THE CUTTING EDGE 2015: DELVING DEEPER INTO TBI LAW AND SCIENCE

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Course Agenda

The Cutting Edge 2015

Co- Presenters: Jeffrey A. Brown, MD, JD, David Mahalick, PHD and William Devito, Esq.

DANY DINNER – Date to be determined

1. Intro A. Devito – **10 minutes**
   - Why talk about brain injury cases
   - Increasing financial stakes in brain injury claims (dollar values)
   - New Science
   - Focus on the team and strategy
   - How is plaintiff going to present the case and tests that come up
   - New cases on Diffusion Tensor Imaging
   - People Recover the classic case of Phineas Gage

2. Investigating Closed Head Brain Injuries

A. Mahalick – **25 minutes**

- Types of Brain Injuries
- What to look for in Medical Records
- Identifying TBI
- Clinical Testing by a neuro-psychologist
- Framing the degree of alleged damage
- co-occurring psychiatric disorders
- treatment

Devito Intro to Brown

B. Brown Defense Tactics in TBI Cases -**25 minutes**
   - Finding inconsistency in past and present medical and mental history
   - What to look for in Employment and School Records
   - How to Use IME's and Science to Argue no permanent Injury
   - Use of Video deposition of plaintiff and why and what to look for in surveillance and photos
   - Spotting inconsistencies and exaggeration and somataform disorder
   - Presenting alternative arguments for plaintiff's problems and demonstrating that the plaintiff has not mitigated damages
   - The latest on DTI and other advanced testing

C. DeVito **20 minutes**

Translating the neuroscience into winning legal strategies

- Using discovery to find out what baseline you started with – what brain were you dealing with before the accident
- Discovery for the medical exam
- New Cases on the admissibility of diagnostic exams for TBI
  review of cases on evidentiary rulings on the most common
- Using sensitivity and specificity arguments to win the case

10 minute break

3. Approaching medical and legal challenges making their way to the northeast

A. DeVito **5 minutes –**

B. Does Obama Care entitle you to discount the plaintiff's future medical claim and lifecare plan? What the cases really say.
-Watching the ever changing science

C. Brown/Makalick **ten minutes**

The latest science in the pipeline biomarkers, brain mapping, and Prions

4. Q&A – discussion – **fifteen minutes** open discussion and questions

Document 2

Andrew v. Patterson Motor Freight, Inc.

Slip Copy, 2014 WL 5449732 (W.D.La.)
(Cite as: 2014 WL 5449732 (W.D.La.))

Only the Westlaw citation is currently available.

United States District Court,
W.D. Louisiana,
Lafayette Division.
Robert Craig ANDREW, et al.
v.
PATTERSON MOTOR FREIGHT, INC., et al.

Civil Action No. 6:13CV814.
Signed Oct. 23, 2014.

James Harvey Domengeaux, Domengeaux Wright et al, Lafayette, LA, for Robert Craig Andrew.

Michael J. Remondet, Jr., Jeansonne & Remondet, Lafayette, LA, for Patterson Motor Freight Inc.

MEMORANDUM RULING

REBECCA F. DOHERTY, District Judge.

***1** Currently pending before the Court are the following motions: (1) plaintiff's "Motion in Limine to Strike and/or Limit Certain Testimony of Lay Witness, George 'Tracy' Latiolais" [Doc. 47]; (2) "Defendants' Motion in Limine/ *Daubert* Challenge to Exclude or Limit the Trial Testimony and Evidence of Dr. Eduardo Gonzalez–Toledo and Request for Hearing" [Doc. 51]; and (3) "Defendants' Motion in Limine/ *Daubert* Challenge to Exclude the Trial Testimony and Evidence of Dr. Mark S. Warner, Ph.D" [Doc. 52] .[FN1]

FN1. Additionally pending are: "Defendants' Motion in Limine/ *Daubert* Challenge to Exclude the Trial Testimony and Evidence of John W. Theriot and Request for Hearing" [Doc. 53], and plaintiffs' "Motion to Exclude Expert Witness, Frank Stagno, CPA/ABV and/or Motion in Limine as to Defendants' Proffered Expert Testimony and Report Regarding Mitigation of Damages and Reasonable Alternatives" [Doc. 67]. Those motions will be addressed by separate ruling.

Considering the law, the facts in the record, and the arguments of the parties, the Court GRANTS plaintiffs' motion to limit the testimony of George "Tracy" Latiolais [Doc. 47]; the Court DENIES IN PART and DEFERS IN PART defendants' motion in limine/ *Daubert* challenge to Dr. Eduardo Gonzalez–Toledo [Doc. 51]; and the Court DENIES IN PART and DEFERS IN PART defendants' motion in limine/ *Daubert* challenge to Dr. Mark S. Warner [Doc. 52].

I. Factual Background

This matter involves a motor vehicle accident occurring on June 29, 2012, in the town of Broussard, Louisiana. [Doc. 1, ¶¶ 6, 7] According to the complaint, plaintiff Robert Andrew was injured when he was struck by a tractor-trailer operated by defendant Cecil A. French. [*Id.* at ¶ 7] Plaintiff alleges Mr. French was in the course and scope of his employment with defendant Patterson Motor Freight, Inc. at the time of the collision. [Doc. 5, ¶ 3] Plaintiff alleges as a result of the accident, he "sustained a Traumatic Brain Injury to the frontal lobe resulting in residual deficits in the areas of emotion, impulsivity, personality, and short term memory." [Doc. 48, p. 3] Plaintiff additionally alleges he sustained a fracture of a thoracic vertebrae (for which he underwent a T8 Kyphoplasty), and damages to the facets at the L4–5 region of the spine (with a recommendation of an L3–4 and L4–5 fusion with rods). [*Id.*] Plaintiff asserts he "has suffered and continues to suffer with severe back pain and general body pain, cognitive difficulties, headaches, sleep deprivation and disturbances, mood uncertainties, and confusion." [FN2] [*Id.*] Trial of this matter is scheduled for December 8, 2014. [Doc. 26]

FN2. Plaintiff's wife, Susan M. Andrew, asserts a claim for loss of consortium. [Doc. 1, ¶ 12] References herein to "plaintiff" are to Robert Andrew.

II. Standards of Review

A. Lay Testimony

Rule 602 of the Federal Rules of Evidence states in pertinent part: "A witness may testify to a matter only if evidence is introduced sufficient to support a finding that the witness has personal knowledge of the matter. Evidence to prove personal knowledge may consist of the witness's own testimony." Fed.R.Evid. 602. If it is determined the witness does have personal knowledge of the matters to which he intends to testify, the nature of the witness' testimony is further limited by Rule 701, which provides:

> If a witness is not testifying as an expert, testimony in the form of an opinion is limited to one that is:
>
> (a) rationally based on the witness's perception;
>
> ***2** (b) helpful to clearly understanding the witness's testimony or to determining a fact in issue; and
>
> (c) not based on scientific, technical, or other specialized knowledge within the scope of Rule 702.

Fed.R.Evid. 701; *see also U.S. v. Ebron*, 683 F.3d 105, 137 (5th Cir.2012)("A lay opinion must be based on personal perception, must be one that a normal person would form from those perceptions, and must be helpful to the jury.")

B. Expert Testimony

To be admissible at trial, expert testimony must satisfy the conditions of Federal Rule of Evidence 702, which provides:

> A witness who is qualified as an expert by knowledge, skill, experience, training, or education may testify in the form of an opinion or otherwise if:
>
> (a) the expert's scientific, technical, or other specialized knowledge will help the trier of fact to understand the evidence or to determine a fact in issue;
>
> (b) the testimony is based on sufficient facts or data;
>
> (c) the testimony is the product of reliable principles and methods; and
>
> (d) the expert has reliably applied the principles and methods to the facts of the case.

Fed.R.Evid. 702. A district court has considerable discretion in deciding whether to admit or exclude expert testimony. *See Kumho Tire Co. v. Carmichael*, 526 U.S. 137, 152, 119 S.Ct. 1167, 143 L.Ed.2d 238 (1999) ("[W]e conclude that the trial judge must have considerable leeway in deciding in a particular case how to go about determining whether particular expert testimony is reliable."); *General Elec. Co. v. Joiner*, 522 U.S. 136, 139–40, 118 S.Ct. 512, 139 L.Ed.2d 508 (1997)(abuse of discretion is the standard of review).

"Rule 702 requires trial courts to ensure that proffered expert testimony is 'not only relevant, but reliable.' " *Brown v. Illinois Cent. R. Co.*, 705 F.3d 531, 535 (5th Cir.2013)(quoting *Daubert v. Merrell Dow Pharmaceuticals, Inc.*, 509 U.S. 579, 589, 113 S.Ct. 2786, 125 L.Ed.2d 469 (1993)). "To determine whether proffered testimony is reliable, the trial court must make 'a preliminary assessment of whether the reasoning or methodology underlying the testimony is

... valid and of whether that reasoning or methodology properly can be applied to the facts in issue.' " *Id.* (quoting *Daubert* at 592–93). Courts should consider scientific expert testimony in light of factors that help determine the reliability of that testimony. *Daubert* at 589, 592–94. In this reliability analysis, courts may rely on factors such as those suggested by the *Daubert* court: "whether the theory or technique the expert employs is generally accepted; whether the theory has been subjected to peer review and publication; whether the theory can and has been tested; whether the known or potential rate of error is acceptable; and whether there are standards controlling the technique's operation." *Broussard v. State Farm Fire and Cas. Co.*, 523 F.3d 618, 630 (5th Cir.2008). "*Daubert* makes clear that the factors it mentions do *not* constitute a 'definitive checklist or test.' " *Kumho Tire Co. v. Carmichael*, 526 U.S. 137, 150, 119 S.Ct. 1167, 143 L.Ed.2d 238 (1999) (emphasis in original). "The district court's responsibility is 'to make certain that an expert, whether basing testimony upon professional studies or personal experience, employs in the courtroom the same level of intellectual rigor that characterizes the practice of an expert in the relevant field.' " *Pipitone v. Biomatrix, Inc.*, 288 F.3d 239, 247 (5th Cir.2002)(quoting *Kumho*, 526 U.S. at 152)). The focus of reliability "must be solely on principles and methodology, not on the conclusions they generate." *Daubert*, 509 U.S. at 595.

***3** "[A]s a general rule, questions relating to the bases and sources of an expert's opinion affect the weight to be assigned that opinion rather than its admissibility...." *United States v. 14.38 Acres of Land*, 80 F.3d 1074, 1077 (5th Cir.1996)(internal quotations and citations omitted). "It is the role of the adversarial system, not the court, to highlight weak evidence...." *Primrose Operating Co. v. Nat'l American Ins. Co.*, 382 F.3d 546, 562 (5th Cir.2004). "Vigorous cross-examination, presentation of contrary evidence, and careful instruction on the burden of proof are the traditional and appropriate means of attacking shaky but admissible evidence." *Daubert* at 596 (citation omitted).

III. Mr. George "Tracy" Latiolais

In 2005, plaintiff and Mr. Tracy Latiolais formed A & L Repair Service, LLC, an oilfield service company specializing in the repair of oilfield equipment, such as drill pipe spinners, kelly spinners, and power tongs.[FN3] [Doc. 48, pp. 6–7] Plaintiff and Mr. Latiolais each owned fifty percent of the company. [*Id.* at 6; Doc. 64, p. 2] In August 2013, Mr. Latiolais unilaterally made the decision to close down A & L Repair. [Doc. 48, pp. 7–8; Doc. 64, pp. 3–4] According to both plaintiff and Mr. Latiolais, Mr. Latiolais made the decision to close down A & L Repair because he was concerned the medications plaintiff was prescribed to address injuries sustained in the motor vehicle accident impaired plaintiff and might cause an accident, thereby exposing the business (and Mr. Latiolais) to liability. [*See e.g.* Doc. 64–1, pp. 15, 18–19; Doc. 47–6, pp. 3–4] According to plaintiff, he tried to explain to Mr. Latiolais the behaviors about which Mr. Latiolais was concerned were due to effects of the brain injury he incurred, rather than his prescribed medications. [Doc. 64–1, pp. 18–19] However, Mr. Latiolais was adamant that unless plaintiff discontinued his medications, the business would be closed. [*Id.*] As noted, Mr. Latiolais closed A & L Repair in August 2013.

FN3. In 2006, plaintiff and Mr. Latiolais additionally formed A & L Construction, LLC, a real estate holding company that owned the A & L Repair office building/shop, and received rental payments from A & L Repair for the use of this space. [Doc. 60–2, pp. 4, 6]

By this motion, plaintiff seeks an order prohibiting Mr. Latiolais from testifying certain behaviors of plaintiff were caused by plaintiff's use of prescribed medications. [Doc. 48, pp. 16, 17] Plaintiff agrees Mr. Latiolais may testify as to: "his perceptions that after the crash Mr. Andrew's *behavior* changed," the behavior change affected plaintiff's work performance,

and the behavior change led to Mr. Latiolais' decision to shut down the business. [*Id.* at 17 (emphasis in original)] However, plaintiff argues Mr. Latiolais should not be allowed to testify the *cause* of plaintiff's behavior change was due to medication. [*Id.* at 16–17] Counsel for plaintiff notes Mr. Latiolais testified in his deposition he did not know what medications plaintiff was taking, the dosage of those medications, or the side effects caused by the medications.

Defendants argue such testimony is properly admissible based upon Mr. Latiolais' observation of plaintiff, and because Mr. Latiolais had been told by plaintiff he was taking medications due to the injuries sustained in the accident. [Doc. 64, p. 6] Defendants additionally argue this testimony is relevant to the issue of damages for loss of wages, because Mr. Latiolais testified the reason they closed the business "was because of Andrew's medication usage and the resulting impairment." [FN4] [*Id.*] Finally, defendants argue, "[a]ny concerns Plaintiffs may have can be fully addressed in cross-examination."

> FN4. Defendants argue Mr. Latiolais' reason for closing the business (*i.e.* his concern A & L would face liability in the event plaintiff's impairment from medications caused an accident) is relevant, because plaintiff is seeking "damages associated with the closure of the businesses...." [Doc. 64, pp. 2, 3, 6] However, as noted by plaintiff, "A & L Repair Services, LLC is not a party to this litigation and Mr. Andrew is not by pleading financial damages stemming from the closure of this entity on behalf of the LLC." [Doc. 67–3, p. 18; *see also* Doc. 48, p. 18] Rather, plaintiff is seeking damages for lost wages and lost earning capacity he *personally* incurred as a result of this accident. [*See e.g.* Doc. 1, ¶ 11; Doc. 48, p.18; Doc. 67–3, pp. 18–19]

***4** The Court finds Mr. Latiolais lacks the qualifications necessary to provide his opinion as to the *cause* of plaintiff's behavior, and thus, his opinion plaintiff's behavior was caused by prescribed medications lacks foundation. Fed.R.Evid. 701 (where witness is not testifying as an expert, opinion testimony is limited to opinions based on perception, if helpful, and if not based on scientific, technical, or other specialized knowledge). Again, Mr. Latiolais testified he does not know what medications plaintiff was taking or their dosage; other than "a broken back," he does not know what injuries plaintiff sustained; and he has no experience dealing with someone with abrain injury. [Doc. 47–6, pp. 16–18, 20, 22]

The Court additionally finds the foregoing testimony should be excluded pursuant to Federal Rule of Evidence 403, which provides: "The court may exclude relevant evidence if its probative value is substantially outweighed by a danger of one or more of the following: unfair prejudice, confusing the issues, misleading the jury, undue delay, wasting time, or needlessly presenting cumulative evidence." Here, the Court finds any probative value of the testimony at issue would be substantially outweighed by the danger of unfair prejudice, confusion of the issues, and/or misleading the jury, in that it would present plaintiff to the jury as a potential drug abuser, where no evidence has been presented regarding same, and there are alternative explanations for the behavioral changes (*i.e.* the effects of abrain injury).

