or significant variable decelerations. He attributed the tachycardia to fever and chorioamnionitis, both known causes of tachycardia. However, Dr. Ogden also testified that he did not appreciate the elevated uterine resting tone or factor it into his decision-making in this case, even though he knew that the resting tone could be significant in general and that the hospital's Pitocin protocol for nurses specifically mentions it.

Dr. Donald Smith, the consulting ob/gyn on the Trowbridge case, testified that he made clinical notes at the time or close to the time of the events and progress of the labor of which he was aware. *See* Ex. 5000, p. 250-59. He said that as of the time of his trial testimony he did not have an independent memory of the events of the labor; however, he said that he always looks at the FHR strip when dictating his case notes, so he assumed he would have followed this practice for Jamie Trowbridge's delivery. His case notes report that the FHR was around 120, and there was good variability as Mrs. Trowbridge progressed through the day. His notes identify a shift in the FHR baseline up to the 150's and that Mrs. Trowbridge became febrile in the evening, with a shift of FHR to the 180's associated with the mother's temperature. He noted, however, that the fetus had very good beat-to-beat variability and the mother was in advanced cervical dilation. Ex. 5000, p. 250. The Court finds Dr. Smith credible.

Dr. Michael Hall, an obstetrician from Denver, Colorado, has delivered babies for about 32 years and is a clinical instructor for medical residents. (*See* Ex. 507: CV; Hall testimony). He provided most of the trial testimony relied on by Plaintiffs to establish standard of care, breach, and causation. Twenty to thirty percent of Dr. Hall's annual income comes from medical legal consultations and he primarily testifies on behalf of plaintiffs. (Hall testimony, Day 2).

Dr. Hall relied on the deposition testimony of Drs. Smith and Ogden, and considered the testimony of the nurses involved in this case, to determine his opinion concerning the standard of care as it existed in Twin Falls, Idaho, in 2004. (Hall; Day 1). Particularly, Dr. Hall noted that the standard includes knowing how to interpret FHR strips, knowing the FHR monitoring terminology and the significance of each, and knowing how to conduct a differential diagnosis. (Hall; Day 1). Dr. Hall also cited Dr. Smith's deposition testimony that the standard of care required physicians to know if contractions are too strong or too close, what the manufacturer of Pitocin says about the drug, and the potential for Pitocin to overstimulate the uterus. He testified that the standard of care required physicians to know that uterine overstimulation can have negative effects, such as a ruptured uterus or fetal brain damage. (Hall; Day 1). Dr. Hall opined that these alleged breaches in the standard of care were a substantial contributing factor in causing J.N.T.'s hypoxic brain damage reflected in her cerebral palsy.[4] (*Id.*)

In the Court's assessment, Dr. Hall remodeled the reaches of his standard of care testimony at times, almost as if he was so disturbed by his opinion of Dr. Ogden's actions and his opinions regarding the use of Pitocin that he felt it necessary to become more advocate than observer in his role as an expert witness. Additionally, the Government pointed out in its cross-examination and argument the instances where Dr. Hall seemed to want to stake out more ground than either his experience and knowledge, or the facts of the case, would support. Those factors made portions of Dr. Hall's testimony of little use or credibility for the Court's use in deciding this case. However, the Court does not discount or disregard his testimony in a

[4] Although Dr. Hall labeled J.N.T.'s cerebral palsy as "spastic quadriplegic" the Court does not find him to be an expert in diagnosing the different types of cerebral palsy and finds that his description of the type of cerebral palsy J.N.T. suffers from has no persuasive bearing on the Court's findings or conclusions in this case.

wholesale manner, because he has significant clinical experience in the delivery room and he was consistent in stating what sources he relied on and what, at base, he believed the standard of care required, what the clinical record of the delivery showed when measured against that standard, and where the evidence existed to support his understanding of the applicable standard of care. Additionally, other evidence in the record supported this middle ground of his standard of care testimony–*i.e.*, that physicians are trained in and must know about the risks of Pitocin, monitoring contractions, and interpreting the FHR readings, and consider these in their decision-making process during labor and delivery.

However, in regard to his testimony interpreting the FHR as clearly nonreassuring and addressing issues of breach, there were many times Dr. Hall explained his interpretation as the "exception" to the "general rule" that he otherwise acknowledged would apply to the monitoring of the labor. While it might well be that Dr. Hall's experience and instincts were sound in terms of why he would have made different decisions at different points along the way, the standard of care did not require in each instance that Dr. Ogden have made those same decisions. That said, where the Court has cited to Dr. Hall's testimony it has done so finding it credible and reliable.

Dr. Harvey E. Cantor, a pediatric neurologist in St. Louis, Missouri, also testified on behalf of Plaintiffs. Dr. Cantor cares for children with neurological disorders such as cerebral palsy, epilepsy, and learning disabilities. He is board-certified in pediatrics and neurology, with a special competency in child neurology. He is not a radiologist but has some training in reviewing CT scans and MRI images. He was asked by Plaintiffs' counsel to review the medical records and decide within a reasonable degree of medical certainty what caused J.N.T.'s medical condition. He described J.N.T.'s condition as primarily dystonic cerebral palsy with athetoid features and some remnants of the spastic quadriplegic. Dr. Cantor testified that he does not

know enough about fetal heart monitor strips to deliver a baby, but he does know enough to review strips and to render an opinion on the neurological consequences to the fetus he believes were caused by the nature of the labor and delivery.

Defendant's principal expert on the standard of care and breach issues was Dr. Richard Depp. He is board-certified in obstetrics, gynecology, and maternal/fetal medicine. (*See* Ex. 5018). Dr. Depp has engaged in medical legal consulting since the late 1980's. At the beginning of his medical expert career, he assisted with medical malpractice defense approximately 70 percent of the time and plaintiffs cases 30 percent of the time, but he now does about 95 percent defense work. (Depp direct). Dr. Depp has engaged for years in a highly lucrative business assisting in the defense of malpractice actions.

Dr. Depp also participates in ACOG committees, helping to develop so-called "consensus guidelines." The Court understands from the testimony at trial that these guidelines have a purpose of identifying common ground and uniform clinical practices across the country.[5] However, the Court was also left with a concern that the motivation of some who would press for such "consensus guidelines" is to revise terminology and set practice standards in a manner intended to provide litigation safe-harbors for delivery physicians.

A goal of clarity is commendable in the abstract, particularly in a field of medicine that is often the focus of malpractice claims, and in a medical/legal setting that depends upon identification of expected standards of conduct which are assisted by more objective, understood definitions of care than subjective, indefinite differing views about what are expected practices. However, a goal of identifying the possible interpretations of commonly encountered medical

[5] For example, Dr. Depp testified that he thinks the term hyperstimulation should be broken down into parts, as (a) tachysystole with, or (b) tachysystole without heart rate changes, because, in part, he believes that judges and juries get confused by the different use of the terms.

circumstances (such as might occur in the use of FHR monitoring) and giving them an imprimatur of acceptability under the guise of "reasonable medical minds can differ," when reasonable medical minds should not differ, is another matter entirely. Here, there is no question but that Dr. Depp has an extensive and remarkable academic and clinical realm of expertise. The Court cannot reasonably set aside the value of that expertise in considering the issues at play in this case. Nonetheless, in a setting where Dr. Depp is living handsomely and almost entirely at this time from the fruits of his work as an expert witness on behalf of defendants in medical malpractice cases, his involvement in setting clinical standards and then pointing to such standards in support of his expert opinions inevitably implicates concerns about credibility. For such reasons, the Court has not wholly accepted Dr. Depp's testimony as beyond reproach. Nonetheless, where Dr. Depp's testimony is cited it has been found credible and reliable.

Dr. Stephen T. Glass, a board-certified neurologist with a special qualification in pediatric neurology testified for Defendant. Glass C.V. (Ex. 5036). Dr. Glass diagnosed J.N.T. with extrapyramidal cerebral palsy with spastic elements, which corresponds with near total acute blood flow deprivation. As to the particular etiology of the cerebral palsy afflicting J.N.T., the Court found Dr. Glass's testimony to be credible.

Dr. Thomas Naidich, the director of neuroradiology at Mt. Sinai Medical Center in New York, provided what the Court deems to be reliable and credible expert testimony on behalf of Defendant. (Naidich testimony); Ex. 5035 (PowerPoint presentation). Dr. Naidich is board-certified in diagnostic radiology, and has an added qualification for neuroradiology. Naidich C.V. (Ex. 5033). Dr. Naidich is a full-time practicing neuroradiologist who interprets approximately 5,000 brain scans each year, about 300 of which are of children with cerebral palsy. Over his career he has reviewed approximately 10,000 scans from children with cerebral

palsy. He has written about 50 or 60 chapters in medical textbooks and has published approximately 200 to 225 peer-reviewed articles and papers. Dr. Naidich reviewed brain scans of J.N.T. at four months and at three years, eleven months of age and compared those scans with brain scans of children approximately the same ages who suffered no brain injury. He concluded that J.N.T.'s cerebral palsy is the result of acute, profound hypoxic ischemic injury consistent with the abrupt total or near total cessation of oxygen. The Court found Dr. Naidich's testimony to be compelling and credible on the causation issues.

C. Standard of Care and Breach Issues

It is the Plaintiffs' burden to establish both the alleged standard of care and the alleged breach of that care. The Court is not persuaded by the Plaintiffs' attempt, put forward through Dr. Hall, to set an absolute August 2004 standard of care for Twin Falls, Idaho, that required labor and delivery physicians to decrease or discontinue Pitocin in the presence of tachysystole alone, as lacking a sufficient basis in the record. In this regard, the Court considers credible Dr. Depp's testimony that the standard of care in Twin Falls in August 2004 permitted physicians to continue to administer Pitocin in the presence of tachysystole as long as the FHR strip remained reassuring. Dr. Depp's testimony is consistent with Dr. Ogden's testimony, comports with the inferences that can be drawn from Dr. Smith's testimony, and follows other evidence in the record. *See* ACOG Practice Bulletin, Nov. 1995, p. 519 (Ex. 5029) (oxytocin should be decreased or discontinued when hyperstimulation is accompanied by a nonreassuring FHR); Ex. 57, p. 34.e2 (article on tachysystole from 2008 describing the approach of some physicians to not intervene until there are nonreassuring changes in the FHR pattern). Nothing in the evidentiary record at trial, either through Dr. Hall's testimony or other evidence in the Plaintiffs'

case-in-chief, or otherwise found in the trial record, supports a contention by Dr. Hall that the applicable standard of care as it existed in Twin Falls in 2004 *required* that Pitocin be discontinued or decreased based upon the presence of tachysystole alone.

Other portions of the trial record, however, evidence that physicians practicing in Twin Falls in August 2004 were expected to be alert to possible complications from tachysystole and consider such possibilities in monitoring and navigating the course of labor, regardless of whether the standard of care required them to decrease Pitocin only when other negative indices appeared on the FHR monitor. For instance, Williams Obstetrics, a book Dr. Ogden read cover to cover, states that "[*c*]*ontractions must be evaluated continually* and oxytocin[6] discontinued if they persist as greater than five in a 10-minute period *or* . . . if the fetal heart rate pattern becomes nonreassuring." Williams Obstetrics, p. 475 (Ex. 87) (emphases added). Williams Obstetrics explains that the goal of oxytocin use "is to effect uterine activity that is sufficient to produce cervical change and fetal descent while avoiding uterine hyperstimulation and/or development of a nonreassuring fetal status." *Id.*

The Gabbe Obstetrics text is in accord. Obstetrics, Normal and Problem Pregnancies, p. 379 (Ex. 85). According to Gabbe, the recommended rate of oxytocin administration is that which produces contractions every 2 to 3 minutes. Gabbe notes that the oxytocin infusion may need to be reduced as labor progresses and the frequency and intensity of contractions increase. *Id.* Danforth, another book Dr. Ogden testified that he had read cover to cover, notes that the most common side effect of oxytocin is "[u]terine hyperstimulation[7] necessitating

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[6] Ocytocin is the name of the hormone that is found in synthetic form in the drug Pitocin.

[7] Although Dr. Hall equated hyperstimulation with tachysystole, Drs. Ogden and Depp defined hyperstimulation as tachysystole in conjunction with nonreasssuring changes in the FHR. In 2002, the Gabbe Obstetrics text stated that hyperstimulation "refers to excessive frequency of contractions (polysystole) or increased uterine tone (hypertonia)." However, this does not

(continued...)

discontinuation of the drug or a decrease in the dose being used." Danforth, p. 410 (Ex. 88). (*See also* discussion of Exhibit 40, a family practice journal, explaining that the use of Pitocin requires experience and vigilant observation for uterine hyperstimulation or hypertonus).

The Freeman and Garite text explains that FHR monitoring is a complex process and many factors must be weighed to determine if a pattern is reassuring or not. Ex. 5020, p. 63. The FHR is evaluated for baseline rate, variability, the presence of accelerations or decelerations, and the progression of each. *Id.* Significantly, Freeman and Garite states that the frequency and strength of contractions must be considered in this process. *Id.* Freeman and Garite also reports that "*[i]nadequate contraction monitoring* may allow unrecognized hyperstimulation to occur for prolonged periods . . . and may postpone recognition of excessive uterine activity, thus delaying the appropriate response to decrease or discontinue oxytocin." Ex. 5020, p. 236 (emphasis added).