For all of these reasons, the Court finds while Mr. Latiolais may properly testify about his observations of plaintiff's behavior, he lacks sufficient personal or scientific knowledge to testify as to *the cause* of such behavior changes. *See e.g. Graves ex rel. W .A.G. v. Toyota Motor Corp.*, 2011 WL 4590772, *8 (S.D.Miss.)("An opinion based upon the assumption of the existence of an important fact cannot meet the Rule 701 test.") Accordingly, the Court grants plaintiff's motion, and Mr. Latiolais will be prohibited from testifying plaintiff's behavior changed *due to his use of prescribed medications.*

IV. Dr. Eduardo Gonzalez–Toledo

By this motion, defendants assert plaintiff's neuroradiology expert, Dr. Eduardo Gonzalez–Toledo, should be prohibited from testifying at trial, and "all evidence associated with him" should be excluded. [Doc. 51, p. 1] Alternatively, defendants move for an Order limiting his testimony, "to exclude the images created with the Brain Suite program." [*Id.; see also* Doc. 56, p. 3] Defendants request a "pre-trial '*Daubert* Hearing' on this motion...." [*Id.* at 2] In support of their motion, defendants argue: (1) Dr. Gonzalez–Toledo is not qualified in the field of neuroradiology; (2) "the methodology that he utilized for his analysis is not widely accepted for the diagnosis of traumatic brain injury (TBI)"; and (3) "his testimony will be cumulative with that of Plaintiff's treating physicians and other expert and will not be helpful to the court." [Doc. 51–2, p. 1]

A. Qualifications

***5** Defendants argue Dr. Gonzalez–Toledo "does not meet the criteria of having sufficient specialized knowledge to assist the trier of fact," because "he does not possess the necessary board certification to be recognized as a neuroradiologist or a neurosurgeon in the United States." [*Id.* at 4] According to defendants, Dr. Gonzalez–Toledo's "designation as 'neuroradiologist' is self-selected." [*Id.*] Defendants note Dr. Gonzalez–Toledo "has prior certifications in neurosurgery and radiology from Argentina, but he is only licensed to practice radiology in Louisiana." [*Id.*]

According to Dr. Gonzalez–Toledo's affidavit: he is "a medical doctor specializing in neuroradiology," licensed by the Louisiana State Board of Medical Examiners; he is the Director of Neuroradiology at LSU Health Sciences Center in Shreveport and the Director of Research for the Department of Radiology at University Health (formerly known as LSU Health Sciences Center in Shreveport); he is a tenured professor of Radiology, Neurology and Anesthesiology at University Health; for over forty-five years, he has been teaching, researching, practicing, and publishing articles about neurology, radiology, neurosurgery, CT technology, MR technology and neuroimaging; he has published nearly 200 publications, including books, chapters in books, and articles in journals in the fields of radiology, neurology, and neuroradiology; he is a member of many professional societies, including the American College of Radiology and the American Society of Neuroimaging; he became board certified in neurosurgery by the Argentine College of Neurosurgeons in 1971, and was certified in radiology by the Ministry of Public Health in Argentina in 1977; he was board certified in both diagnostic imaging and neurosurgery by the National Academy of Medicine's Council for Certifications of Medical Professionals in Argentina shortly after it was created in 1994; in 2010, the United States' Accreditation Council for Graduate Medical Education ruled the foregoing credentials "were equivalent to board certification by the American Board of Radiology." [Doc. 59–5, ¶¶ 1, 3–4, 44, 46–47, 53–54]

The Court finds the foregoing credentials qualify Dr. Gonzalez–Toledo to testify as an expert in the field of neuroradiology and notes, however, that defendants will have full opportunity to traverse Dr. Gonzalez–Toledo as to his qualifications at trial, if defendants so desire.

B. Methodology

1. Cortical Reconstruction/Cortical Thickness Measurement

According to Dr. Gonzalez–Toledo, Cortical Reconstruction or Cortical Thickness Measurement ("CTM") is a type of neuroimaging that detects changes in the cortical surface—*i.e.*, "the area where the gray matter covers the cerebral hemispheres, where the higher nervous system centers are located." [Doc. 51–4, p. 1; Doc. 59–5, ¶ 6] To conduct CTM, Dr. Gonzalez–Toledo performs an MRI, the data from

the MRI is processed through BrainSuite software, resulting in 3D reconstructed images of the cortical surface. [Doc. 59–5, ¶¶ 32–33, 35; Doc. 59, p. 4; Doc. 51–4, p. 2] According to Dr. Gonzalez–Toledo, CTM "demonstrate[s] evidence of traumatic brain injury pathology and can reveal abnormalities that are not visible on standard MRIs." [Doc. 59–5, ¶ 21; Doc. 51–4, p. 3] As noted by defendants, according to the BrainSuite website:

> ***6** BrainSuite is a collection of software tools that enable largely automated processing of magnetic resonance images (MRI) of the human brain. The major functionality of these tools is to extract and parameterize the inner and outer surfaces of the cerebral cortex and to segment and label gray and white matter structures. BrainSuite also provides several tools for visualizing and interacting with the data.

[Doc. 51–2, p. 6 (citing *http://brainsuite.org/* (August 19, 2014))]

Defendants argue Dr. Gonzalez–Toledo's testimony should be excluded because "it is not based on sufficient data and facts, and the methodology that he utilized for his analysis, i.e., reconstructing images from MRI data through the use of Brain Suite software, is not widely accepted for the diagnosis of traumatic brain injury (TBI)." [Doc. 51–2, pp. 4–5] Alternatively, defendants move for an order "limiting the testimony and evidence ... to exclude the images created with the Brain Suite program." [Doc. 51, p. 1] Defendants note they "do not object to the underlying data [i.e. the MR images], but to the prejudicial and misleading reworking of the data and presentation of it by the created images produced by postprocessing software." [Doc. 80, pp. 1–2]

With regard to methodology, defendants argue "cortical mapping ... is currently a research tool and is not used in clinical diagnostics and decision-making," citing the affidavit of their expert neuroradiologist, Dr. Partington. [FN5] According to defendants, the images of plaintiff's brain attached to Dr. Gonzalez–Toledo's report are "excerpted from the MRI," and then "processed to show the surface of the brain with color of an arbitrary value superimposed on these images." [Doc. 52–2, p. 6] Defendants continue, "In his report, Dr. Gonzalez–Toledo stated that the areas that are color-coded in blue on these maps show evidence of traumatic brain injury." [FN6] [*Id.*] According to Dr. Partington, when the areas in blue on the CTM images are compared to the same areas of the brain on the MRI images, no abnormality is observable. [*Id.; see also* Docs. 59–24, p. 12; 54–3, p. 3; 51–7, p. 2] In other words, defendants argue "[t]he data itself is normal and shows no evidence of traumatic injury." [FN7] [*Id.* at 7] In light of the foregoing, defendants conclude:

> FN5. According to Dr. Gonzalez–Toledo's affidavit, CTM is "used clinically at University Health as a diagnostic tool," and it is "used clinically in other parts of the country and is reimbursable by some health insurance companies." [Doc. 59–5, p. 4]
>
> FN6. The Court notes Dr. Gonzalez–Toledo's states the "compromised portions of the cortex" are shown in "blue and yellow colors." [Doc. 51–4, p. 2]
>
> FN7. Again, according to Dr. Gonzalez–Toledo, the reason one conducts CTM is precisely because it "demonstrate[s] evidence of traumatic brain injury pathology and can reveal abnormalities that are not visible on standard MRIs." [Doc. 59–5, ¶ 21] Additionally, the Court notes, when pressed by plaintiff's counsel on the issue of the purported inconsistencies between plaintiff's CTM and MRI images, Dr. Partington testified: "And I will admit that I am not well-versed enough in cortical mapping to

> know whether a normal person, are they absolutely homogenous red, absolutely homogenous blue.... And I just don't have enough experience with it and knowledge of it to know what the normal variations are." [Docs. 56–1, p. 6; 59–24, p. 13] He further admits it is speculation on his part as to whether the areas in blue shown on the CTM images must match the MRI images. [Doc. 59–24, p. 13]

Dr. Gonzalez–Toledo's use of the Brain Suite software for diagnostic purposes has not been sufficiently tested and subjected to peer review and publication in the field of traumatic brain injury to be reliable. The potential rate of error is unknown, Dr. Gonzlez–Toledo offered no standards controlling its operation; and it is not generally accepted within the neuroradiology field as a reliable clinical diagnostic tool. *Daubert, supra.*

[*Id.* at 8] [FN8]

> FN8. To the extent defendants argue the cortical mapping images are unreliable because "it is impossible to discern what parameters Dr. Gonzalez–Toledo set to get the results he presented in his report," the Court disagrees. [Doc. 54–2, p. 3] This argument is based on testimony of Dr. Partington, wherein he was asked if he could explain why the MRI images show a normal brain, whereas the CTM images show abnormality. Dr. Partington could not explain, but stated, "[m]y guess would be, and its strictly speculation on my part," that one could change the parameters on the software to show increased abnormality where none existed. [Doc. 56–1, p. 8] However, Dr. Gonzalez–Toledo states in his affidavit "[t]he software has preset conditions and settings that are recommended by physicists at ... UCLA," and he "does not modify the settings, change the parameters or make any changes to the software." [Doc. 59–5, p. 10] Accordingly, the Court will not exclude Dr. Gonzalez–Toledo's testimony on the basis "it is impossible to discern what parameters Dr. Gonzalez–Toledo set to get the results he presented in his report."

In support of their argument that Dr. Gonzalez–Toledo's testimony is based on insufficient facts and data, defendants argue Dr. Gonzalez–Toledo "never met Plaintiff or observed his behavior" and, based solely upon the MRI he conducted and his "reconstruction of the data from that MRI in Brain Suite, ... he claims that Mr. Andrew suffered a traumatic brain injury during the motor vehicle accident." [Doc. 51–2, p. 5 (citing Dr. Gonzalez–Toledo's expert report)] However, according to defendants, in his deposition, Dr. Gonzalez–Toledo "admitted that he cannot say that this accident caused the alleged damage to the brain." [*Id.*] The Court will not exclude Dr. Gonzalez–Toledo's testimony on the basis of the argument now presented by defendants. Rather, after testimony and opportunity for objection, should CTM testimony be admitted at trial, this issue can be fully addressed on cross-examination. *See e.g. Daubert,* 509 U.S. at 592 ("Unlike an ordinary witness ..., an expert is permitted wide latitude to offer opinions, including those that are not based on firsthand knowledge or observation"); *Bryan v. John Bean Division of FMC Corp.,* 566 F.2d 541, 546 (5th Cir.1978)("experts particularly doctors customarily rely upon third party reports from other experts such as pathologists and radiologists in whom the testifying expert places his trust"); Fed.R.Evid. 703 ("An expert may base an opinion on facts or data in the case that the expert has been made aware of or personally observed").

***7** As their final argument, defendants assert "the probative value of Dr. Gonzalez–Toledo's reconstructed images and analysis is substantially outweighed by the likelihood that the jury will be confused or mislead by the compelling visuals of the

images produced by the Brain Suite imaging technology." [Doc. 51–2, p. 9] According to defendants, "The images produced by the software, while not accurately reflecting the status of Plaintiff's brain, are colorful, arresting, and likely to impress the average juror who may not understand the nature and origin of the images and what they actually portray." [*Id.*]

With regard to CTM, itself, the Court finds, at this juncture, it has insufficient information to determine whether the testimony and evidence is reliable. While Dr. Gonzalez–Toledo has provided a number of *conclusory* statements and open opinions regarding the reliability of CTM, he has not provided an underlying bases for those opinions. "To establish reliability under *Daubert,* an expert bears the burden of furnishing 'some objective, independent validation of [his] methodology.' " *Brown v. Illinois Cent.R. Co.,* 705 F.3d at 536 (quoting *Moore v. Ashland Chemical Inc.*, 151 F.3d 269, 276 (5th Cir.1998)). Accordingly, the Court will grant defendant's motion for a pre-trial *Daubert* hearing to address the reliability of CTM and Dr. Gonzalez–Toledo's reliance thereon. At the hearing, plaintiff should focus his argument and evidence on factors such as: whether the theory or technique the expert employs is generally accepted; whether the theory has been subjected to peer review and publication; whether the theory can be and has been tested; whether the known or potential rate of error is known or if known, acceptable; and whether there are standards controlling the technique's operation. *Broussard,* 523 F.3d at 630. The hearing will be set by separate minute entry.

2. Diffusion Tensor Imaging ("DTI")

According to Dr. Gonzalez–Toledo, diffusion tensor imaging ("DTI") is "an MRI method that examines the microstructure of the white matter of the brain, allowing for the detection of microscopic pathology or abnormality of the white matter." [Doc. 59–5, ¶ 7] More specifically:

> DTI measures the direction of movement or flow (known as diffusion) of water molecules through tissue. Water moves through damaged tissue at different rates and in different directions than it does [in] healthy tissue. DTI is based upon the basic physics of the flow of water. With no barriers to flow, water will move in isotropic distribution, which means it Will move equally in all directions. If there are barriers to flow, it will move anisotropically or unequally in all directions like a perforated sprinkler-hose. As the water molecules flow through brain tissue, the water molecules follow the nerve fibers, and so by reconstructing these trajectories, DTI can image the nerve fibers.

[Doc. 59–5, p. 5] "The majority of people who have sustained mild traumatic brain injury (mTBI) have normal MRI and CT findings, even when significant neurological impairments exist as a result of the traumatic brain injury." [*Id.*] "DTI is a more sensitive technology that can reveal damage that is not visible on standard MRIs." [*Id.* at ¶ 9] To perform DTI, Dr. Gonzalez–Toledo performs an MRI, and then inputs the data obtained from the MRI into software called "3D Slicer," resulting in 3D reconstruction of the fiber tracts. [*Id.* at ¶¶ 32–35; Doc. 51–4, p. 2]

***8** At this juncture, the Court must note defendants make no attack against the use of DTI until their reply brief. While they ask this Court to exclude both DTI and CTM evidence in their original and supplemental motion in limine, all arguments contained in those documents are addressed toward the use of the BrainSuite software (and thus, CTM). The majority of defendants' argument against Dr. Gonzalez–Toledo's methodology (*i.e.* DTI is not widely accepted for the diagnosis of TBI) is based upon a single article entitled *Guidelines for the Ethical Use ofNeuroimages in Medical Testimony*. According to defendants, this article supports their position that "[t]he postprocessed images are vibrant and visually arresting, and likely to impress the average juror who will likely not understand how the images are created, what they actually show, and whether they are reliable." [Doc. 80, p. 3]

Defendants additionally note the article "cites concerns about bias, such as the hindsight bias, by which radiologists are more likely to detect an abnormality on imaging when they are told in advance to expect one," as well as concerns that " 'in cases that use functional neuroimaging methods typically performed in the research setting, the expert may be influenced by a professional investment in promoting his or her research area or specific research findings.' " [*Id.*]

Defendants then state the same concerns "may very well be at play here...." [*Id.*] The Court finds these are all matters for cross-examination and not a basis for blanket exclusion of Dr. Gonzalez–Toledo's testimony.

Defendants note the article states DTI "results may vary by scanner field strength, scanner type, pulse sequence, and postprocessing." [*Id.* at 3–4; Doc. 74–3, p. 3] However, Dr. Gonzalez–Toledo has provided all the relevant information necessary for defendants to explore this topic on cross-examination. [*See* Doc. 59–5, ¶¶ 31–33, 35–38] Defendants additionally assert Dr. Gonzalez–Toledo was "required" to include a disclaimer in his report, but failed to do so. [Doc. 80, pp. 4–5] First, the Court notes the disclaimer is "suggested"—not required. Second, the Court notes the disclaimer is addressed toward physicians and not jurors. [*See* Doc. 74–3, p. 4; 59–21, p. 5] Regardless, this issue can be fully addressed on cross-examination. The remainder of defendants argument against admission of DTI evidence is based upon defendants' expert's assertion of the ways in which he alleges Dr. Gonzalez–Toledo did not follow the "proposed" guidelines set forth in the referenced article. Again, all of these issues are matters for cross-examination, and not the basis for blanket exclusion of evidence.