Thus, in 2004 Twin Falls delivery physicians were required to know if contractions are too strong or too close together and to monitor for those conditions and factor them into their

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[7](...continued)
necessarily define how hyperstimulation was understood in the delivery room standard of care in Twin Falls in 2004, especially where Dr. Ogden, who practiced in Twin Falls at that time, defined it differently. Ex. 85, p. 379. The Kathleen Rice Simpson article also defined hyperstimulation based on the number of contractions alone (*see* Ex. 57, pp. 34.e.1 & 34.e.2), but this article is from 2008. As Dr. Hall testified, there are a variety of definitions for hyperstimulation, some that define it interchangeably with tachysystole alone and others that require tachysystole and an abnormal FHR. Even the nurses attending the labor and delivery provided two different definitions for hyperstimulation. (*Compare* Ho Chee testimony with Forsgren testimony). The only trial testimony by a physician who practiced in Twin Falls to define hyperstimulation as used in Twin Falls in August 2004 came from Dr. Ogden, who defined hyperstimulation as tachysystole associated with nonreassuring fetal heart rate changes. Accordingly, the sources that state Pitocin should be reduced when hyperstimulation results cannot establish the definition of hyperstimulation used in Twin Falls in 2004 or that the relevant standard of care required that Pitocin be reduced or stopped when tachysystole alone was present.

decision-making process. In this case, the contractions were greater than five per ten minute periods for several hours in Jamie Trowbridge's labor and uterine hypertonus appeared during the last hour of labor. Moreover, the standard of care required physicians to know what the manufacturer has to say about Pitocin use. The Pitocin product insert advises that Pitocin should be discontinued "immediately in the event of uterine hyperactivity *and/or* fetal distress." (Emphasis added). The drug manufacturer's insert for administration of Pitocin warns that "[o]verdosage with oxytocin depends essentially on uterine hyperactivity" and that hyperstimulation with strong or prolonged contractions, or a resting tone of 15 to 20 mm H_2O or more between contractions, can lead to tumultuous labor, variable deceleration of fetal heart, and fetal hypoxia, among other things. (Ex. 55). The manufacturer also advises that the fetal heart rate should be electronically monitored throughout the Pitocin infusion and "[a]ttention should be given to tonus, amplitude and frequency of contractions, and to the fetal heart rate in relation to uterine contractions." *Id.* *See also* ACOG Technical Bulletin from July 1995, p. 454 (Ex. 5021) (warning that "if the frequency, duration, or strength of contractions becomes excessive, fetal hypoxemia may result").[8]

The information in these texts and the product insert is significant because the Court finds the standard of care established by the trial record, including in the Plaintiffs' case-in-chief alone, required physicians administering Pitocin to monitor contractions in connection with the drug manufacturer's warnings, considering that FHR interpretation is often subjective and there

[8] The hospital's own protocol, albeit for nurses, states that nurses should use judgment to set "adequate contractions for cervical change, without hyperstimulation." Magic Valley RMC, Oxytocin and augmentation of Labor (Ex. 32). Nurses also are allowed to reduce or stop the Pitocin if contractions are less than two minutes apart. Although this protocol did not set the standard of care for delivery physicians practicing in Twin Falls in 2004, it is relevant in considering how Pitocin is administered and in determining what should be monitored in the process.

are a variety of nuances in a FHR strip, and include those considerations in any differential diagnoses and treatment decisions.[9] Thus, the Court agrees with Dr. Hall's opinion that the standard of care required physicians to adequately monitor the contraction strength and frequency and consider decreasing Pitocin when tachysystole persists, especially in light of the other significant factors.

Here, the Court finds that Dr. Ogden did not appropriately monitor the contraction pattern or the resting tone or factor it into his differential diagnosis, especially when the FHR reflected tachycardia for extended periods of time, there were periods of minimal variability on the FHR strip, and where–against such a backdrop–the well-understood nuances of the reading of a FHR strip called for Dr. Ogden to consider the implications of a different reading than his own of a potentially ambiguous FHR strip .

Defendant contends it was reasonable for Dr. Ogden to believe that there was no hypoxia related tachycardia because his interpretation of the FHR strip did not identify persistent late decelerations or significant variable decelerations. Rather, Dr. Ogden read the strip to contain continuous accelerations, and thus a reassuring progress of labor. It is notable that the last acceleration (meeting the definition of acceleration) that Dr. Depp identified occurred around

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[9] Although the Court's standard of care determination in this case does not hinge on whether the FHR was reassuring or non-reassuring, in deciding upon the dispute over the applicable standard of care, the Court has noted the very different FHR strip interpretations submitted by the parties' experts. The starting point for determining whether there are late decelerations or accelerations on the strip is to place the baseline. Fluctuations in FHR below the baseline are decelerations, and fluctuations above the baseline are accelerations. Many of the late decelerations identified by Dr. Hall fall no more than 5 bpm below what he identified as the baseline. If the baseline is actually 5 bpm less than that set by Dr. Hall, his late decelerations might be read as accelerations. Dr. Hall acknowledged that there might be a plus or minus five bpm margin of error in setting the baseline range on the strip. Dr. Depp, on the other hand, acknowledged that there were possible subtle decelerations in the strip, depending upon who might be reading the strip. (Depp testimony, p. 154).

12:17 a.m., a little over thirty minutes before the bradycardia occurred and about an hour before J.N.T. was delivered. So, although the strip did contain accelerations, which are reassuring, there were periods without accelerations and long periods with minimal variability (such as between 8:47 and 10:44 p.m.). The Court recalls the testimony at trial that there are periods of time during labor, such as during sleep cycles, when accelerations may wane and that in looking at the entire strip as whole the reassuring characteristics may outweigh the nonreassuring signs. However, those nonreassuring aspects, such as the tachycardia (albeit with a reasonable alternative explanation), the diminished amount of accelerations, the (at times) persistent minimal variability where it had been moderate at other times, the ongoing tachysystole and later-identified hypertonus, should have been considered when reevaluating the Pitocin dosage, deciding whether it should be adjusted or discontinued, in formulating differential diagnoses as the labor progressed and a resulting treatment plan, and monitoring labor in general. (*See* Ogden testimony: tachycardia is not a normal finding.)

As is evident in the discussion above, the Court is mindful of the possibility, if not the likelihood, for different interpretations of certain aspects of a fetal monitoring strip. There is room within the applicable standard of care for differences in close calls of judgment. For example, delivery physicians may subjectively differ in their readings of the baseline of a fetal heart rate, or when or if a labor contraction cycle begins to decelerate or accelerate. There is no room in the standard of care, however, for a physician to overlook the fact that tachycardia can be caused by fetal hypoxia, in addition to chorioamionitis. Freeman & Garite, p. 64 (Ex. 5020). By recognizing that a FHR strip is subject to different interpretations and physicians can reach

different results,[10] that the tachysystole was persistent, and that other possible causes existed for the tachycardia, Dr. Ogden could easily have found reassurance and corroboration for his diagnoses and decisions by reducing the Pitocin.