Unlike CTM, the Court finds plaintiff has submitted sufficient evidence to show the reliability of DTI. In sum, the evidence submitted shows DTI has been tested and has a low error rate [Doc. 59–5, ¶¶ 12, 20–21, 30; Doc. 59–9]; DTI has been subject to peer review and publication [Doc. 59–5, ¶ 30; Doc. 59–9]; and DTI is a generally accepted method for detecting TBI [Doc. 59–5 at ¶ 7–12, 14, 18–19, 21, 30–31]. *Daubert v. Merrell Dow Pharmaceuticals, Inc.* ., 509 U.S. 579, 593–94, 113 S.Ct. 2786, 125 L.Ed.2d 469. The Court additionally notes DTI testimony has been admitted by several courts. *See e.g.* ***Ruppel v. Kucanin***, 2011 WL 2470621 (N.D.Ind.); *Hammar v. Sentinel Ins. Co., Ltd.*, No. 08–019984 (Fla.Cir.Ct.2010) [Doc. 59–11]; *Booth v. Kit*, 2009 WL 4544743 (D.N.M.). Accordingly, the Court denies defendants' motion to the extent it seeks to exclude evidence and testimony regarding DTI.

V. Dr. Mark S. Warner

***9** By this motion, defendants argue the evidence and testimony offered by plaintiff's neuropsychology expert, Dr. Mark S. Warner, should be excluded, or alternatively, limited. [Doc. 52, p. 1] In support of this position, defendants argue Dr. Warner's methodology is "flawed and unreliable," as well as cumulative. [Doc. 52–2, p. 1] Defendants argue Dr. Warner's methodology is flawed because: (1) he never met or examined plaintiff; (2) "[h]is opinion is based solely upon the reported findings of other treating professionals and his general knowledge of the science surrounding traumatic brain injury"; and (3) because one of the expert opinions upon which Dr. Warner relies is that of Dr. Gonzalez–Toledo, who is the subject of a defense *Daubert* motion. [*Id.* at 4–5] Defendants argue Dr. Warner's testimony is cumulative, because defendants anticipate plaintiff will present testimony from his treating physicians (*i.e* . his treating neurosurgeon, neuropsychologist, and psychiatrist). [*Id.* at 2, 6]

As to defendants' argument Dr. Warner's methodology is flawed because he never examined plaintiff, and his opinion is based "solely upon the reported findings of other treating professionals and his general knowledge of the science surrounding traumatic brain injury," the Court notes defendants have provided no legal authority in support of this argument. Rather,

"experts [,] particularly doctors[,] customarily rely upon third party reports from other experts such as pathologists and radiologists in whom the testifying expert places his trust." *Bryan v. John Bean Division of FMC Corp.*, 566 F.2d 541, 546 (5th Cir.1978); *see also Daubert*, 509 U.S. at 592 ("Unlike an ordinary witness ..., an expert is permitted wide latitude to offer opinions, including those that are not based on firsthand knowledge or observation"). Federal Rule of Evidence 703 provides, "An expert may base an opinion on facts or data in the case that the expert has been made aware of or personally observed". As the notes to Fed.R.Evid. 703 make clear, the rule contemplates opinions based upon data provided to the expert "outside of court and other than by his own perception." Fed.R.Evid. 703 (1972 Notes). Furthermore, " '[a]s a general rule, questions relating to the bases and sources of an expert's opinion affect the weight to be assigned that opinion rather than its admissibility and should be left for the jury's consideration.' " *U.S. v. 14.38 Acres of Land, More or Less Sit. in Leflore County, Miss.*, 80 F.3d 1074, 1077 (5th Cir.1996)(quoting *Viterbo v. Dow Chemical Co.*, 826 F.2d 420, 422 (5th Cir.1987)). Accordingly, defendants' motion will be denied on the basis of this argument.

As to defendants' argument Dr. Warner's testimony should be excluded because it relies upon the opinion of Dr. Gonzalez–Toledo, the Court defers ruling until after the *Daubert* hearing regarding CTI testimony and Dr. Gonzalez–Toledo's reliance thereon. Should it be found evidence of CTI is inadmissible, then the Court will exclude any opinions of Dr. Warner based *solely* upon his reliance of Dr. Gonzalez–Toledo's CTM studies.

***10** The Court additionally defers addressing whether Dr. Warner's testimony is cumulative until the evidence is heard at trial, but cautions plaintiffs, cumulative testimony will not be allowed. Defendants (as well as plaintiff) may object to cumulative testimony from any witness if and when such an event occurs at trial.

VI. Conclusion

In light of the foregoing reasons, the Court GRANTS plaintiffs' motion to limit the testimony of George "Tracy" Latiolais [Doc. 47]; the Court DENIES IN PART and DEFERS IN PART defendants' motion in limine/ *Daubert* challenge to Dr. Eduardo Gonzalez–Toledo [Doc. 51]; and the Court DENIES IN PART and DEFERS IN PART defendants' motion in limine/ *Daubert* challenge to Dr. Mark S. Warner [Doc. 52].

W.D.La.,2014.
Andrew v. Patterson Motor Freight, Inc.
Slip Copy, 2014 WL 5449732 (W.D.La.)

END OF DOCUMENT

Document 3

Bio: David M. Mahalick, Ph.D, ABPN

Brief Bio of: Dr. David Mahalick

Dr. Mahalick is Board certified in Clinical Neuropsychology. He is a Fellow of the American Academy of Profession Neuropsycholgy. He is the former Director of Neuropsychology in the Department of Neurosurgery at University of Medicine and Dentistry- New Jersey Medical School. He previously served as the Director of the Department of Neuropsychology/Psychology at Children's Specialized Hospital. He is an Adjunct Associate Professor of Clinical Psychology at New York University School of Applied Psychology, and holds academic ranks of Assistant Professor of Neurosurgery & Pediatrics at New Jersey Medical School and Robert Wood Johnson Medical School.

Dr. Mahalick completed his internship training in pediatric and adult Clinical Neuropsychology at the University of California- San Diego in the Department of Neurological Surgery in 1986 and his Residency at Hahnemann University Hospital, Philadelphia PA in 1988.

He is the author of numerous publications involving both pediatric and adult traumatic brain injury, arteriovenous malformations, and psychopharmacology. He has often served as an invited speaker at national and international academic meetings involving neurobehavioral dysfunction and as an invited lecturer to both plaintiff and defense bars on topics involving brain injury for various state societies. He has served as a member of board of trustees for both the NJ Academy of Psychology and the NJ Neuropsychological Society and he is a member of many academic societies serving patients with neurologic impairment.

In addition to his clinical practice, Dr. Mahalick is actively involved in medicolegal consultation involving equal amounts of plaintiff, defense cases. He has offices in Manhattan, as well as New Jersey, including: Maplewood, Cherry Hill and Raritian. He holds staff privileges at various hospitals in the metropolitan New York area.

Document 4

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Document 5

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Yale University, J.D.	1976
Stanford University, M.D.	1973
University of California (Berkeley), M.P.H.	1971
University of Rochester, B.A. (Psychology)	1967

LICENSING and CERTIFICATIONS

Admitted, Florida Bar (active) License #78083	2010 -
Qualified Clinician in Psychiatry, New York State Workers' Compensation Board	2004-
Physician's License Certificate, Florida (active) License #ME 92122	2004-
New York State Counsel on Divorce Mediation	2003-2008
Association for Conflict Resolution	2003-2008

Admitted, New York Bar (active) 2001 –

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Admitted, New Jersey Bar (active) 1999 –

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Physician's License Certificate, New Jersey 1988-1997

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Admitted, Connecticut Bar (inactive) 1984-1988

Diplomate, American Board of Psychiatry and Neurology 1978-

Physician's and Surgeon's License, Connecticut (inactive) 1976-1988

Physician's and Surgeon's Certificate, California (active) 1976-
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Medicine and Surgery License, New York State (active) 1975-
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HOSPITAL PRIVILEGES

Natividad Hospital
Attending Staff (Locum Tenens)
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2003-2007

St. Barnabas Medical Center
Emeritus/Honorary
Livingston, New Jersey 1997-

St. Barnabas Medical Center
Attending Staff
Livingston, New Jersey 1991-1997

Elizabeth General Medical Center
Attending Staff
Elizabeth, New Jersey 1990-1997

Norwalk Hospital
Norwalk, Connecticut 1977-1978

Hall-Brooke Hospital
Westport, Connecticut 1977-1980

ACADEMIC APPOINTMENTS

University of Medicine and Dentistry of New Jersey - New Jersey Medical School
(Clinical Associate Professor) 1996-

University of Medicine and Dentistry of New Jersey - New Jersey Medical School
(Clinical Assistant Professor) 1992-1996

University of Connecticut School of Social Work 1977-1981

(Adjunct Assistant Professor)

PROFESSIONAL RECOGNITION

Listed in The Leading Physicians of the World (New York: International Association of Care Professionals), 2014.

Listed in Top Psychiatrists in New York (New York: International Association of Health Care Professionals), 2014.

Elected Fellow, American Psychiatric Association, 2012.

Co-Chair (with Bruce Stern), "Traumatic Brain and Emotional Injury Summit: Winning with 21st Century Neuroscience," 360 Advocacy Institute, Four Seasons Hotel, Denver, Colorado December 4-6, 2011.

Elected Life Fellow, American Orthopsychiatric Association, 2010.

Preceptor, Mock Psychiatry Board Examination, University of Medicine and Dentistry of New Jersey, April 11, 2003.
Chair, "The `Catastrophic' Six and Seven Figure Brain Injury Claim," Hamilton, Bermuda, March 17-20, 1995.
Co-Chair, "Strategies and Opportunities for Working with Distressed Health Care Organizations," sponsored by the Strategic Research Institute, New York, New York, April 24 & 25, 1995.

Co-Chair, "Turnaround Strategies for Distressed Hospitals" Conference sponsored by the Strategic Research Institute, New York, New York, March 21 & 22, 1994.

Distinguished Service Award, Darien Education Association, 1977.

Elected Fellow, American Orthopsychiatric Association, 1980

PROFESSIONAL HONORS, ASSOCIATIONS, OFFICES, COMMITTEES, VOLUNTEER WORK

AMERICAN PSYCHIATRIC ASSOCIATION

Fellow
2012 -

Member
1980 -

NATIONAL ALLIANCE ON MENTAL ILLNESS, INCLUDING MIAMI-DADE COUNTY CHAPTER

Member
2012 –

AMERICAN ORTHOPSYCHIATRIC ASSOCIATION

Life Fellow
2010 -

Fellow
2008 -

Member
1978 -

FLORIDA BAR ASSOCIATION

Member
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BRAIN INJURY ASSOCIATION OF FLORIDA

Member
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FLORIDA PSYCHIATRIC SOCIETY

Member
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FLORIDA JUSTICE ASSOCIATION

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1000 ISLAND BOULEVARD ASSOCIATION, AVENTURA, FLORIDA

Member, Finance Committee
2009 -

THE NEW YORK CITY MEDICAL RESERVE CORPS

Member
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AMERICAN NEUROPSYCHIATRIC ASSOCIATION

Member
2006 -

NORTH AMERICAN BRAIN INJURY SOCIETY

Charter Member
2004 –

NEW YORK STATE BAR ASSOCIATION

Member, Committee on Children and the Law
2003-2004

UNION COUNTY SUPERIOR COURT

Pro Bono Work with Clients Related to Mental Illness and Domestic Violence
2003-2007

AMERICAN ASSOCIATION FOR JUSTICE

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2001- 2012

ESSEX COUNTY MEDICAL SOCIETY

Member, Mental Health Committee
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SAINT BARNABAS MEDICAL CENTER

Chair, Policy and Procedures/Psychiatric Staff By-Laws Committee
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TRI-COUNTY CHAPTER, NEW JERSEY PSYCHIATRIC ASSOCIATION

Executive Board (Essex County Representative),
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NEW JERSEY DIABETES ASSOCIATION

Board of Trustees, North Central Regional Council,

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UNITY GROUP (Battered Women Protection and Advocacy)

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THE INTERNATIONAL HEALTH NETWORK SOCIETY

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NEW JERSEY STATE BAR ASSOCIATION FAMILY LAW SECTION

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COMMUNITY HEALTH RESOURCES OF NEW JERSEY

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ACADEMY OF MEDICINE OF NEW JERSEY

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AMERICAN ARBITRATION ASSOCIATION

Member, 1977-1987

HONORS

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Alumni Scholar, Dean Alway Award, A.A.M.C. Fellow, Russell Sage Fellow, New York City Health Department Fellow, Third Year Class President, Stanford Medical Students Association President

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EMPLOYMENT AND ENTREPRENEURIAL ACTIVITIES

Of Counsel
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Of Counsel (One courtesy medico-legal consultation on a
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Vice President, Strategic Planning
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Cogent Clinical Compliance Systems, Inc.
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Co-Founder
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Co-Founder and Vice President, Strategic Planning
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Chief Executive Officer
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Executive Vice President and Coordinator,
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Medical-Psychiatric Outpatient Liaison
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PAPERS, PRESENTATIONS AND INVITED ADDRESSES

Brown, Jeffrey A., "Deciding Potential Exposure and How Hard to Fight," to be presented at the Defense Association of New York seminar, "The Cutting Edge 2014: Understanding Brain Injuries & Building the Best Defense," Manhattan, New York, 20 May 2014.

Brown, Jeffrey A., "Deciding Who Should Be On Your Team," to be presented at the Defense Association of New York seminar, "The Cutting Edge 2014: Understanding Brain Injuries & Building the Best Defense," Manhattan, New York, 20 May 2014.

Brown, Jeffrey A., "Deciding What Your Adversaries and Their Experts Will Do," to be presented at the Defense Association of New York seminar, "The Cutting Edge 2014: Understanding Brain Injuries & Building the Best Defense," Manhattan, New York, 20 May 2014.

Brown, Jeffrey A., "Deciding How to Diffuse Diffusion Tensor Imaging," to be presented at the Defense Association of New York seminar, "The

Cutting Edge 2014: Understanding Brain Injuries & Building the Best Defense," Manhattan, New York, 20 May 2014.

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Dotson, Mark A., Kline, David B. and Brown, Jeffrey A., Emotional Injuries: Law and Practice: 2014 Supplement (Rochester, New York: West Publishing Company; 2014, in press).

Brown, Jeffrey A. and Jacoby, Jacob H., "Conducting Neuropsychiatric Fact Investigations in Will Contest Cases," presented at Rutgers University Law School, Newark, New Jersey, 12 March 2014.

Brown, Jeffrey A., DeVito, William N., Jacoby, Jacob H., and Rothenberg, Alan L., "Truth and Self-Deception in Brain Injury Cases: Ethical Challenges for Both Attorneys and Medical Experts in Traumatic Brain Injury Cases," presented at Rutgers University Jewish Law Students Association, Rutgers University Law School, Newark, New Jersey, 12 March 2014.

Dotson, Mark A., Kline, David B. and Brown, Jeffrey A., Emotional Injuries: Law and Practice: 2013 Supplement (Rochester, New York: West Publishing Company, 2013).

Brown, Jeffrey A., "Predicting and Preventing Homicide, Suicide and Posttraumatic Stress Disorder: Clinical Interventions and Post Tarasoff Legal Obligations," presented to the University of Medicine and Dentistry of New Jersey's Psychiatric Residency Program, Newark, New Jersey 23 January 2013.

Brown, Jeffrey A. and DeVito, William N., "Wielding the Cutting Edge: Welding 21st Century Brain Injury Medicine and the Law," presented to the Law Offices of Edward Garfinkel, Brooklyn, New York, 22 October, 2012.

Brown, Jeffrey A. DeVito, William N., "Wielding the Cutting Edge: Welding 21st Century Brain Injury Medicine and the Law," presented to the Law Offices of Alan I. Lamer, Elmsford, New York, 17 October 2012.

Brown, Jeffrey & Wu, Joseph, "Objectifying Toxic Exposure: Neuropsychiatric Injuries and Damages," presented to Mass Torts Made Perfect, Las Vegas, Nevada, 11 October 2012.

Brown, Jeffrey & Wu, Joseph, "Psychiatric Injury and Neurobehavioral Science in Gas Drilling-Toxic Tort Cases – Brain Injury and Methane/Fracking Chemicals," presented to the Gas Drilling/Fracking Litigation Project Group, Las Vegas, Nevada,10 October 2012.

Brown, Jeffrey A. and DeVito, William N., "Wielding the Cutting Edge: Welding 21st Century Brain Injury Medicine and the Law," presented to the Chartis Insurance Company's Senior Adjustors and Staff Counsel, Manhattan, New York 13 September 2012.

Brown, Jeffrey A., "Tarasoff and Duty to Warn: Hot Off the Presses Issues," presented to the University of Medicine and Dentistry of New Jersey Psychiatric Resident Seminar, Newark, New Jersey 29 August 2012.

Brown, Jeffrey A., "Neuropsychiatry and the Law: Psychiatric Essentials for Future Board Examinees," presented to the University of Medicine and Dentistry of New Jersey Psychiatry Resident Seminar, Newark, New Jersey 29 August 2012.

Brown, Jeffrey A. and DeVito, William N., "Wielding the Cutting Edge: Welding 21st Century Brain Injury Medicine and the Law," presented to the Chartis Insurance Company's In-House Counsel, Jericho, New York, 27 August 2012.

Stern, Bruce and Brown, Jeffrey A., Litigating Brain Injuries; 2012 Supplement (Rochester, New York: West Publishing Company; 2012).

Dotson, Mark A., Kline, David B. and Brown, Jeffrey A., Emotional Injuries: Law and Practice: 2012 Supplement (Rochester, New York: West Publishing Company; 2012).

Brown, Jeffrey A., "Using 21st Century Ethics and 21st Century Neuroscience to Cross Examine Defense Experts" presented to the Florida Justice Association, Orlando, Florida, 22 March 2012.

Brown, Jeffrey A., "Predicting and Defeating Future Malingering Defenses," presented to the Traumatic Brain Injury and Emotional Injury Summit: Winning With 21st Century Neuroscience, Denver, Colorado, 6 December 2011.

Brown, Jeffrey A., "The Future of Brain and Emotional Injury Litigation," presented to the Traumatic Brain Injury and Emotional Injury Summit: Winning With 21st Century Neuroscience, Denver, Colorado, 4 December 2011.

Brown, Jeffrey A., "Ten Blunders Plaintiff Attorneys Make in Litigating Brain Injury Cases," presented to the Law Firm of Edward Garfinkel, Brooklyn, New York, 3 December 2011.

Brown, Jeffrey A., "Understanding Causation and Maximizing Damages by Proving Critical Clinical Interactions in Mild Brain Injury Cases," presented to the 360 Advocacy Institute, Las Vegas, Nevada, 24 October 2011.

Brown, Jeffrey A., "How Cutting Edge Neuroscience Will Transform Traumatic Brain Injury Litigation," presented to the North American Brain Injury Society, New Orleans, LA, 15 September 2011.

Brown, Jeffrey A., "How 21st Century Neuroscience Will Transform TBI Litigation From The Molecular Level Up," presented to the Central Florida Trial Lawyers Association, Orlando, Florida, 7 September 2011.

Stern, Bruce and Brown, Jeffrey A., Litigating Brain Injuries; 2011 Supplement (Rochester, New York: West Publishing Company, 2011).

Dotson, Mark A., Kline, David B. and Brown, Jeffrey A., Emotional Injuries: Law and Practice: 2011 Supplement (Rochester, New York: West Publishing Company, 2011).

Brown, Jeffrey A., "Ten Blunders Plaintiff Attorneys Make in Litigating Brain

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Stern, Bruce and Brown, Jeffrey A., Litigating Brain Injuries, 2010 Supplement (Rochester, New York: West Publishing Company, 2010).

Brown, Jeffrey A., "Being Caught in Child Custody Disputes: A Primer for Child Psychiatrists," presented to the University of Medicine and Dentistry of New Jersey, child psychiatry fellows and senior psychiatry residents, Newark, New Jersey, 1 September 2010.

Brown, Jeffrey, "The Pleasures – and Pitfalls – of Being an Expert Witness," presented to the University of Medicine and Dentistry of New Jersey's second, third, and fourth year resident groups, Newark, New Jersey 27 August 2010.

Dotson, Mark A., Kline, David B. and Brown, Jeffrey A., Emotional Injuries: Law and Practice: 2010 Supplement (Rochester, New York: West Publishing Company, 2010).

Brown, Jeffrey A., "Separating the Wheat from the Chaff in TBI Litigation: When to Fight and How to Settle," presented to the Nassau/Suffolk County Trial Lawyers Association, Westbury, New York, 25 March 2010.

Brown, Jeffrey A., "Medication Adherence and Cognitive Assistive Technology for the 21st Century," presented to the International Health Network Society, Southampton, Bermuda, 07 November 2009.

Brown, Jeffrey A., "The Coming Great Synthesis of Neuropsychiatry and the Law," presented to the 2009 North American Brain Injury Society Medical-Legal Conference on Brain Injury, Austin, Texas, 16 October 2009.

Stern, Bruce and Brown, Jeffrey A., Litigating Brain Injuries; 2009 Supplement (Rochester, New York: West Publishing Company, 2009).

Brown, Jeffrey A., "Malingering and Misperception in Traumatic Brain Litigation," presented to French & Casey, LLP, New York, NY, 01April 2009.

Dotson, Mark A., Kline, David B. and Brown, Jeffrey A., Emotional Injuries: Law and Practice: 2009 Supplement (Rochester, New York: West Publishing Company, 2009).

Brown, Jeffrey A., "Respecting the Defense: Objective Pathways to Settlement," presented to the North American Brain Injury Society, New Orleans, Louisiana, 2-4 October 2008.

Dotson, Mark A., Kline, David B. and Brown, Jeffrey A., Emotional Injuries: Law and Practice: 2008 Supplement (Rochester, New York: West Publishing Company, 2008).

Stern, Bruce and Brown, Jeffrey A., Litigating Brain Injuries; 2008 Supplement (Rochester, New York: West Publishing Company, 2008).

Brown, Jeffrey A., "Dealing with Plaintiffs and Treating Testifiers in Traumatic Brain Injury Cases," presented to Crum and Foster Insurance Company, Morristown, New Jersey, 23 February 2007.

Dotson, Mark A., Kline, David B. and Brown, Jeffrey A., Emotional Injuries: Law and Practice: 2007 Supplement (Rochester, New York: West Publishing Company, 2007).

Brown, Jeffrey A. and Dayle, Randy, "The ISSAC Cognitive Prosthetic System and Its Usefulness in Neurofunctional Rehabilitation," 15(1) Rehab Pro: 32-33 (2007).

Stern, Bruce and Brown, Jeffrey A., Litigating Brain Injuries (Rochester, New York: West Publishing Company, 2006).

Dotson, Mark A., Kline, David B. and Brown, Jeffrey A., Emotional Injuries: Law and Practice: 2006 Supplement (Rochester, New York: West Publishing Company, 2006.

Brown, Jeffrey A., "Dealing with Defenses: Avoiding Predictable Blunders," presented to the Brain Injury Association of America, Miami Beach, Florida, 16 September 2006.

Brown, Jeffrey A. and Kruszewski, Stefan, "Front Page Pill Pushers: How the Media Are Complicit in Drug Marketing," 331 British Medical Journal 410 (13 August 2005).

Brown, Jeffrey A., "For the Defense: Punch and Counterpunch," presented to the Brain Injury Association of America, Amelia Island, Florida, 24 September 2005.

Dotson, Mark A., Kline, David B. and Brown, Jeffrey A., Emotional Injuries: Law and Practice: 2005 Supplement (Rochester, New York: West Publishing Company, 2005).

Brown, Jeffrey A., "Civil Forensics: Competency, Custody, and Brain Catastrophes," presented to the Beth Israel Hospital - Albert Einstein Medical School Post-Graduate Forensic Psychiatry Program, Manhattan, New York, 7 December 2004.

Brown, Jeffrey A., "Defense 'Tactics' in Traumatic Brain Injury Clinical Evaluation and Litigation," presented to The North American Brain Injury Society, Beaver Creek, CO, 22 September 2004.

Brown, Jeffrey A., "Dealing with Stress, Pain, and TBI Claims," presented to the PMA Insurance Company, Mount Laurel, New Jersey, 13 May 2004.

Dotson, Mark A., Kline, David B. and Brown, Jeffrey A., Emotional Injuries: Law and Practice: 2004 Supplement (Rochester, New York: West Publishing Company, 2004).

Brown, Jeffrey A., "Dealing with TBI Claims: Separating Fact, Fantasy and Fiction," presented to the New Jersey Institute of Continuing Legal Education, Cherry Hill, New Jersey, 13 December 2003.

Dotson, Mark A., Kline, David B. and Brown, Jeffrey A., Emotional Injuries: Law and Practice: 2003 Supplement (Rochester, New York: West Publishing Company, 2003).

Brown, Jeffrey A., "A Neuropsychiatric Perspective on the Uses and Limitations of Neuropsychological Tests," presented to the Texas Psychological Association, Dallas, Texas, 8 November 2003.

Brown, Jeffrey A., "Medical Legal Issues in Brain Injury: The Defense Perspective," presented to the Brain Injury Association of America, Amelia Island, Florida, 19 September 2003.

Brown, Jeffrey A., "Neuropsychiatric Disability: The Struggle for Objectivity," presented to the United States Social Security Administration and New Jersey Department of Labor, Division of Disability Services at Community Hospital, Toms River, 25 June 2003.

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Document 6

Halsne v. Avera Health

Megan Marie Halsne, individually and as parent and natural guardian of J.J.H., Plaintiff,

v.

Avera Health and Avera McKennan, Defendants.

Case No. 12-cv-2409 (SRN/JJG).

United States District Court, D. Minnesota.

March 21, 2014.

Kenneth M. Suggs, Janet Jenner & Suggs LLC, 500 Taylor Street, Suite 301, Columbia, South Carolina 29201; Patrick Andrew Thronson, Stephen C. Offutt, and William Francis Burnham, Janet Jenner & Suggs LLC, 1777 Reistertown Road, Suite 165, Baltimore, Maryland 21208, for Plaintiff.

Cecilie M. Loidolt, Mark R. Whitmore, and Sarah M. Hoffman, Bassford Remele, PA, 33 South Sixth Street, Suite 3800, Minneapolis, Minnesota 55402, for Defendants.

MEMORANDUM OPINION AND ORDER

SUSAN RICHARD NELSON, District Judge.

I. INTRODUCTION

Plaintiff Megan Halsne, individually and as parent and natural guardian of J.J.H., brings this medical malpractice action against Defendants Avera Health and Avera McKennan, asserting claims of medical negligence and loss of consortium. (Am. Compl. ¶¶23-28, 29-31 [Doc. No. 28].)

Defendants move for partial summary judgment on six grounds: (1) dismissal of all claims of negligent training; (2) dismissal of medical malpractice and employment claims based on vicarious liability for the nurses at Pipestone County Medical Center; (3) dismissal of the medical malpractice claim against Defendants based on direct liability; (4) dismissal of negligent supervision claims against Defendants; (5) dismissal of Avera Health; and (6) limiting J.J.H.'s future medical expense damages to projected payments of premiums and deductibles under the Patient Protection and Affordable Care Act. (Defs.' Mot. for Partial Summ. J. at 1-2 [Doc. No. 58].)

The parties agree that this case will proceed to trial on Plaintiff's medical malpractice claim against Avera McKennan based on the alleged actions of Dr. Michael Lastine and/or Brad Burris. (Defs.' Mem. in Supp. of their Mot. for Partial Summ. J. at 2 [Doc. No. 60].) At oral argument and in her brief, Plaintiff confirmed that she has withdrawn the negligent training claims against Defendants, as well as the claims against Defendants based on vicarious liability for the nursing staff at Pipestone County Medical Center. (Mem. of Law in Opp'n to Defs.' Mot. for Partial Summ. J. at 3 [Doc. No. 69].) Thus, the first two grounds for Defendants' motion for partial summary judgment are moot. For the reasons that follow, and with respect to the remaining four claims, the Court grants in part and denies in part Defendants' motion.

II. BACKGROUND

A. The Parties and Related Non-Parties to this Lawsuit

Ms. Halsne is the parent and natural guardian of her son, J.J.H., and both are residents of Minnesota. (Am. Compl. ¶ 1 [Doc. No. 28].) Defendants Avera Health and Avera McKennan are South Dakota corporations. (Answer to Am. Compl. ¶ 3 [Doc. No. 31].) Avera Health provides support services for hospitals, long-term care facilities, clinics, and other shared service areas. (Partners in Health Agreement, Ex. G to Aff. of Cecilie M. Loidolt in Supp. of Avera Health's Mot. to Compel Joinder [Doc. No. 19-7 at 6].) Avera McKennan owns and operates an acute care hospital in Sioux Falls, South Dakota, and it is capable of providing certain hospital management services. (Id.) Non-party Pipestone County Medical Center ("PCMC") is a Minnesota corporation. (Answer to Am. Compl. ¶ 4 [Doc. No. 31].) PCMC is a hospital organized and operated by the County of Pipestone, Minnesota. (Jan. 30, 2002, Letter from James E. O'Neill, County Att'y, to Jody

Jenner, PCMC Administrator, Ex. H to Loidolt Aff. [Doc. No. 19-8 at 3].) A five-member county commission governs PCMC. (Dep. of Bradley Burris at 9, Ex. A to Aff. of Melissa Riethof in Supp. of Partial Summ. J. [Doc. No. 61-1].)

On June 1, 2007, PCMC, Avera Health, and Avera McKennan entered into a Partners in Health Agreement ("Agreement"), under which Avera McKennan contracted to provide hospital management services to PCMC in the form of an administrator. (Partners in Health Agreement ¶ 1, Ex. G to Loidolt Aff. [Doc. No. 19-7 at 6].) The administrator, Bradley Burris, is an employee of Avera McKennan, who reports to the PCMC Board of Directors and receives direction from the Board. (Id.; Burris Dep. at 8, Ex. A to Riethof Aff. [Doc. No. 61-1].) Although Avera McKennan can recommend policies and procedures for PCMC to implement, the final decision-making authority to implement them rests with PCMC. (Dep. of Curt Hohman at 10-11, Ex. B to Aff. of Cecilie M. Loidolt in Supp. of Defs.' Opp'n to Mot. to Compel [Doc. No. 56-2].) The Agreement confirms that the ownership and governance of PCMC remain with PCMC. (Partners in Health Agreement ¶5, Ex. G to Loidolt Aff. [Doc. No. 19-7 at 6].)

Dr. Michael Lastine, Ms. Halsne's obstetrician and gynecologist, is an employee of Avera McKennan. (Dep. of Michael Lastine at 4, Ex. C to Riethof Aff. [Doc. No. 61-1].) Avera McKennan concedes that, under a theory of respondeat superior, it is responsible for the alleged acts and omissions of Dr. Lastine, should they be adjudicated as medical malpractice. (Answer to Am. Compl. ¶ 9 [Doc. No. 31].)

B. The Medical Events

On January 27, 2009 at 6:42 a.m., Ms. Halsne was admitted to PCMC for a scheduled induction of labor because she was past her due date. (Child Neurology Consultation of Garrett C. Burris, M.D., at 5, Ex. 3 to Pl.'s Disclosure of Expert Witnesses [Doc. No. 34-1]; Expert Report of Barry S. Schifrin, M.D., at 9, Ex. 1 to Pl.'s Disclosure of Expert Witnesses [Doc. No. 34-1].) Although the nurse's note at 7:20 a.m. showed that Ms. Halsne was not having any contractions up to that point, the fetal monitoring record showed the start of very frequent contractions at 7:15 a.m. (Schifrin Expert Report at 9, Ex. 1 to Pl.'s Disclosure of Expert Witnesses [Doc. No. 34-1].) At 7:50 a.m., Dr. Lastine administered fifty micrograms of Cytotec, a medication for inducing labor. (Id.; Lastine Dep. at 73, Ex. C to Riethof Aff. [Doc. No. 61-1].) At 8:00 a.m., Ms. Halsne reported feeling contractions, and by 8:15 a.m., she was experiencing a contraction every one to twoand-a-half minutes. (Schifrin Expert Report at 9, Ex. 1 to Pl.'s Disclosure of Expert Witnesses [Doc. No. 34-1].) At 9:30 a.m., Dr. Lastine was notified of her contraction frequency. (Id.)