Dr. Depp agreed in his testimony that clinicians may rely on tachycardia to predict the oxygenation of fetus, although he said that it is the third most important factor to consider. First, according to Depp, physicians look at variability of the fetal heart rate, then to the presence and trend of decelerations, and then to tachycardia.[11] (Depp testimony); Freeman & Garite, pp. 90 & 111. Dr. Depp also testified that, even assuming that what Dr. Hall identified as late decelerations were late decelerations, such features implicate hypoxemia with a predictive value

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[10] The record at trial established unequivocally that the reading of an FHR strip is, even within otherwise constant medical benchmarks, a subjective exercise and sometimes an extraordinarily nuanced exercise. One might assume from such a backdrop that broad latitude within the standard of care must necessarily be afforded to the physician in interpreting and making clinical judgments upon his or her subjective interpretation of the FHR strip, and correspondingly that the standard of care must necessarily allow for the possibility that one delivery physician might reach a different conclusion than a colleague reading the same strip might determine. Dr. Hall at trial recounted an article describing how four obstetricians examined 50 FHR strips and they agreed on an interpretation in only 22 percent of the cases. Two months later during a second review of the same 50 tracings, the clinicians interpreted 21 percent of the tracings differently than they did during the first evaluation. In another study, five obstetricians independently interpreted 150 tracings and interpreted the tracings similarly in only 29 percent of the cases. On the facts of this case, the spaces between subjective judgments and the possibility of significant adverse consequences if such a judgment is mistaken, leave a duty for the physician to consider the possible differing interpretations that might be made of "close" details and, in turn, the potential complications of a Pitocin enhanced labor, when the signposts of that labor are potentially obscured by the fog of differing subjective interpretations and when the danger of veering off course, if a signpost is misread, is significant.

[11] Dr. Depp testified that tachycardia resulting from hypoxia is in a lower range, usually about 160 or 165. (Depp). The tachycardia here reached a range much higher, but there is also testimony in the record that ephedrine was administered and that can cause an increase in heart rate. The Court finds more persuasive value in Dr. Depp's testimony that if there is clinically significant hypoxia there will be decelerations in addition to the tachycardia and the decelerations would appear before the rise in baseline.

of 20 or 30 percent, while accelerations are clearly reassuring and highly predictive 95 to 99 percent of the time. Freeman and Garite, however, states that the best approach is one in which the endpoint is for the best outcome rather than the highest correlation, provided the incidence of intervention is not excessive. Ex. 5020, p. 143. "In the presence of most nonreassuring FHR patterns, the clinician should, whenever possible find additional ways to find reassurance for the absence of metabolic acidosis." *Id.* Although there was nothing on the strip that clearly pushes it into zone three of the classifications identified by the National Institute of Child Health and Human Development ("NICHD"),[12] the clearly abnormal group, (Depp testimony), there were periods of minimal variability, even according to Dr. Depp, and there were possible late decelerations. *See, e.g.*, Depp testimony re: panels 83, 86, 102, 120 from strip at Ex. 5001B).

The Court has considered whether its decision upon the standard of care, based upon the Court's assessment of the evidence in the record, leaves the physician at the whims of a shifting standard of care that was never identified. The Court concludes that such a risk does not arise from its ruling here. Rather, the Court's decision simply recognizes and describes what the evidence amply demonstrated–that the standard of care in Twin Falls, Idaho in August 2004 required the delivery physician to use the FHR strip, to be trained in its interpretation, to know the potential trouble signs and the reassuring signs of the progress of labor that might be revealed in the FHR strip, to know the potential trouble spots for using Pitocin and the means of

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[12] A 1997 NICHD Clinical Opinion found consensus among the workshop participants about the definition of a normal FHR tracing, i.e., normal baseline rate, normal (moderate) variability, presence of accelerations, and absence of decelerations, but no consensus regarding clinical management when FHR tracings fall between the extremes of normal FHR patterns and patterns predictive of a fetus at risk for damage or death, such as late or variable decelerations or substantial bradycardia with absent FHR variability. (Ex. 5022 at 1389). The tracings were divided into three groups: those clearly abnormal, those clearly reassuring, and everything else in the middle group. That middle group is the zone in which this case falls.

responding to those trouble signs, and to know that different physicians may see trouble in the same FHR strip that other physicians find reassuring, and to realize that fact and consider that possibility. Dr. Ogden breached this standard of care in his differential diagnoses and in monitoring the labor and delivery.

The Court's finding in this regard takes into consideration Dr. Ogden's testimony and that he did not appear to fully appreciate or consider the contraction rate and resting uterine tone when monitoring labor and assessing treatment decisions. Dr. Ogden acknowledged that, at one point during the labor, his notation of the contraction rate as every two to three minutes was probably wrong and the contraction rate was really one to two minutes. *See* Ex. 5000, p. 260. He testified, however, that he *thinks* he knew that Mrs. Trowbridge was experiencing contractions more frequently than every two or three minutes. The standard requires physicians to monitor the contraction rate, *know* what it is, and factor that into any differential diagnoses and treatment plan. Further, Dr. Ogden testified that he did not appreciate the significantly elevated resting tone and it was not a factor in his decision-making in regard to delivery in this case.

D. Causation

Having identified the applicable standard of care from the evidence at trial, and having further concluded that Dr. Ogden breached that standard of care, the Court must consider whether the breach of the standard of care constituted negligence, as alleged by Plaintiffs. In order to prove their case, the Plaintiffs must make a causal connection between Dr. Ogden's failure to provide the appropriate care to the injuries suffered by J.N.T. The Court's determination of the evidence on this issue turns upon the nature of the injuries and the fact of

the nuchal cord that was present at the time of J.N.T.'s delivery, all measured against the "crash" that occurred at the end of the course of labor, and the emergency caesarian section delivery that followed.

Plaintiffs' expert, Dr. Cantor, initially diagnosed J.N.T. with a type of cerebral palsy caused by prolonged, partial hypoxia. At trial, however, Dr. Cantor and other of Plaintiffs' expert witnesses did not disagree with the Defendant's expert witness, Dr. Naidich, as to his opinion as to what caused J.N.T.'s cerebral palsy or as to his diagnosis of extrapyramidal cerebral palsy, all of which pointed to an acute profound hypoxia. *See* Cantor testimony (stating he agrees with the defense expert's explanation that the damage mostly is of the acute type). Dr. Naidich reported the imaging evidence is "absolutely clear" that the well-known pattern of injury found in J.N.T.'s brain imaging studies demonstrates that her brain damage resulted from acute profound hypoxic ischemia. *See also* Phelan & Kim, Fetal Heart Rate Observations in the Brain-Damaged Infant, 2000, p. 222 (Ex. 5201) (explaining that with acute asphyxia, the CNS injury is primarily located in the basal ganglia and thalami).