Ms. Halse was intermittently monitored and encouraged to ambulate. (Id.) At 10:00 a.m., Dr. Lastine was present, and he returned at 12:19 p.m. to administer a second fifty-microgram dose of Cytotec. (Id.; Lastine Dep. at 73, Ex. C to Riethoff Aff. [Doc. No. 61-1].) At 12:32 p.m., stronger contractions occurred approximately one to two minutes apart, lasting forty-five to sixty seconds each. (Schifrin Expert Report at 9, Ex. 1 to Pl.'s Disclosure of Expert Witnesses [Doc. No. 34-1].) A deceleration in fetal heart rate was neither noted nor did it receive any response at this time. (Id.) At 1:02 p.m., Ms. Halsne reported low back pressure, stronger contractions, and strong discomfort. (Id.)

At 1:35 p.m., Dr. Lastine was informed of the fetal heart rate deceleration from 12:32 p.m., and he did not give any new orders or changes. (Id.) At 2:08 p.m., he reviewed the fetal monitor tracing and ruptured the amniotic membranes, revealing a small amount of yellow fluid. (Id. at 9-10; Lastine Dep. at 88, 95, Ex. C to Riethoff Aff. [Doc. No. 61-1].) At 2:22 p.m., Dr. Lastine was informed of additional fetal heart rate deceleration and Ms. Halsne's "intense" contractions, for which Stadol was administered. (Schifrin Expert Report at 10, Ex. 1 to Pl.'s Disclosure of Expert Witnesses [Doc. No. 34-1].) At 2:47 p.m., Dr. Lastine was informed of further fetal heart rate deceleration, and he did not respond. (Id.)

At 3:47 p.m., the tocodynamometer revealed excessive uterine activity. (Id.) At 4:00 p.m., Ms. Halsne's cervix had dilated to three centimeters. (Id.) Dr. Lastine then told Ms. Halsne that he could not administer epidural anesthesia until dilation reached four centimeters. (Id.) Two minutes later, however, Dr. Lastine changed his mind and requested anesthesia to place the epidural "due to proximity of contractions." (Id.; Lastine Dep. at 95, Ex. C to Riethoff Aff. [Doc. No. 61-1].) Ms. Halsne received the epidural, which was activated at 4:30 p.m. with Ropivacaine and Fentanyl. (Schifrin Expert Report at 10, Ex. 1 to Pl.'s Disclosure of Expert Witnesses [Doc. No. 34-1].)

At 4:58 p.m., Ms. Halsne reported more low back pain. (Id.) Head compression was noted on the monitor with good variability, and the fetal heart tracing was "consistent." (Id.) At 6:05 p.m., Ms. Halsne experienced low blood pressure. She was turned on her left side, the IV rate was increased, and the oxygen was turned up to six liters. (Id.) The fetal heart rate showed deceleration. (Id.) Dr. Lastine was notified and arrived at 6:30 p.m. (Id.) By this time, Ms. Halsne's cervix had dilated fully, and pushing was initiated. (Id.; Lastine Dep. at 105-106, Ex. C to Riethoff Aff. [Doc. No. 61-1].) Dr. Lastine remained at the bedside, and scalp stimulation was used repeatedly. (Schifrin Expert Report at 10-11, Ex. 1 to Pl.'s Disclosure of Expert Witnesses [Doc. No. 34-1].) At 7:26 p.m., the fetal head started to crown, and J.J.H. was delivered at 7:49 pm. (Id. at 11.)

Upon delivery, J.J.H. required ongoing stimulation and two to three breaths with the Ambu bag. (Id. at 15.) In the nursery, J.J.H. had a

weak cry and poor tone. (Id.) He was pale and developed apneic episodes that required oxygen and bagging. (Id.) J.J.H. was given Tylenol for a constant pain-like cry. (Id.) At twelve hours, J.J.H. was pale white with clear eyes and twitching eyelids. (Id.) There were indications of trauma to J.J.H.'s head, which was tender to the touch. (Id.) Fifteen minutes later, J.J.H. was "pale and flaccid with jerky movements of the extremities and twitching eyelids." (Id.) The seizures progressed, and at fourteen hours, J.J.H. was administered phenobarbital. (Id.) At fifteen hours, J.J.H. was transferred to McKennan NICU for apneic spells and seizures, where he stayed from January 28, 2009 until February 18, 2009. (Id.; Burris Consultation at 5, Ex. 3 to Pl.'s Disclosure of Expert Witnesses [Doc. No. 34-1].) He had no suck or latch when attempting to breastfeed, but he passed the hearing test before the transfer. (Schifrin Expert Report at 15, Ex. 1 to Pl.'s Disclosure of Expert Witnesses [Doc. No. 34-1].)

J.J.H. remained on phenobarbital until June 2010. (Id.) In June 2011, J.J.H. was admitted to the emergency room for seizures, at which time he was transferred to Children's Hospital. (Id. at 15-16.) On June 29, 2011, J.J.H was admitted to Sanford USD Medical Center due to a spell of unresponsiveness that lasted approximately one to one-and-a-half hours. (Burris Consultation at 7, Ex. 3 to Pl.'s Disclosure of Expert Witnesses [Doc. No. 34-1].) In 2012, J.J.H. had several seizures, the last of which occurred on June 13, 2012. (Id. at 8.) On February 13, 2013, J.J.H. had another seizure. (Id.) These seizures were leftsided and lasted between two to three minutes each. (Id.)

J.J.H. has global developmental delay, acquired microcephaly, spastic quadriplegic cerebral palsy, and epilepsy. (Id. at 10-11.) Brain imaging studies of J.J.H. reflect partial prolonged hypoxic ischemic injury. (Id. at 10.)

C. Dr. Lastine's Disciplinary History

In 2005, upon reviewing the cases of four patients for whom Dr. Lastine incorrectly prescribed medication, the Minnesota Board of Medical Practice restricted Dr. Lastine's ability to practice medicine for two years.[1] (Supplemental Addendum Report of Barry S. Schifrin, M.D., Ex. F to Pl.'s Supplemental Brief on Defs.' Liability for Negligent Supervision and Medical Malpractice at 2 [Doc. No. 86].) The Board required Dr. Lastine to take coursework in areas pertaining to pharmacology and pain management; maintain a log of controlled prescriptions; review relevant national standards; meet monthly with a supervising physician approved by the Board to review Dr. Lastine's prescription log and a sample of his charts, and to submit quarterly reports to the Board about his practice; have his practice audited; and meet quarterly with a Board member or designee. (Id. at 2-3.)

D. Defendants' Motion for Partial Summary Judgment

Defendants' present motion is one for partial summary judgment. The issues remaining for adjudication are: (1) whether the medical malpractice claim brought directly against Defendants should be dismissed for lack of evidence to support a prima facie claim;

(2) whether the negligent supervision claims against Defendants based on the alleged actions of their employees should be dismissed because there is no allegation that their employees committed any intentional tort; (3) whether Avera Health should be dismissed; and (4) whether J.J.H.'s future medical expense damages should be limited to projected payments of premiums and deductibles under the Patient Protection and Affordable Care Act. (Id.; Def.'s Mot. for Partial Summ. J. [Doc. No. 58].)

This matter was heard on October 3, 2013. (Court Mins. [Doc. No. 77].) On October 17, 2013, Plaintiff filed a Supplemental Brief on Defendants' Liability for Negligent Supervision and Medical Malpractice [Doc. No. 88], to which Defendants responded [Doc. No. 96] on October 30, 2013.

III. DISCUSSION

A. Standard of Review

Summary judgment is appropriate "if the pleadings, the discovery and disclosure materials on file, and any affidavits show that there is no genuine issue as to any material fact and that the movant is entitled to judgment as a matter of law." FED. R. CIV. P. 56(c). The moving party bears the burden of showing that there is no genuine issue of material fact and that it is entitled to judgment as a matter of law. Celotex Corp. v. Catrett, 477 U.S. 317, 323 (1986); Enter. Bank v. Magna Bank, 92 F.3d 743, 747 (8th Cir. 1996). A dispute over a fact is "material" only if its resolution might affect the outcome of the lawsuit under the substantive law. Anderson v. Liberty Lobby, Inc., 477 U.S. 242, 248 (1986). A dispute over a fact is "genuine" if "the evidence is such that a reasonable jury could return a verdict for the non-moving party." Id. All justifiable inferences are to be drawn in the nonmovant's favor and the evidence of the non-movant is to be believed. Id. at

255.

B. Medical Malpractice Claim Based on Direct Liability

Plaintiff premises her direct liability claim against Defendants on their allegedly deficient policies and procedures, namely:

> (1) Avera failed to set forth certain labor and delivery policies that would have conformed to the standard of care (e.g., require that a family practice doctor consult with an obstetrician before inducing labor), and (2) Avera did adopt certain policies and procedures that fell below the standard of care (e.g., specifying that physicians like Dr. Lastine could administer 50 micrograms of cytotec, which is twice the amount allowed by the standard of care).

(Pl.'s Supplemental Brief on Defs.' Liability for Negligent Supervision and Medical Malpractice at 10 [Doc. No. 88].) To support this claim, Plaintiff submits Dr. Schifrin's expert report, supplemental addendum report, and testimony. (Id.; Mem. of Law in Opp'n to Defs.' Mot. for Partial Summ. J. at 10-12 [Doc. No. 69]; Expert Report of Barry S. Schifrin, M.D., Ex. 1 to Pl.'s Disclosure of Expert Witnesses [Doc. No. 34-1]; Supplemental Addendum Report of Barry S. Schifrin, M.D., Ex. F to Pl.'s Supplemental Brief on Defs.' Liability for Negligent Supervision and Medical Malpractice [Doc. No. 86]; Dep. of Barry Schifrin at 176-79, Ex. G to Pl.'s Supplemental Brief on Defs.' Liability for Negligent Supervision and Medical Malpractice [Doc. No. 86].) Plaintiff also submits case law and Minnesota's model jury instruction for hospital negligence. (Pl.'s Supplemental Brief on Defs.' Liability for Negligent Supervision and Medical Malpractice at 10-14 [Doc. No. 88].)

Having reviewed the cases submitted by Plaintiff, the Court finds them distinguishable from the instant facts. For example, in Calcagno v. Emery, No. A11-1212, 2012 WL 1813389 (Minn. Ct. App. May 21, 2012), the plaintiff brought a medical negligence action against a hospital that provided her care—not against any institution acting in the capacity of Avera Health or Avera McKennan in this case. Similarly, in Roettger v. United Hosps. of St. Paul, Inc., 380 N.W.2d 856 (Minn. Ct. App. 1986), the plaintiff and her husband brought a negligence action against a hospital in which she was assaulted by a third-party trespasser while she was an inpatient. Here, Plaintiff has not sued PCMC, the hospital in which she delivered J.J.H. No cited case stands for the proposition that an entity acting in Defendants' capacity is liable on the basis of a deficient medical policy. Plaintiff's direct liability claim against Defendants based on their allegedly deficient policies and procedures therefore cannot stand.

Plaintiff's direct liability claim against Defendants also fails because she has not established the prima facie elements. To establish a prima facie claim of medical malpractice, an expert affidavit must: (1) disclose specific details concerning the expert's expected testimony, including the applicable standard of care; (2) identify the acts or omissions that allegedly violated the standard of care; and (3) outline the chain of causation between the violation of the standard of care and the plaintiff's damages. Teffeteller v. Univ. of Minnesota, 645 N.W.2d 420, 428 (Minn. 2002).[2] Tellingly, Dr. Schifrin's expert report focuses on the applicable standards of care for Dr. Lastine; Dr. Lastine's failure to meet applicable standards of care; and the causal relationship between the care rendered by Dr. Lastine and the injury, harm, or damages in this case. (Schifrin Expert Report at 17-24, Ex. 1 to Pl.'s Disclosure of Expert Witnesses [Doc. No. 34-1].) Dr. Schifrin, however, does not opine that these Defendants have committed medical malpractice themselves through the issuance of deficient policies, which policies caused the injuries in this case.[3]

With respect to Avera Health, there is no reference to this entity in Dr. Schifrin's expert report or supplemental addendum report. As such, there is no prima facie claim of medical malpractice made against this Defendant.

As for Avera McKennan, Dr. Schifrin's expert report and supplemental addendum report do not identify the applicable standard of care with respect to policies relevant to inducing labor or the use of Cytotec. In addition, these reports fail to show causation, and the record suggests why. Although Avera McKennan can recommend policies and procedures for PCMC to implement, the final decision-making authority to implement them rests with PCMC. (Dep. of Curt Hohman, at 10-11, Ex. B to Loidolt Aff. [Doc. No. 56-2].) Stated another way, Avera McKennan's policies hold no weight or authority at PCMC. (Dep. of Bradley Burris at 11, Ex. A to Riethof Aff. [Doc. No. 61-1].) With the elements of standard of care and causation missing, Plaintiff has not established a prima facie claim of medical malpractice directly against Avera McKennan.

For these reasons, the Court grants summary judgment on this claim and dismisses the medical malpractice claim based on direct liability against Defendants.

C. Negligent Supervision Claim

Next, Defendants argue that Plaintiff's negligent supervision claim should be dismissed because Plaintiff does not allege that Dr. Lastine or

any hospital administrator committed an intentional tort. (Defs.' Mem. in Supp. of Their Mot. for Partial Summ. J. at 25-26 [Doc. No. 60].) Plaintiff responds that a negligent supervision claim need not be predicated on an employee's intentional tort. (Mem. of Law in Opp'n to Defs.' Mot. for Partial Summ. J. at 12 [Doc. No. 69].)

A negligent supervision claim is "premised on an employer's duty to control employees and prevent them from intentionally *or negligently* inflicting personal injury." Johnson v. Peterson, 734 N.W.2d 275, 277 (Minn. Ct. App. 2007) (emphasis added). The purpose of this doctrine is to prevent the foreseeable misconduct of an employee from causing harm to other employees or third persons. Cook v. Greyhound Lines, Inc., 847 F. Supp. 725, 732 (D. Minn. 1994). Unlike negligent hiring and negligent retention, which are based on direct liability, negligent supervision derives from the respondeat superior doctrine. Id. A negligent supervision claim therefore requires a plaintiff to prove that the employee who caused an injury did so within the scope of his employment. Id.

The Court finds that there is a genuine issue of material fact regarding the negligent supervision claim. Plaintiff submits information about the disciplinary history of Dr. Lastine for improperly prescribing medication; in fact, his license to practice medicine and surgery in Minnesota was conditioned and restricted. (Schifrin Supplemental Addendum Report at 2-3, Ex. F to Pl.'s Supplemental Brief on Defs.' Liability for Negligent Supervision and Medical Malpractice [Doc. No. 86].) Plaintiff takes issue with the acts of Dr. Lastine that occurred within the scope of his employment, including "the correct use and dosage of Cytotec, a drug with potentially dangerous side effects administered in the course of Ms. Halsne's labor." (Mem. of Law in Opp'n to Defs.' Mot. for Partial Summ. J. at 12 [Doc. No. 69].) Whether Avera McKennan knew or should have known about Dr. Lastine's history of improperly prescribing medication and related discipline, and whether it failed to prevent any foreseeable misconduct by Dr. Lastine from causing harm to Plaintiff, are questions for a jury. Accordingly, the Court denies Defendants' motion for summary judgment on Plaintiff's negligent supervision claim.

D. Defendant Avera Health

Defendants argue that Avera Health should be dismissed because there are no direct claims against Avera Health, and Avera Health does not employ Dr. Lastine or Mr. Burris. (Defs.' Reply Mem. at 6 [Doc. No. 75].) Plaintiff contends that there is a genuine issue of material fact about whether Avera Health and Avera McKennan should be regarded as the same entity, citing three legal theories: agency, alter ego, and "purpose and existence." (Mem. of Law in Opp'n to Defs.' Mot. for Partial Summ. J. at 14 [Doc. No. 69].) Defendants respond that none of these three legal theories applies in this case. (Defs.' Reply Mem. at 7-14.)

As discussed previously, supra Part III(B), Plaintiff has not established a prima facie claim for medical malpractice against Avera Health based on direct liability. And Avera Health cannot be vicariously liable for the acts of Dr. Lastine and Mr. Burris, because they are employees of Avera McKennan and not Avera Health. (Lastine Dep. at 4, Ex. C to Riethof Aff. [Doc. No. 61-1 at 16]; Burris Dep. at 8, Ex. A to Riethof Aff. [Doc. No. 61-1 at 3].) In addition, none of Plaintiff's three legal theories for holding Avera Health liable for the acts of Avera McKennan's employees applies, and the Court now examines them in turn.

1. Agency

Plaintiff seeks to hold Avera Health liable for the alleged acts of Avera McKennan employees under an agency theory. An agency relationship can exist between corporations, such as when one corporation makes a contract on the other's account. A.P.I., Inc. Asbestos Settlement Trust v. Home Ins. Co., 877 F. Supp. 2d 709, 722 (D. Minn. 2012). Similarly, a subsidiary may become an agent for the corporation that controls it. Id. A principal-agent relationship results "from the manifestation of consent by one person to another that the other shall act on his behalf and subject to his control, and consent by the other to so act." Urban ex rel. Urban v. Am. Legion Post 184, 695 N.W.2d 153, 160 (Minn. Ct. App. 2005) (citing Restatement (Second) of Agency § 1 (2004)). The right to control, and not necessarily the exercise of that right, gives rise to the vicarious liability of a principal for the tortious act of his agent. Id. "The determinative right of control is not merely over *what* is to be done, but primarily over *how* it is to be done." Id. (citing Frankle v. Twedt, 47 N.W.2d 482, 487 (Minn. 1951)).

In Urban, the plaintiffs sought to hold separately incorporated entities, American Legion and American Legion Department of Minnesota, vicariously liable for the illegal alcohol sale by Post 184 to a driver that collided with the plaintiffs' vehicle. 695 N.W.2d at 156-57. The court concluded that although American Legion and American Legion Department of Minnesota had some control over Post 184, the entities did not control the physical undertakings of Post 184's daily activities. Id. at 161. The court therefore declined to find an agency relationship between the two entities and Post 184. Id.

Here, Plaintiff claims that Avera McKennan acted as an agent for Avera Health in providing obstetrical services to Plaintiff, because

> AH [Avera Health] exerted wide-ranging domination and control over the governance, values, policies, programs, and mission of AM [Avera McKennan]. AH was incorporated in great part for the purpose of operating a network of health care service providers and to provide health care services generally. The majority of AM's corporate purposes significantly overlap with those of AH.

(Mem. of Law in Opp'n to Defs.' Mot. for Partial Summ. J. at 25 [Doc. No. 69].) But even if Avera Health wields general control over Avera McKennan's "governance, values, policies, programs, and mission," Plaintiff has not shown that Avera Health controls the physical undertakings of Avera McKennan's daily activities, such as how Avera McKennan employees provide obstetrical services to patients at PCMC. Indeed, Plaintiff cannot make such a showing. Any policy or procedure regarding labor and delivery originates from and is finalized by Pipestone County Medical Center, and Avera McKennan cannot require PCMC to follow any particular policies or procedures. (Burris Dep. at 9-12, Ex. A to Riethof Aff. [Doc. No. 61-1].) Similar to the entities in Urban, which lacked control over the physical undertakings of Post 184's daily activities, Avera Health does not control the manner in which Avera McKennan provides obstetrical services to patients at PCMC. Accordingly, Plaintiff's agency theory cannot preclude summary judgment on this issue.

2. Alter Ego

Plaintiff also argues that genuine issues of material fact exist regarding Avera Health's liability for the acts of Avera McKennan's employees under the doctrine of alter ego. (Mem. of Law in Opp'n to Defs.' Mot. for Partial Summ. J. at 21-24 [Doc. No. 69].) Defendants respond that Plaintiff did not plead an alter ego claim, and regardless, there is no evidence to support applying the alter ego doctrine here. (Defs.' Reply Mem. at 10-13 [Doc. No. 75].)

Generally, a parent corporation cannot be held liable for the wrongdoing of a subsidiary without a showing of improper conduct, fraud, or bad faith. Urban, 695 N.W.2d at 161. To disregard the corporate structure and hold one corporation liable for another's wrongdoing—that is, to pierce the corporate veil—Minnesota courts use a two-part test established in Victoria Elevator Co. of Minneapolis v. Meriden Grain Co., Inc., 283 N.W.2d 509 (Minn. 1979). Id. The first part of the test requires that "a number of" the following factors must exist: (1) insufficient capitalization, (2) failure to observe corporate formalities, (3) nonpayment of dividends, (4) insolvency of debtor corporation, (5) siphoning of funds, (6) nonfunctioning of officers and directors, (7) absence of corporate records, or (8) existence of corporation as merely façade for individual dealings. Id. The second, and more important, part of the test requires a finding of injustice or fundamental unfairness, usually meaning that the corporation "has been operated as a constructive fraud or in an unjust manner." Miller & Schroeder, Inc. v. Gearman, 413 N.W.2d 194, 196 (Minn. Ct. App. 1987). Where the "formalities of corporate existence are disregarded by one seeking to use it," the corporate existence cannot be allowed to shield the individual from liability. Urban, 695 N.W.2d at 162. A genuine issue of material fact concerning both parts of the test can preclude summary judgment.

Significantly, Plaintiff has not alleged that Avera Health operated Avera McKennan as a constructive fraud or in an unjust manner. As such, there is no genuine issue of material fact concerning the second, and more important, part of the test under Victoria.

Likewise, there is no genuine issue of material fact concerning the first part of the test. Plaintiff claims that Avera McKennan was insufficiently capitalized because it cannot issue capital stock, its sole member is Avera Health, and its finances are substantially intertwined with and dependent on funds and administrative mechanisms managed by Avera Health. (Mem. of Law in Opp'n to Defs.' Mot. for Partial Summ. J. at 22 [Doc. No. 69].) Plaintiff also claims that Avera McKennan failed to observe traditional corporate formalities. (Id. at 22-23.) Plaintiff further claims that Avera Health never paid dividends and has the authority to siphon funds from Avera McKennan. (Id. at 23.) But such claims, without any identified support from the record, are insufficient to defeat summary judgment.

Because Plaintiff fails to establish a genuine issue of material fact concerning both parts of the test under Victoria, the Court declines to hold Avera Health liable based on an alter ego theory.

3. "Purpose and Existence"

Plaintiff argues that Avera Health should be liable for the negligent acts of Avera McKennan employees under a "purpose and existence theory." (Mem. of Law in Opp'n to Defs.' Mot. for Partial Summ. J. at 20 [Doc. No. 69].) Minnesota courts, however, have not used such a theory to hold a parent corporation liable for the torts of its subsidiary's employees. Accordingly, the Court declines to hold Avera Health liable for the acts of Avera McKennan employees on this ground.

Because Plaintiff has not established any claims against Avera Health based on direct liability or vicarious liability under any other legal theory, such as agency, alter ego, and "purpose and existence," the Court grants summary judgment on this issue and dismisses Avera

Health from this litigation.

E. J.J.H.'s Future Medical Expense Damages

Finally, at issue is whether J.J.H.'s future medical expense damages should be limited to projected payments of premiums and deductibles under the Patient Protection and Affordable Care Act ("the Affordable Care Act"), Pub. L. 111-148, 124 Stat. 119 (2010). Defendants argue that such damages should be limited because Plaintiff is not required to pay the full price of projected medical services, and to decide otherwise would grant Plaintiff a windfall. (Defs.' Mem. in Supp. of Their Mot. for Partial Summ. J. at 26-28 [Doc. No. 60].) Plaintiff contends that J.J.H.'s damages should not be limited in light of the Minnesota collateral source statute, Minn. Stat. § 548.251, and general principles of tort recovery. (Mem. of Law in Opp'n to Defs.' Mot. for Partial Summ. J. at 25-32 [Doc. No. 69].) In the alternative, Plaintiff argues that: (1) the Affordable Care Act does not change Plaintiff's right to recover medical expenses; (2) there is uncertainty about the implementation and survival of the Affordable Care Act; (3) Defendants' experts do not address the Affordable Care Act in their reports; and (4) Defendants' allegations ignore important language of the Pre-Existing Condition Insurance Program. (Id.)

Minnesota's collateral source doctrine is long established in Minnesota courts. Under the doctrine, a plaintiff can recover full damages from a tortfeasor, regardless of whether the plaintiff can recover some or all of his damages from a collateral source of payment, such as insurance. See VanLandschoot v. Walsh, 660 N.W.2d 152, 155 (Minn. Ct. App. 2003) ("in general . . . compensation received from a third party will not diminish recovery against a wrongdoer."). The public policy behind this doctrine is that a tortfeasor should not benefit from an injured party's foresight to arrange for insurance. In 1986, the Minnesota legislature defined "collateral sources" and provided for certain exceptions under the law. MINN. STAT. § 548.251.[4]

In Renswick v. Wenzel, 819 N.W.2d 198 (Minn. Ct. App. 2012), the Minnesota Court of Appeals addressed whether the collateral source doctrine allowed a trial court to reduce an award based on the availability of Medicare funds. 819 N.W.2d at 210. Recognizing that Medicare falls within the Social Security Act, and that the language of the collateral source statute excludes payments made under that Act from the general rule preventing double recovery, the Court nonetheless concluded that Medicare benefits did not provide a basis to reduce the plaintiff's damages award. Id. at 210-11.

Recently, the Hennepin County District Court addressed whether recovery of future medical expenses based on the Patient Protection and Affordable Care Act should be foreclosed. Vasquez-Sierra v. Hennepin Faculty Assocs., No. 27-cv-12-1611, 2012 WL 7150829 (Minn. Dist. Ct. Dec. 14, 2012). The court stated that it

> ... is not inclined to speculate that the recent and controversial federal health care legislation upends Minnesota's collateral source doctrine. Until the Minnesota legislature passes new legislation regarding collateral sources in light of the Affordable Care Act, this court will not re-write long-standing law regarding collateral sources.

Id. The court permitted the question of damages to proceed to the jury. Id.

Persuaded by the reasoning in Renswick and Vasquez-Sierra, the Court finds that any benefits received through the Affordable Care Act do not provide a basis for reducing the potential award to Plaintiff. Thus, the Court denies summary judgment on this issue.

IV. ORDER

Based on the foregoing, and all the files, records, and proceedings herein, IT IS HEREBY ORDERED that:

1. Defendants' Motion for Partial Summary Judgment [Doc. No. 58] is GRANTED IN PART and DENIED IN PART.

[1] Defendants do not dispute the substance of Dr. Lastine's disciplinary history, but they object to the timeliness of Plaintiff's submission of this information. (Defs.' Reply Mem. in Supp. of Their Mot. for Partial Summ. J. at 3-4 [Doc. No. 75].) The Court does not condone tardy submissions, but it will consider documents related to Dr. Lastine's disciplinary history because they raise a genuine issue of material fact for the negligent supervision claim. Infra Part III(C).

[2] Because this is a diversity case, the Court applies the substantive law of Minnesota, the forum state. In re Levaquin Prods. Liab. Litig., 700 F.3d 1161, 1165 (8th Cir. 2012).

[3] The Court also reviewed the medical expert opinions of Marcus C. Hermansen, M.D., Garrett C. Burris, M.D., Wayne Blount, M.D., and Robert Zimmerman, M.D.—none of which establishes a prima facie claim of medical malpractice against Avera Health or Avera McKennan. Dr. Hermansen opines on J.J.H.'s brain damage as a result of injuries at the end of labor and delivery. (Report of Marcus C. Hermansen, M.D., Ex. 2 to Pl.'s Disclosure of Expert Witnesses [Doc. No. 34-2].) Dr. Burris opines on J.J.H.'s injuries, current neurological status, future needs, home care, and life expectancy. (Child Neurology Consultation by Garrett C. Burris, M.D., Ex. 3 to Pl.'s Disclosure of Expert Witnesses [Doc. No. 34-3].) Dr. Blount opines

on Dr. Lastine's failure to meet the applicable standards of care in caring for Ms. Halsne and J.J.H. (Report of B. Wayne Blount, M.D., Ex. 4 to Pl.'s Disclosure of Expert Witnesses [Doc. No. 34-4].) Dr. Zimmerman summarizes J.J.H.'s injuries based on neuroimaging of J.J.H.'s brain from January 2009 to June 2011. (Letter from Robert A. Zimmerman, Ex. 5 to Pl.'s Disclosure of Expert Witnesses [Doc. No. 34-5].)

[4] Minn. Stat. § 548.251, subd. 1, provides:

For purposes of this section, "collateral sources" means payments related to the injury or disability in question made to the plaintiff, or on the plaintiff's behalf up to the date of the verdict, by or pursuant to:

(1) a federal, state, or local income disability or Workers' Compensation Act; or other public program providing medical expenses, disability payments, or similar benefits;

(2) health, accident and sickness, or automobile accident insurance or liability insurance that provides health benefits or income disability coverage; except life insurance benefits available to the plaintiff, whether purchased by the plaintiff or provided by others, payments made pursuant to the United States Social Security Act, or pension payments;

(3) a contract or agreement of a group, organization, partnership, or corporation to provide, pay for, or reimburse the costs of hospital, medical, dental or other health care services; or

(4) a contractual or voluntary wage continuation plan provided by employers or any other system intended to provide wages during a period of disability, except benefits received from a private disability insurance policy where the premiums were wholly paid for by the plaintiff.

Document 7

Lamasa v. Bachman

Slip Copy, 8 Misc.3d 1001(A), 2005 WL 1364515 (N.Y.Sup.), 2005 N.Y. Slip Op. 50882(U)
(Table, Text in WESTLAW), Unreported Disposition
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H

NOTE: THIS OPINION WILL NOT APPEAR IN A PRINTED VOLUME. THE DISPOSITION WILL APPEAR IN A REPORTER TABLE.

Supreme Court, New York County, New York.
Salvatore LAMASA and Ana G. Lamasa, Plaintiffs,
v.
John K. BACHMAN, Defendant.

No. 129996/93.
April 13, 2005.

MARTIN SHULMAN, J.

***1** Defendant, John K. Bachman ("defendant" or "Bachman"), moves for an order seeking the following relief in relation to a jury verdict rendered on June 7, 2004 [FN1]:

> FN1. Normally, a motion to challenge a jury verdict pursuant to CPLR § 4404(a) is governed by the 15–day time limit of CPLR § 4405. This Court permitted the parties to stipulate to extend their time to present written arguments. *See*, "(CPLR 2004; see, 4 Weinstein–Korn–Miller, N.Y. Civ Prac para. 4405.05) ..." *Brown v. Two Exchange Plaza Partners*, 146 A.D.2d 129, 539 N.Y.S.2d 889 (1st Dept.,1989).

1) dismissing the complaint; 2) setting aside the jury verdict as against the weight of the evidence (CPLR § 4404[a]); 3) alternatively, seeking remittitur; 4) seeking defense costs and fees as against the plaintiffs, Salvatore LaMasa and Ana G. LaMasa (where appropriate: "plaintiff", "Salvatore" or "plaintiffs") in connection with plaintiffs' counsel's "withdrawal of his proffer of PET and QEEG evidence following the ruling of the Court precluding said evidence during the trial and for costs in connection with plaintiff's egregious discovery abuses." Plaintiffs oppose the motion and cross-move for additur.

The motion and cross-motion are consolidated for disposition.