Dr. Naidich identified abnormal white cross bands in the fourth ventricle and testified that they signify damage from acute, profound hypoxic ischemic injury and indicate a certain timing of that injury. Naidich described other damage consistent with this type of injury, such as the expansion of fluid around the brain, damage to the putamen, whiteness in the vermis, and larger-then-normal ventricles. The Court finds that J.N.T.'s scans reveal that her cerebral palsy was caused by what Dr. Naidich refers to as a very abrupt onset of total or near total cessation of the delivery of blood flow and oxygen to her tissues. The Defendant contends that such evidence makes clear that the injury resulted from the nuchal cord trauma at the end of the delivery process, and could not therefore have been related to any alleged negligence on the part

of Dr. Ogden in his management of the course of the labor. However, the Court concludes that the connection of the type of injury to the acute nuchal cord incident does not resolve the issue of causation.

Plaintiffs must establish by a preponderance of the evidence that Dr. Ogden's breach of the standard of care was the proximate cause of J.N.T.'s injury. *Garcia v. Windley*, 164 P.3d 819, 824 (Idaho 2007). Significantly,"[i]t need not be the only cause," it is "sufficient if it is a substantial factor concurring with some other cause acting at the same time, which in combination with it, causes the damage." *Id.* (quoting *Fussell v. St. Clair*, 818 P.2d 295, 299 (Idaho 1991)). Although this is a court trial, the Court finds the Idaho jury instruction on causation noteworthy:

> "proximate cause,". . . mean[s] a cause that, in natural and probable sequence, produced the injury, the loss or the damage complained of. It need not be the only cause. It is sufficient if it is a substantial factor in bringing about the injury.

IDJI 2.30.2.

The issue remains of whether what happened before the terminal bradycardia and total or near-total cessation of oxygen, contributed to J.N.T.'s injury in such a way as to be a "substantial factor concurring with some other cause acting at the same time, which in combination with it, causes the damage." *Garcia*, 164 P.3d at 824. (*See* Glass testimony: acknowledging it is possible for brain damage to result from a combination of partial prolonged hypoxia and total acute ischemic hypoxia). In this regard, Plaintiffs argue that the prolonged tachysystole and use of Pitocin depleted J.N.T.'s fetal reserves, which resulted in her being unable to withstand the nuchal cord event.

Fetal reserve refers to the ability of the fetus's heart to recover during hypoxic episodes that occur even in normal delivery. In other words, fetal reserve constitutes the energy sources available to the fetus. (Cantor). The heart and muscles cannot contract without energy. *Id.* (Glass testimony) (describing reserves as the sum total of all the factors that can help an infant compensate for a metabolic event or stress).

A fetus can tolerate up to five contractions a minute without experiencing episodes of significant hypoxia. Each of the contraction episodes is hypoxic but the baby has time in between to resuscitate itself and get its oxygen back up. (Hall). Dr. Hall testified that the hypertonus (uterine pressure) near the end of labor was 20+, which did not allow the baby to rest between contractions. *See also* ACOG Technical Bulletin, July 1995, p. 454 (Ex. 5021) ("if the frequency, duration, or strength of contractions becomes excessive, fetal hypoxemia may result"). Dr. Cantor testified that repetitive uterine stimulation leads to a diminished amount of oxygen to the fetus and diminished circulation. Plaintiffs also submitted an article summarizing Kathleen Rice Simpson's research, Effects of Oxytocin-Induced Uterine Hyperstimulation During Labor on Fetal Oxygen Status and Fetal Heart Rate Patterns, which found an "absolute decrease and the percentage of negative change in [fetal oxygen saturation] after only 30 minutes of hyperstimulation are of potential concern for fetal well-being." *Id.*, p. 34.e2 & 34.e4 (Ex. 57).

Defendant points to the nuchal cord as the cause of the injury. Dr. Smith testified that about 30 percent of babies have nuchal cords and it is not uncommon for them to be tight nuchal cords. Even though a tight nuchal cord is not usually completely occluded, because the oxygen deprivation comes and goes with the pressure on the cord (Hall testimony), Dr. Cantor testified that a nuchal cord can cause acute total asphyxia such as that J.N.T. suffered. The Court finds that J.N.T.'s injuries are consistent with a cord occlusion, and that the medical evidence in the

record does not establish that J.N.T.'s reserves were depleted to a degree of such considerable importance that such a condition was a substantial factor in contributing to her injuries.

In making this determination, the Court finds that the blood gas evidence is equivocal, particularly because all experts agreed that an arterial measure of pH would have more accurately reflected any metabolic acidosis affecting J.N.T. and the only pH taken from J.N.T. was a venous measure.[13] Dr. Cantor testified that the venous blood gases were not so profoundly acidotic. Dr. Depp testified that a base deficit of 10.5 is a minor degree of metabolic acidosis, but not significant to cause injury.

The evidence of organ damage tips more in favor of Defendant's view that J.N.T. had not experienced significant hypoxia before the nuchal cord incident. The nature and sequence of organ damage can evidence that partial, prolonged hypoxia occurred. One study has documented a consistent pattern of injury in infants who sustained an acute, near-total intrauterine asphyxia at the end of labor. In this type of asphyxia, injury to organs other than the brain is usually subtle. Pasternack & Gorey, The Syndrome of Acute Near-Total Intrauterine Asphyxia in the Term Infant, 1998, p. 391 (Ex. 5041). "The distribution of injury in these patients reflects the hierarchy of metabolic needs that are unmet after a severe, sudden disruption of substrate supply as occurs in an acute, severe asphyxia." *Id.* This contrasts with what is seen in more prolonged but less severe asphyxia, "in which shunting of blood flow from non-brain organs to the brain and from cerebral hemispheres to the thalamus and brainstem renders non-brain organs and cerebral hemispheres most vulnerable." *Id.* In other words, during partial-prolonged asphyxia, the fetus's "diving reflex", a protective mechanism, shunts blood to the

[13] This measures blood coming from the placenta to the fetus; an arterial reading measures blood coming from the fetus. (Depp).

heart and brain and away from other organs, damaging those other organs before the heart and brain.

Dr. Glass found no evidence of significant organ damage, including damage to the heart. (Glass testimony, p. 73). Key to the Plaintiffs' theory is that the fetal heart gave out. (Hall testimony; Cantor testimony). However, J.N.T.'s spontaneous cardiac rhythm came back in 90 seconds which is a very usual response for cardiac function to return if a heart has recently stopped. (Glass testimony, pp. 79-80). There was no evidence of heart damage and the medication ("pressors") administered to J.N.T. was given to improve kidney, not heart, function. (Ex. 3, at p. 4). Drs. Depp and Glass had not heard of a fetal heart failing without clear indications of metabolic acidosis.

Dr. Glass also opined that the bleeding in J.N.T.'s intestines could be from the tube placed into her stomach because there was just a transitory appearance of blood and no evidence of sloughing of bowels, tissue loss, or significant G.I. problems, and the urine output was normal for a 24 hour period. (Glass testimony, pp. 80, 82). In short, there was no evidence of intestinal damage that could be attributed to chronic partial asphyxia. (Glass testimony, p. 82). Additionally, Dr. Glass testified that the creatinine level was not abnormal or elevated and there was no evidence of transient damage to the kidneys in this case. (Glass testimony, p. 89). Even the hyponitremia is slim evidence of any organ injury. Thus, any organ involvement was trivial. (Glass testimony, p. 93).

That J.N.T. was hypovolemic at birth (low blood volume) also supports the Court's decision on the causation issue. An occluded cord would have compressed the umbilical cord vein to the fetus first, stopping blood flow into the fetus, and the arteries, which are harder, would be cut-off second, if at all. Accordingly, while the heart could still pump, blood would flow out of the fetus through the arteries, leaving the baby with lower blood volume at birth.

Both parties also agree that the FHR strip can provide information about whether a fetus suffers from hypoxia or acidosis, but disagree as to whether the strip in this case reflected hypoxia. Additionally, some of the FHR interpretation testimony was not based on personal experience. For example, Dr. Glass testified that J.N.T.'s reserves had not been depleted based on the interpretation of the FHR strip because variability was preserved and measures of acidosis were not present. However, Dr. Glass relied on Dr. Depp's reassuring interpretation of the FHR strip.

Dr. Smith, however, also testified that there was variability in the FHR strip throughout the day. If a fetus is experiencing clinically significant hypoxia, the strip should reflect a progressive loss of variability and more frequent or progressive variable or late decelerations. (Depp testimony; Freeman & Garite, pp. 66, 111, 135; Ex. 5022). Dr. Depp testified that the FHR tracing did not indicate clinically significant hypoxia or a loss of reserves. Even if the minimal variability reflected at times on the FHR strip reflects significant hypoxia, near the end of labor the variability at times rose to moderate and accelerations appeared on the FHR strip during the hour before the terminal bradycardia. In making this determination the Court has given more credit to Dr. Depp's interpretation of the tracing, in part because Dr. Hall testified that the strip in this case is not a good example to show all of the progression. Although this testimony from Dr. Hall may be based, in part, on the gap in the FHR strip during which time the FHR was not being recorded and some progression to absent variability could have occurred, Dr. Depp credibly testified there was no loss of reserve because there was no progression of variability to absent and there were accelerations, even near the end. (*See* Ex. 5001B, pp. 89-142, Depp identifies accelerations up to at least 12:17 a.m.); (*see also* Ex. 5001B, p. 121, last

accelerations identified by Dr. Hall near 9:30 p.m.). He also testified that with a loss of fetal reserves the heart is beaten down and cannot respond, but the tracing in this case is inconsistent with that.

The Court agrees that the evidence at trial supports an interpretation that the FHR strip did, at times, have worrisome features and decreasing variability. However, for purposes of causation, the Court finds that the strip did not contain enough progressive or persistent negative features (such as deeper and long lasting variable decelerations or persistent late decelerations) to demonstrate fetal reserves were depleted to the point where the fetal heart gave out.

The Court has considered the Simpson article on the effects of oxytocin, but finds it is more of a cautionary article than one establishing the required nexus for causation in this case. Ex. 57. The authors studied oxytocin-induced hyperstimulation on fetal oxygen saturation and heart rate patterns and found that hyperstimulation is associated with negative effects on fetal status. The article notes that, in 2008, there was "minimal evidence concerning the effects of uterine activity on the fetus to guide clinical practice." The authors report that "[*p*]*otentially* adverse effects on the fetus may be avoided by minimizing periods of hyperstimulation and treating it in a timely manner when occurring rather than waiting until the FHR pattern is nonreassuring." *Id.* at p. 34.e4. That a *potential* for adverse effects from hyperstimulation exists before nonreassuring features appear on the FHR tracing, and that "fetal well-being *may* be in jeopardy" with oxytocin-induced hyperstimulation, does not *establish* a causal link between the hyperstimulation and damage in this case, or overcome the other empirical evidence in the record to the contrary.

The causation issues are extraordinarily close ones in this case. The Court has considered them, and reviewed them over and again. Ultimately, the Court is persuaded that the

most persuasive and credible evidence on the causation issues, as supported by the objective findings of the brain imaging and the clinical findings contemporaneous with the emergency delivery, support the Defendant's theory of causation. It will never be known for certain whether Dr. Ogden's choices during the course of labor contributed in some part to the lifetime of limits and hardships that lie ahead for J.N.T. However, against the template that the law places upon his actions, the evidence does not meet the burden of persuasion placed upon the Plaintiffs on the question of causation.

III. FINDINGS OF FACT

Having carefully considered the testimony of the witnesses called at trial, thoroughly reviewed the exhibits admitted into evidence, and considered the parties' arguments, the Court makes and enters the following Findings of Fact pursuant to Federal Rule of Civil Procedure 52(a). All Findings of Fact referred to herein, unless otherwise qualified or limited, apply the preponderance of the evidence standard.

To the extent the Court has concluded that any evidence in the record does not support certain claims or counterclaims made by the respective parties, it will not be included in these Findings of Fact or otherwise referenced. The failure to mention an event or series of events in these Findings is not an oversight or unintentional omission but rather an indication that the evidence does not support a finding and/or conclusion in favor of the claim or counterclaim. *See White Indus., Inc. v. Cessna Aircraft Co.*, 845 F.2d 1497, 1499 (8th Cir. 1988) (Rule 52(a) does not require particularized findings on each piece of evidence parties present at trial). With these principles in mind, the Court's Findings of Fact are as follows:

A. Standard of Care

1. The standard of care for a physician delivering babies in Twin Falls in August of 2004 was the same for family practitioners as it was for obstetricians; the standard was not set by a physician's particular speciality. Nothing in the trial record provides a basis for defining the standard of care by specialty. Rather, it was a standard of care applicable to any physician involved in caring for a mother and an unborn child during labor and delivery.

2. That standard of care required physicians to use FHR monitoring in assessing the progress of labor, the fetus's condition, and the mother's condition. FHR monitoring was to be used in conjunction with other assessment measures for the mother, and for the fetus. *See, e.g.*, ACOG July 1995 Technical Bulletin (Ex. 5021) ("Intrapartum assessment by FHR monitoring is only one parameter of fetal well-being. It involves evaluation of the pattern as well as the rate, but it is not a substitute for informed clinical judgment.").

3. The standard of care required physicians to review the FHR information on an ongoing basis throughout the labor, to assess whether labor was progressing appropriately and to assess whether either the fetus or the mother was at risk or potentially at risk, and, if so, to consider different alternatives and decide whether something ought to be done to change the course of labor, including to assess whether or not the fetus ought to be delivered by a caesarean procedure.