Salvatore initiated what had become a protracted action against the defendant in November, 1993 for injuries he purportedly sustained as the driver of the stationary, front vehicle Bachman rear-ended during the early morning hours of November 25, 1992 at the intersection of Delancey and Clinton Streets just prior to entering the Williamsburg Bridge (the "Collision"). After being marked off the calendar at least three times, this matter was restored to the trial calendar and thereafter transferred to the New York County Civil Court on November 10, 1999 (see, CPLR § 325[d]). After languishing for four years, the parties appeared at several pre-trial conferences and the case was eventually referred to the Supervising Judge of that court.[FN2]

> FN2. Due to the confusing procedural posture of the case and an inordinate number of complex *in limine* motions/issues as well as the potential value of the case (based upon a prima facie showing), the parties' counsel concurred that the matter should be re-transferred to the Supreme Court and this Court agreed to preside over the jury trial.

Jury selection began on May 4, 2004 and the trial ended on June 7, 2004. As noted on the Jury Verdict Sheet (Exhibit A to Bachman Motion), five out of the six members of the jury reached an agreement and preliminarily reported that defendant's negligence in causing the rear-end collision was a substantial factor in causing Salvatore's injuries. The same five members of the jury further reported that as a result of the Collision, plaintiff suffered a serious injury under the No–Fault Law, Insurance Law § 5102(d) (see, Jury Question Nos.: 1A–1C). Salvatore was then awarded the following damages:

a) Past pain and suffering	$240,000
b) Future pain and suffering	$400,000 (over 20 years)
c) Past Lost Earnings	$460,713
d) Future lost earnings	$774,892 (over 13 years)
e) Past medical expenses	$ 40,768

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f) Future Medical expenses	$ 95,040 (over 20 years)
g) Past loss of medical insurance	$ 38,985
h) Future loss of medical insurance	$ 95,840 (over 13 years)
i) Future loss of social security	$122,273 (over 7 years)

The jury also awarded Salvatore's spouse, Ana La-Masa, $250,000 for past loss of services (on her derivative claim for loss of consortium) and awarded an identical sum for future loss of services (the latter to cover a period of 20 years).

It should be readily apparent that both parties had a full and fair opportunity to argue and brief the court (where necessary) and make their record, *inter alia*, concerning their respective *in limine* motions, evidentiary issues and procedural and substantive trial issues (e.g., the proper jury charges, verdict interrogatories, etc.). While this Court granted Bachman's counsel leave to make this post-verdict motion, nonetheless, to avoid any redundancy, this Court expressed an unwillingness to entertain any application addressing the liability issues and/or the varied evidentiary rulings made prior to and during the jury trial. However, this Court stated it would consider whether the jury awards were excessive and unreasonable (CPLR § 5501[c]). Still, defendant took advantage of his right to move under CPLR § 4404(a) and "re-argued" almost every one his overruled objections and denied motions duly made on the record during the course of the trial and duly preserved for a potential appeal.In its post-verdict motion, defendant's counsel argues that: Salvatore's proof of injuries never met the statutory threshold to constitute a serious injury (i.e., no loss of consciousness and no complaints of pain and/or other physical or cognitive disabilities at the time of the Collision made to the police or his late brother-in-law, no loss of ambulation, no emergency room or hospital admission at the time of the Collision, no initial complaints of headaches, depression and/or anxiety at or close in time to the Collision, a normal neurological examination seven weeks post-Collision, no evidence of either temporary or permanent traumatic brain injury ("TBI") at or close in time to the Collision and no objective findings of injuries to Salvatore's neck and back); plaintiff's proof was insufficient to show a causal connection between the Collision and Salvatore's alleged injuries (*viz.*, all of plaintiff's experts failed to opine on causation and any and all purported positive findings of TBI, post-traumatic stress disorder ["PTSD"] and neck and back injuries were reported years after the collision by medical experts retained by plaintiffs' counsel solely for trial); and plaintiffs' discovery abuses warranted the extreme sanction of dismissal of the plaintiffs' complaint.

***2** Defendant's post-verdict motion further took issue with various court rulings he deemed erroneous such as permitting plaintiff's expert neuroradiologist, Dr. Michael Lipton, to testify with respect to an innovative MRI modality utilizing Diffusion Tensor Imaging ("DTI") [FN3] as this modality is not generally accepted in the field of radiology or neuroradiology to diagnose TBI or diffuse axonal injury; precluding defendant's expert neurologist from testifying concerning Evoked Potential testing [FN4] which plaintiff argued was not addressed in defendant's expert witness disclosure notice; granting plaintiff a directed verdict on the issue of negligence; overruling certain objections to references about insurance made by various plaintiffs' witnesses; denying defendant's request for a missing witness charge with respect to various witnesses such as Dr. Wiseman (pain management specialist who treated Salvatore), Dr Leo J. Shea III (psychologist who treated Salvatore) and Mariusz Ziejewski, Ph.D. (accident reconstruction engineer); granting plaintiffs' counsel's application to modify certain no-fault interrogatories on the verdict sheet to eliminate the phrase, "[a]s a result of the accident" but otherwise accurately reciting the text of these no-fault questions in accordance with PJI 2:88E, 2:88F and 2:88G; and granting plaintiffs' counsel application to amend certain damages questions on the verdict sheet after completion of instructions to the jury to include a claim for loss of past and future medical insurance and future loss of social security benefits (or payments) and furnishing the jury with a supplementary charge with respect thereto.

FN3. DTI is an imaging technique used to study the random motion of hydrogen atoms within water molecules in biological tissue (e.g., brain white matter) and spatially map this diffusion of water molecules, *in vivo*. DTI provides anatomical information about tissue structure and composition. Changes in these tissue properties can often be correlated with processes that occur, among other causes, as a result of disease and trauma.

FN4. Evoked Potentials sometimes called

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evoked responses are tests that record the brain's responses to sound, touch and light. These tests help to evaluate a number of neurological conditions.

After the foregoing challenges, Bachman's motion then raises the issue of remittitur urging the court to either set aside or reduce the jury awards for past lost earnings ($460,713) and future lost earnings ($774,892) [FN5], reduce the jury award for past medical expenses from $40,780 to $25,000, set aside the jury award for past and future medical insurance as being duplicative, set aside the jury award for future loss of social security retirement benefits as being totally speculative or alternatively reduce the $122,273 award to $80,700 and reduce the jury awards for loss of past and future services to Ana LaMasa from $500,000 to $50,000.

FN5. Specifically, defendant contends that Salvatore's pre-accident employment history reflects a patchwork of short-term jobs, that plaintiff's most recent employment before the accident at Ogden Allied was only for two and a half years, that Salvatore intended to leave Ogden Allied to become a Con Edison meter reader rendering plaintiff's expert economist's projections and calculations uncertain and speculative, that the calculation of the past and future lost earnings on an annualized basis erroneously utilized an increase rate of 3.5% rather than the union contract increase rate, that the economist failed to consider plaintiff's pre-accident health condition (i.e., scoliosis and degenerative disc disease), that the jury ignored testimonial evidence proffered by Dr. Remling, Salvatore's treating chiropractor, to the effect that plaintiff could return to work at a less demanding job or seek part time work, and that plaintiff's expert recognized that the rate of increase for future lost earnings could have been 3.5% rather than 4.5% justifying a reduction of this award by approximately $50,000 or $60,000.

Finally, due to plaintiff's purportedly frivolous efforts to seek the admission of QEEG [FN6] and PET scan [FN7] evidence, Bachman should be awarded attorney's fees pursuant to 22 NYCRR § 130–1.1 as well as defense expert witness expenses totaling approximately $50,000.

FN6. EEG is the recording of electrical patterns at the scalp's surface showing cortical electrical activity or brain waves. This recording is called an electroencephalograph, commonly referred to as an EEG. As a diagnostic tool, Quantitative EEG or QEEG provides a digital recording of the EEG which is apparently utilized to perform a comparative analysis of many EEG tracings of a patient suffering from brain disease or trauma against a normative data base of EEG tracings.

FN7. Positron Emission Tomography (“PET”) is a medical imaging technique which scans a body's chemistry and function to detect cancer, Alzheimer's and other medical conditions.

Plaintiff's cross-motion seeks additur and through the following arguments tells a different story:

Testimonial and documentary evidence presented before the jury preponderated in favor of Salvatore establishing that he suffered serious injury (Insurance Law § 5102) including, but not limited to, neck and back injury, TBI [FN8], post-traumatic stress disorder (“PTSD” [FN9]) and a non-permanent, medically determined injury, *viz.*, non-performance of customary and daily activities for 90 of 180 days after the Collision. Each of these conditions standing alone, plaintiffs argue, would satisfy the statutory serious injury threshold;

FN8. Plaintiffs contend that treating specialists Dr. Lewis Weiner (Salvatore's treating neurologist), Dr. Steven Stein (neuropsychologist), Dr, Daniel Kuhn (Salvatore's treating psychiatrist) and Dr. Joshua Greenspan (pain management specialist), Dr. Rachel Yehuda (neuroendocrinologist/psychologist) and experts Dr. Nils Varney (neuropsychologist) and Dr. Lipton jointly and severally opined that LaMasa suffered TBI as a result of the Collision. Their findings, impressions and conclusions, counsel argues, were based on hundreds of clinical examinations performed and duly reported, treatment regimens (i.e, series of drug treatments administered for over 12 years, all proven unsuccessful), medically accepted batteries of neuropsychological tests, MRI and/or DTI studies (the latter imaging studies revealed anatomical damage such as frontal lobe, hippocampus and para hippocampal atrophy and hemocitarin residue [from internal bleeding] consistent with frontal lobe injury).

FN9. Plaintiffs similarly contend that the severity of Salvatore's PTSD defies text book analysis.

> Salvatore's counsel, drawing from Dr. Yehuda's testimony, starkly captures a singular feature of what this specialist diagnosed as one her worse cases of this disorder: "[A]s a result of the immense psychological barriers inflicted by his PTSD, LaMasa remains psychologically frozen in time. He really has no present or future, since his PTSD holds him captive in a perpetual state of fear and terror, stuck in the moments surrounding the [Collision] ..." (Flomenhaft Aff. In support of Cross–Motion at ¶ 37 paraphrasing from the Yehuda trial transcript at pp. 16 and 42–45).

***3** Unrefuted testimonial and documentary evidence presented before the jury established that as a result of the Collision, Salvatore suffered, and continues to suffer, from panic disorder, severe depression accompanied by suicidal ideation and bouts of violence, electrical dysfunction of the brain, epilepsy, chronic severe headaches, sleep cycle disorder/insomnia [FN10];

> FN10. Studies done at Mt. Sinai Medical Center Sleep Laboratory revealed "abysmally abnormal qualities in Salvatore's sleep cycles and sleep oxygenation." (Flomenhaft Aff. in support of Cross–Motion at ¶ 32).

Defendant unnecessarily reiterates his objections to the many discovery issues fully argued and briefed prior to and during the trial, which the court ruled upon on the record [FN11] and requires no serious rebuttal. Moreover, defendant conveniently overlooked his counsel's own discovery "abuses" during the course of the trial;

> FN11. To illustrate, plaintiff's counsel acknowledged defendant's understandable concern about the "eleventh hour" proffer of Grahme Fisher, an accident reconstruction specialist. Exercising its discretion to ameliorate any perceived prejudice and surprise, this Court afforded defendant's counsel ample opportunity to depose Mr. Fisher during the course of the trial and obtain all relevant data he relied upon to not only conduct effective cross-examination, but also to furnish an appropriate defense to the effect that the Collision was low-impact in nature and incapable of causing the mixed bag of injuries Salvatore claims to have suffered therefrom. In this context, plaintiffs' counsel retorted that the court ruling precluding defendant's neurologist from testifying about Evoked Potentials testing was proper because the relevant CPLR § 3101(d) notice made no mention of this subject for testimony.

References to the word, "insurance", during the testimony of some of plaintiffs' witnesses were benign in context and non-prejudicial as most of the references to insurance were made in the context of discussing the payment of plaintiff's medical bills and did not warrant a mistrial;

This Court correctly granted plaintiffs a directed verdict on the issue of negligence, correctly denied defendant's request for a missing witness charge, vis-a-vis, Drs. Weissman,, Shea and Ziejewski; correctly permitted the semantic changes to the no-fault interrogatories eliminating the introductory phrase, "[a]s a result of the accident", while retaining the text of each question in accordance with the PJI. After determining if plaintiff suffered a serious injury by responding affirmatively to the three no-fault questions, the jury properly determined the issue of causation by answering Question No.2, namely, "Was the collision involving the plaintiff and defendant a substantial factor in causing any of the injuries alleged by plaintiff?" (Exhibit A to Bachman Motion at p. 2)

Contrary to defendant's confusing assertions, the jury awards for past and future medical insurance costs were not duplicative of the awards for medical expenses, but rather awards for loss of income, that is to say, the replacement costs of heath insurance Salvatore ostensibly would have to purchase in lieu of free union health care coverage he would have otherwise received had he continued working at Ogden Allied (Exhibit B–4 to Bachman Motion; Leiken trial transcript at pp. 24–30) [FN12];

> FN12. In explaining his calculation of this loss, the expert economist determined an annualized cost of health insurance for an individual to be $5000 from 1995 (after the Collision, Salvatore's union continued to provide him with health insurance coverage for a few years) through age 65 and factored in an annual 6% increase thereto for a total cost of $134, 796 (past medical insurance cost of $38,985 and future medical insurance cost of $95,840).

Dr. Leiken similarly projected the loss of social security retirement benefits as an additional component of lost income to be $170,000 (see, Exhibit B–4 to Bachman

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motion at pp. 26–30) and the jury further reduced this sum to $122,273 over a seven year period. Defendant's counsel blurs this item of income loss with Bachman's right to pursue adjustments of the judgment at a post-verdict collateral source hearing;

Without proffering any economist to refute Dr. Leiken's assumptions, calculations and projections on behalf of plaintiffs, defendant's challenges to the past and future lost earnings awards rest on a selective and skewed analysis of the testimony, expert and other [FN13], thus, the jury awards were fair and reasonable;

> FN13. Counsel contends it was reasonable for Dr. Leiken to assume that LaMasa would have remained at Ogden Allied, because the Con Edison position, if taken, would have been in addition to his porter work at New York University. Counsel further argues that LaMasa's work history reflected plaintiff's ongoing desire to work regularly, that no part time work was available after the Collision and that even assuming some incremental improvement of his neck and back through chiropractic treatment, LaMasa still suffered from TBI and its concomitant psychiatric problems rendering him disabled from the time of the Collision.

***4** Plaintiffs agree that the past medical expense award should be reduced from $40,768 to $25,000 based upon the evidence of record; and

The aggregate award of $500,000 to Ana LaMasa for loss of services was fair and reasonable based upon her credible testimony (Mrs. LaMasa had to replace Salvatore as the head of the household raising their two sons and constantly had to care for her husband since the Collision and must continue to do so for the rest of his life).

Counsel's cross-motion further addressed the mean-spirited nature of defendant requesting costs referable to the potential proffer of testimony concerning QEEG and PET testing performed on Salvatore finding said request to be without merit as a matter of law.

Finally, plaintiffs seek additur to increase the total awards for past and future pain and suffering from $640,000 to an appropriate seven-figure number. Counsel finds support from appellate case law involving similarly situated plaintiffs who suffered from TBI and PTSD. (Flomenhaft Aff. in support of Cross–Motion at pp. 34–41).

In reply, defendant's counsel factually distinguishes the case law plaintiffs rely upon for additur, reiterates her objection to the trial testimony of Salvatore's treating specialists questioning the value of their testimony due to purported gaps in time and in treatment (i.e., Dr. Greenspan did not see Salvatore until eleven years after the Collision, etc), and reiterates defendant's position as to the lack of record evidence of causation and serious injury. For ease of reference, defendant's counsel prepared a chart as part of his “wherefore” relief. Bachman therefore seeks an order vacating the jury award *in toto* and granting a new trial or, alternatively, reducing plaintiff's total lost earnings award to $60,000, reducing plaintiff's past medical expenses award to $25,000, reducing plaintiff's total past and future loss of medical insurance costs award to $0, reducing plaintiff's future loss of social security benefits award to $80,700 and reducing Ana LaMasa's total loss of services award to $50,000.