4. The standard of care permitted the use of Pitocin to increase the progress of labor. (Hall; Depp Direct Testimony, p. 168).

5. The standard of care required physicians to decrease or discontinue the use of Pitocin in the presence of a nonreassuring FHR strip. (Hall); (Depp); ACOG Technical Bulletin,

July 1995, p. 458 (Ex. 5021) ("If nonreassuring FHR changes occur in patients receiving oxytocin, the infusion should be decreased or discontinued.").

6. The standard of care required that the physician monitor for the presence of tachysystole and for the presence of normal/abnormal accelerations and decelerations when assessing whether or not an FHR strip is reassuring. (Depp testimony: physicians are "always watching for hypoxia"). ACOG Technical Bulletin, July 1995, p. 455 (Ex. 5021) ("[U]terine contractions that result in decreases in fetal oxygenation exceeding that usually seen in labor may result in delayed or late decelerations,"and "[c]hanges in baseline FHR may also indicate the response of the fetus to an episode of hypoxia.").

7. The standard of care did not require a physician to always reduce or discontinue Pitocin when tachysystole is present.

8. The standard of care recognizes that there is subjectivity to reading the FHR. *See, e.g.*, Depp testimony (determining the FHR baseline is a bit of an "art form" and describing studies in which doctors read tracings differently from each other and also differently from one time to the next); Hall testimony (agreeing that if there is a disagreement about what the baseline is, you could interpret something as being an acceleration instead of a deceleration); Freeman & Garite, p. 236 (explaining that electronic fetal heart rate monitoring is "difficult to interpret"); Depp testimony (explaining how a late deceleration can be confused with an acceleration because an acceleration can be mistaken for the baseline).

9. However, there are some recognized patterns to FHR strips that the standard of care requires be understood and recognized by the physician, so that the physician can act in response to such patterns should they appear. *See* Freeman & Garite, p. 88 ("A knowledge of the

physiology and pathophysiology of the fetal FHR, coupled with experience in pattern recognition is essential for the appropriate use of electronic FHR monitoring.").

10. Physicians should know the characteristics of reassuring or reactive FHR patterns.

a. The most important FHR characteristic to determine immediate fetal status is variability in the heart rate. Freeman & Garite, p. 65 (Ex. 5020). Moderate variability is defined as 6 to 25 beats per minute and marked variability is greater than 25 beats per minute. (Depp testimony; Hall testimony).

b. Accelerations are "nearly always associated with fetal movement," reassuring, and almost always confirm that the fetus is not acidotic at that time. ACOG Technical Bulletin, July 1995, p. 455 (Ex. 5021); Freeman &Garite, p. 112 (Ex. 5020); (Hall testimony) (defining a reassuring tracing as one with a normal baseline, moderate variability, and accelerations).

c. Accelerations that precede and follow reassuring variable decelerations, sometimes referred to as "shoulders," are reassuring. *See* Freeman & Garite, pp. 84, 227 and Figs. 2, 10, 9.9 (Ex. 5020).

d. It is common to have variable decelerations during the pushing phase of labor. (Hall testimony). Variable decelerations are nonreassuring only when they are progressing in severity and duration, and are associated with a decreasing baseline. (Depp).

11. Physicians should know the characteristics of nonreassuring FHR patterns.

a. A prolonged smooth acceleration (rounded or blunted) that occurs following a variable deceleration and may take several minutes to return to baseline is an overshoot and provides evidence of fetal central nervous system dysfunction. Freeman & Garite, pp. 220, 227 (Ex. 5020); Depp testimony.

b. Nonreassuring decelerations include persistent late decelerations, prolonged decelerations, and decelerations coupled with decreased variability. Freeman & Garite, p. 66. *See also* ACOG Technical Bulletin, July 1995, p. 460 (Ex. 5021) ("Persistent late decelerations or severe variable decelerations associated with the absence of variability are always nonreassuring."); Freeman & Garite, Figs. 9.10 & 9.11 (illustrating a combination of variable decelerations, loss of variability, and/or tachycardia that is nonreassuring); (Depp testimony: The FHR strip becomes nonreassuring with persistent late decelerations and progressive loss of variability, and no accelerations).

c. An unstable baseline may be evidence of fetal central nervous system dysfunction. Freeman & Garite, p. 220 (Ex. 5020). *See also* ACOG Technical Bulletin, July 1995, p. 455 (Ex. 5021) (stating that changes in the baseline FHR may indicate a fetus's response to an episode of hypoxia).

12. The standard of care required knowledge of drug warnings for Pitocin use. The manufacturer advises that Pitocin should be discontinued immediately in the event of uterine hyperactivity and/or fetal distress. Pitocin Insert (Ex. 55); (Cantor Direct Testimony). During Pitocin infusion "[a]ttention should be given to tonus, amplitude and frequency of contractions, and to the fetal heart rate in relation to uterine contractions."

13. The standard of care required physicians to know a hospital's protocol for use of Pitocin, but did not require that physicians be bound by the protocol to the extent that it solely related to the nursing staff's administration of Pitocin. *See* Magic Valley RMC's protocol governed administration of Pitocin by nursing staff. (Ex. 32).

14. The standard of care required physicians to monitor the effects of Pitocin and to make informed decisions about whether or not to continue the use of Pitocin. *See, e.g.*, Williams Obstetrics, p. 475 (Ex. 87) ("[c]ontractions must be evaluated continually and oxytocin discontinued if they persist as greater than five in a 10-minute period or . . . if the fetal heart rate pattern becomes nonreassuring"); Gabbe, Obstetrics, Normal and Problem Pregnancies, p. 379 (Ex. 85) (explaining that the oxytocin infusion may need to be reduced as labor progresses and the frequency and intensity of contractions increase); Danforth's Obstetrics and Gynecology, p. 410 (Ex. 88) (stating that the most common side effect of oxytocin is "[u]terine hyperstimulation necessitating discontinuation of the drug or a decrease in the dose being used"); Pitocin Insert (Ex. 55); Hall testimony; Williams Obstetrics, p. 475 (Ex. 87) ("With hyperstimulation, immediate discontinuation of oxytocin nearly always rapidly decreases the frequency of contractions."); Hall testimony; Freeman & Garite (advising physicians to find reassurance for the absence of metabolic acidosis where intervention is not excessive).

15. The standard of care did not require that a physician make the same decision as some other physician might have made about whether to continue the Pitocin–only to use his/her best judgment as to whether the use of the Pitocin was threatening the health of the fetus or the mother.

16. The standard of care did not require that a physician read the FHR strip exactly the same as some other physician might have read it, including as to the baseline (for determining accelerations, late decelerations, etc.), but did require that the physician be able to identify the number of contractions over a period of time, in order to identify whether tachysystole was present, and if present, whether something ought to be changed about the labor pattern, such as the dosage or continued use of Pitocin. *See, e.g.*, Freeman & Garite, p. 236

(explaining that electronic fetal heart rate monitoring is a modality that is difficult to learn and "difficult to interpret"); ACOG Technical Bulletin, July 1995, p. 458 (Ex. 5021) ("Careful use of oxytocin is necessary to minimize uterine hyperstimulation and potential maternal and fetal morbidity."); Hall testimony (general testimony about dangers of Pitocin use and monitoring and care for tachysystole); Freeman & Garite, p. 244 (Ex. 5020) ("Prolonged accelerations or decelerations may create confusion over which part of the pattern is the baseline and which the periodic change."); ACOG Technical Bulletin, July 1995 (Ex. 5021); NICHD Research Planning Workshop Clinical Opinion on Electronic Fetal Heart Rate Monitoring: Research Guidelines for Interpretation (explaining that between the extremes of the best and worst FHR tracings there is a middle group[14]; this case lies somewhere in this middle group); (Depp testimony) (explaining that the middle group described is one in which there is not an exclusive pathway of care); (Hall testimony: there are standards to guide care for the mother and fetus with labors in this middle group).

17. The standard of care did not require the physician to discontinue use of Pitocin in the presence of tachysystole if the FHR strip is reassuring. *See* Depp testimony; Ogden testimony; Gabbe, p. 379 (Ex. 5027); ACOG Technical Bulletin No. 20 (Ex. 5029).

[14] The extremes and middle ground are discussed in a 1997 NICHD Clinical Opinion addressing FHR tracing interpretation and management of labor with various FHR patterns. The NICHD found consensus among the workshop participants about the definition of a normal FHR tracing, i.e., normal baseline rate, normal (moderate) variability, presence of accelerations, and absence of decelerations, but no consensus regarding clinical management when FHR tracings fall between the extremes of normal FHR patterns and patterns predictive of a fetus at risk for damage or death, such as late or variable decelerations or substantial bradycardia with absent FHR variability. (Ex. 5022 at 1389).

18. The standard of care required that the physician interpreting a closely nuanced FHR strip consider the possibility of different interpretations that might be non-reassuring in his or her differential diagnoses and decision-making.

19. The standard of care required that, if an FHR shows a long period of tachysystole, even in the presence of what the physician may believe in his/her best judgment is a reassuring strip, the physician must still allow in his differential diagnoses for the possibility that the strip is non-reassuring where the baseline and resulting accelerations and decelerations are subject to differing, but closely nuanced, interpretations and there has been a long, uninterrupted period of Pitocin use.

20. The standard of care required the physician to know that continued tachysystole and hypertonus have the potential to overly stress the fetus, otherwise there would be no reason to monitor for such conditions at all. *See* Hall testimony; Ogden testimony (agreeing it is reasonable to look at resting tone measurements when monitoring the contraction patterns and labor); Williams Obstetrics, p. 475 (Ex. 87) (explaining that the goal of oxytocin use "is to effect uterine activity that is sufficient to produce cervical change and fetal descent while avoiding uterine hyperstimulation *and/or* development of a nonreassuring fetal status").

B. Breach

1. Mrs. Trowbridge's tachysystole persisted for several hours. (Depp: tachysystole persisted for a significant period of time); (Hall testimony). Mrs. Trowbridge also experienced increased uterine tone at various times during her labor. (Hall); Ex. 5001B, pp. 122, 134, 136, 138, 141.

2. Dr. Ogden breached the standard of care by failing to adequately monitor the Pitocin's impact on the contraction pattern, appreciate the potential adverse significance of the

elevated resting tone and tachysystole in this case, and appropriately factor it into his decision-making process about the continued use and dosage of Pitocin, in light of the possible different interpretations of the FHR strip and the continued tachycardia.

C. Causation

1. The hypertonus and continued tachysystole may, at times, have reduced the fetus's reserves.

2. However, fetal reserve depletion to a level that might contribute to or cause injury was not evident in the record, and more likely than not J.N.T's injury resulted from the nuchal cord issue, by itself.

3. Any depletion in reserves was not a substantial contributing factor, even if considered in conjunction with the nuchal cord, in causing J.N.T.'s injury.

V.

CONCLUSIONS OF LAW

After reviewing the evidentiary record, considering the legal authorities submitted and the positions asserted by the respective parties, the Court makes the following Conclusions of Law.

1. The United States is named as a defendant under the Federal Tort Claims Act ("FTCA") 28 U.S.C. §§ 1346, 2671-2680; FTCA actions are governed by the substantive law of the state in which the act or omission occurred, *id.* §§ 1346; 2674.

2. To prove negligence, Plaintiffs must and did establish duty and a breach of that duty. *Orthman v. Idaho Power Co.*, 895 P.2d 561, 563 (Idaho 1995). Plaintiffs failed to make the required causal connection between the conduct and the resulting injury.

3. Plaintiffs must and did "affirmatively prove by direct expert testimony" that the health care provider negligently failed to meet the community standard of health care, as it existed at the time and place of the alleged negligent act. Idaho Code § 6-1012. "[I]ndividual providers of health care shall be judged in such cases in comparison with similarly trained and qualified providers of the same class in the same community, taking into account his or her training, experience, and fields of medical specialization, if any." *Id.* Plaintiffs bear the burden of proving the standard of care by testimony from a knowledgeable, competent expert witness. *Id.* at § 6-1013

4. Proximate cause includes cause-in-fact and legal responsibility. *Hayes v. Union Pac. R.R.*, 141 P.3d 1073, 1077 (Idaho 2006). When two or more causes are possible, the "substantial factor test" applies, *Newberry v. Martens*, 127 P.3d 187, 191 (Idaho 2005), and Plaintiffs must prove by a preponderance of the evidence that the Defendant's conduct substantially contributed to the injury. *Id.*

5. Plaintiffs failed to meet their burden of demonstrating that Dr. Ogden's breach of the standard of care was a substantial factor in causing J.N.T.'s injury.

6. Defendant is entitled to judgment in its favor.

7. Because Defendant has prevailed, the Court need not consider whether Defendant engaged in willful or reckless conduct or issue a decision on whether Idaho's non-economic damages cap applies in this case. *See* Idaho Code § 6-1603.

VI. ATTORNEYS' FEES CLAIMS

Both parties have requested an award of attorneys' fees. Amended Complaint, pp. 7-8 (Docket No. 3); Answer, p. 9 (Docket No. 4). If Defendant wishes to pursue an award of attorneys' fees, it must file an appropriate motion and supporting brief in accord with Federal

Rule of Civil Procedure 54(d) and the corresponding Local Rule, within the time allowed after entry of judgment in this action.

DATED: **March 5, 2010**

Honorable Ronald E. Bush
U. S. Magistrate Judge