Discussion

Preliminarily, this Court grants the unopposed branch of defendant's motion reducing the past medical expense award from $40,768 to $25,000.

Having otherwise carefully reviewed the relevant portions of the trial transcript furnished by the parties, this Court finds the jury verdict is supported by sufficient evidence as a matter of law. Stated differently, the verdict is not utterly irrational and there was sufficient evidence to raise issues of fact (i.e., causation and serious injury) for the jury to resolve. *Garricks v. City of New York*, 1 NY3d 22, 769 N.Y.S.2d 152 (2003). Further, there were valid lines of reasoning and permissible inferences for the jury to draw upon that would lead these rational jurors to reach their conclusions based upon the testimonial and other admitted evidence presented at trial and decide the triable issue of whether Salvatore suffered serious injury causally related to the Collision. *Cohen v.. Hallmark Cards, Inc.*, 45 N.Y.2d 493, 410 N.Y.S.2d 282 (1978). This ample trial record does not justify a judgment notwithstanding the verdict dismissing the complaint without re-submission of the action to another jury.

***5** Having found sufficient evidence in the trial record to support the verdict, this Court must then inquire as to whether the conflicting medical and other expert testimonial evidence presented by the parties and which resulted in “a verdict for the plaintiff[s] ... so preponder-

ate[d] in favor of the defendant that [the verdict] could not have been reached on any fair interpretation of the evidence ..." *Moffat v. Moffatt*, 86 A.D.2d 864, 447 N.Y.S.2d 313 (2nd Dept., 1982) and quoted with approval with bracketed matter added in *Lolik et al., v. Big v. Supermarkets, Inc.*, 86 N.Y.2d 744, 631 N.Y.S.2d 122 (1995). In conducting a factual inquiry of the trial record, this Court further finds no basis to set aside the verdict as against the weight of the evidence and direct a new trial.

The facts of the Collision are essentially undisputed, i.e., a rear-end collision of a stationary vehicle waiting for a light change which occurred on a wet roadway. And the issue of Bachman's negligence was resolved as a matter of law in favor of Salvatore when this Court granted plaintiffs' application for a directed verdict on the question of negligence.

This Court digresses to discuss the merits of that branch of Bachman's post-verdict motion rearguing his opposition to plaintiffs' application for a directed verdict on this issue. Bachman again makes reference to a pretrial decision and order of the Hon. Joan A. Madden issued January 13, 1998 (Exhibit C to Bachman Motion) which denied plaintiffs' motion for summary judgment finding defendant's purported negligence to be a triable issue of fact. For reasons fully stated on the record at the close of the entire case and prior to summations, this Court made it clear that Justice Madden's decision and order did not mandate that the jury decide the issue of Bachman's negligence. It must be emphasized that "[a] denial of a motion for summary judgment is not necessarily *res judicata* or the law of the case that there is an issue of fact in the case that will be established at trial ..." *Sackman–Gilliland Corporation v. Senator Holding Corp.*, 43 A.D.2d 948, 351 N.Y.S.2d 733 (2nd Dept., 1974). Further, the "proof offered to defeat a motion for summary judgment does not meet the standard of proof required to resolve an issue of fact at trial ..." *Cushman & Wakefield, Inc., v. 214 East 49th Street Corp.*, 218 A.D.2d 464,468, 639 N.Y.S.2d 1012,1015 (1st Dept., 1996). Bachman's testimony and other supporting evidence in his defense neither included any non-negligent explanation for the Collision nor rebutted the presumption of negligence under all of the circumstances underlying the Collision. Defendant's excuse that the roadway was wet preventing him from stopping sufficiently in time to avoid the impact was wholly unavailing. *Mitchell v. Gonzalez*, 269 A.D.2d 250, 703 N.Y.S2d 124 (1st Dept., 2000). Thus, plaintiffs were not foreclosed from obtaining a directed verdict on the issue of negligence. See, *Gubala v. Gee*, 302 A.D.2d 911, 754 N.Y.S.2d 504 (4th Dept., 2003).

***6** As to the issues of causation and the precise physical injuries Salvatore suffered from as a result of the Collision, the parties had numerous expert witnesses testifying and "in considering the conflicting testimony fo the parties' respective expert witnesses, the jury was not required to accept one expert's testimony over that of another, but was entitled to accept or reject either expert's position in whole or in part ..." *Mejia v. JMM Audubon, Inc.*, 1 AD3d 261, 767 N.Y.S.2d 427 (1st Dept., 2003). To reiterate, the verdict as to the Collision being a substantial factor in causing Salvatore "serious injury" as defined under the Insurance Law § 5102(d) was not against the weight of the evidence and will not be disturbed.[FN14]

> FN14. In answering Question # 2 on the verdict sheet (Exhibit A to Bachman Motion), the jury deliberated on the precise issue of causation and the wording of the question made it clear that it had to determine whether the Collision was a substantial factor in causing *any* of Salvatore's injuries. The Jury's answers to Questions1A, 1B and 1C determined the no-fault threshold issue of whether Salvatore's injuries constituted a "serious injury". This Court does not find that the deletion of the phrase, "[a]s a result of the accident", from these three threshold questions prejudiced defendant in any way or ran afoul of the applicable "serious injury" PJI charges underlying these jury questions. In short, the jury squarely disposed of the separate and discrete issues of causation and serious injury under the no-fault statute.

Defendant's disguised reargument of certain *in limine* motions this Court denied and which defendant perceives, if granted, would have otherwise either resulted in a judgment of dismissal notwithstanding the verdict or its vacatur and a directive to conduct a new jury trial is without merit.

As to defendant's charge of discovery abuses [FN15], it is essentially admitted that raw EEG epochs contained in the treatment records of Dr. Kuhn were belatedly turned over and similar records of Dr. Weiner were purportedly destroyed in the ordinary course of that physician's business. Yet, this Court ruled that Dr. Weiner could not testify about any alleged objective findings of TBI noted on such EEG data. As noted in the trial transcript, defendant

was able to have an expert witness, Dr. Marc Nuwer, testify concerning Dr. Kuhn's data at trial, who offered a contrary interpretation of such data and, for that matter, a contrary opinion concerning the collision not being a competent producing cause of Salvatore's deteriorating physical condition. Defendant's motion stridently argues about the severe prejudice in belatedly receiving the respective CPLR § 3101(d) notices and reports/data of plaintiff's experts in the fields of neuropsychology (Nils Varney, Ph.D.), sleep medicine (Dr. Stasia Wieber) and accident reconstruction/engineering (Grahme Fisher, P.E.).

> FN15. Defendant claims plaintiff failed to produce and/or timely produce raw EEG data from certain treating physicians and laboratories, failed to produce neuropsychological testing records from psychologists and untimely served expert witness notices reflecting changes in the theory of Salvatore's case (i.e., mild TBI changed to "moderate to severe" TBI and a low speed collision changed to a moderate to high speed collision).

Nonetheless, this Court afforded defendant sufficient time and opportunity prior to, and during, the trial to review such notices, reports and data and consult with and produce their own expert witnesses in these respective fields for purposes of mounting an appropriate defense; all borne out by the extensive trial record. Moreover, this Court issued rulings which tailored certain of the plaintiffs' expert witnesses' testimony after considering certain defense arguments.[FN16]

> FN16. In written communications to this Court after the motion and cross-motion became *sub judice*, Plaintiff's counsel urged this Court to resolve an issue concerning the unanticipated costs plaintiffs incurred in obtaining the printout of raw data EEG data of Salvatore taken at the New York University School of Medicine, Department of Psychiatry as well as Dr. Wieber's raw sleep study data collected at Mt. Sinai School of Medicine which were ordered to be produced and turned over to defendant prior to and during the course of the trial. Consistent with this Court's discussions with respective counsel on this matter, this Court directs that these costs incurred in this data production should be shared by the parties.

Counsel has also reargued certain adverse rulings concerning the merits of defendant's *in limine* motions to preclude due to plaintiffs' failure to timely turn over and/or not turn over records of Dr. Leo J. Shea (neuropsychologist-treatment records), Dr. Charles Wetli (pathologist), Dr. Kenneth Alper (neurologist—QEEG records),

Dr. Monte Buchsbaum (psychiatry—PET scan data). Neither the potential testimony of these witnesses nor their records, reports and data were proffered during the course of the trial based on this Court's rulings and/or other considerations. Revisiting these issues again appears to be pointless. All of defendant's remaining challenges to this Court's rulings on the admission of evidence and/or at the formal charge conference are without merit and require no additional discussion.[FN17]

> FN17. However, one example should suffice. The mere mention of the word, "insurance", during the course of testimony and the context of how insurance was discussed was not prejudicial to defendant. No testimony was elicited which publicly noted that Bachman had liability insurance and the resources to satisfy any potential judgment. In this vein, this well-educated jury evidently could not have lost sight of the fact that Bachman was represented by two prominent law firms from New York *and* Washington D.C. with no less than three attorneys at the defense table each day of trial. Since Bachman was a retired airline pilot, the jury had ample reason to speculate where the source of funds for the enormous defense costs of this lengthy trial was coming from even if no witness ever mentioned the word insurance.

***7** In continuing the requisite analysis as to the correctness of the verdict, CPLR § 5501(c) states, in relevant part:

> In reviewing a money judgment in an action in which an itemized verdict is required in which it is contended that the award is ... inadequate and that a new trial should have been granted unless a stipulation is entered to a different award, the appellate division shall determine that an award is ... inadequate if it deviates materially from what would be reasonable compensation.

Trial courts may also apply this material deviation standard in overturning jury awards but should exercise

its discretion sparingly in doing so. *Shurgan v. Tedesco*, 179 A.D.2d 805, 578 N.Y.S.2d 658 (2nd Dept., 1992); *Prunty v. YMCA of Lockport*, 206 A.D.2d 911, 616 N.Y.S.2d 117 (4th Dept., 1994); see also, *Donlon v. City of New York*, 284 A.D.2d 13, 727 N.Y.S.2d 94 (1st Dept., 2001) (implicitly approving the application of this standard at the trial level). For guidance, a trial court will typically turn to prior verdicts approved in similar cases, but must undertake this review and analysis with caution not to rigidly adhere to precedents (because fact patterns and injuries in cases are never identical) and/or substitute the court's judgment for that of the jurors whose primary function is to assess damages. *Po Yee So v. Wing Tat Realty, Inc.*, 259 A.D.2d 373, 374, 687 N.Y.S.2d 99, 101 (1st Dept., 1999).

With the exception of the conceded reduction for past medical expenses, this Court finds that the jury were able to assess the severity of Salvatore's physical injuries, his physical and mental disorders, his historic and current treatment therefor and his poor prognosis. Accordingly, the pain and suffering and medical expenses awards did not deviate materially from what would be reasonable compensation under the circumstances. *Barrowman v. Niagara Mohawk Power Corp.*, 252 A.D.2d 946, 675 N.Y.S.2d 734 (4th Dept., 1998). Thus, the branches of Bachman's post-verdict motion for remittitur and plaintiffs' cross-motion for additur as to these awards are respectively denied.

Plaintiffs' expert's *per se* calculations of Salvatore's past loss of earnings ($460,713) and future loss of earnings ($774,892) were essentially unchallenged. Plaintiff had sufficient job continuity as a porter for Dr. Leiken to properly rely on Salvatore's 1992 annualized salary of $32,380 and it was perfectly reasonable for this economist to utilize a conservative rate of interest of 3.5% set by the U.S. Department of Labor to calculate annual salary increases (after 25 years, the U.S. Department of Labor set an increase rate of 4.5% which Dr. Leiken utilized for the year 2005 and going forward) to compute these losses. Bachman submitted no evidence of negotiated union contracts covering Salvotore's job title which contained annual salary increases which were lower than the percentage increases Dr. Leiken relied upon for his calculations. All of defendant's challenges to the loss of earnings awards are meritless and unsupported by trial evidence (e.g ., Salvatore would have left his job as a porter to become a full-time Con Edison meter reader, etc.). In short, the expert's reliance on certain facts as well as certain fair and reasonable assumptions and his calculations based thereon are fully supported by the extensive trial record. *Diaz v. West 197th Street Realty Corp.*, 290 A.D.2d 310, 736 N.Y.S.2d 361 (1st Dept., 2002).

***8** Concerning the jury's awards to Ana LaMasa for loss of services, the trial record amply established that since the Collision in 1992 and during the ensuing years, Salvatore's physical and mental condition precipitously declined and Ms. LaMasa was forced to assume his familial duties in addition to her own and to provide for her family's financial welfare. The jury has had the opportunity to assess her trial testimony and the corroborating testimony of her children as to the diminished quality of her life with Salvatore. And as borne out by expert testimony, Ana LaMasa must continue to spend the rest of her life providing "24/7" care to a spouse with, *inter alia*, severe psychiatric/psychological disorders, a role which renders her a "captiv[e][to] her marital responsibilities ..." (Flomenhaft Aff. in support of Cross–Motion at ¶ 94). Therefore, the $500,000 total award to Ana LaMasa for loss of services similarly does not deviate from what would be reasonable compensation under her circumstances. *Cf.*, *Dooknah v. Thompson*, 249 A.D.2d 260, 670 N.Y.S.2d 919 (2nd Dept., 1998).

In addition, the cost of medical insurance is a component of lost income and in Salvatore's case constituted a "soft dollar" benefit he had been receiving under his union contract and potentially would have been receiving had he continued working as a porter until age 65. The costs for obtaining medical insurance coverage and unreimbursed medical expenses are clearly not one and the same (see, *Schlachet v. Schlachet*, 176 A.D.2d 198, 574 N.Y.S.2d 320 [1st Dept ., 1991]). Accordingly, the expert's calculation of medical insurance costs were fair and reasonable and the jury awards based thereon do not constitute a double recovery for past and future medical expenses.

As noted earlier, Bachman took issue with this Court's somewhat novel ruling to amend the verdict sheet to add two additional categories of damages for past and future loss of medical insurance and future loss of social security benefits as components of lost earnings/income. Plaintiffs' counsel's request for this change was made immediately after summations and completion of the jury charge and just prior to deliberations. While conceding this amendment was unorthodox, nonetheless, Bachman has failed to show how the amendment to the verdict sheet prejudiced defendant's substantive and due process rights. First, defendant did not proffer his own expert

economist to take issue with any of Dr. Leiken's testimony and particularly the calculations of these components of lost income. Second, defendant's counsel's closing argument did not even address any deficiencies, vis-a-vis, Dr. Leiken's trial testimony including his calculation of the past and future loss of earnings and their sub-categories. It cannot be said that Bachman's counsel relied on the pre-amendment version of the jury verdict sheet to structure his summation and therefore had been prejudiced by the inclusion of these new sub-categories of loss of earning damages on the verdict sheet ultimately introduced to, and considered by, the jury with additional jury instructions. Finally, defendant has neither shown that this verdict sheet amendment violated any trial rule or procedure nor constituted an abuse of this Court's discretion.[FN18]

> FN18. Unlike the sub-category of loss of medical insurance, defendant's counsel apparently recognized some merit to the jury award for loss of social security benefits when, in the alternative, counsel requested the court to reduce this award from $122,273 to $80,700. (Murphy Aff. at ¶ 98 annexed to Bachman Motion).

9** To conclude this discussion, it is necessary to address defendant's requests for costs and attorneys' fees in mounting a vigorous defense opposing the potential admissibility of expert testimony about QEEG and PET scan studies plaintiff was relying upon to corroborate Salvatore's TBI caused by the Collision. While this Court ruled that the QEEG and **PET scan** studies did not meet the ***Frye standard to warrant their admission and granted Bachman's *in limine* motions to preclude such testimony with respect thereto, plaintiffs' counsel's trial strategy to proffer such data as evidence of TBI in low to moderate impact collisions was not beyond the pale and certainly not frivolous. Nor can QEEG and PET data be viewed as junk science. In addition, counsel's withdrawal of certain expert witnesses who would otherwise have testified utilizing QEEG and PET studies was directly due to this Court's bench colloquy and rulings on the record. Parenthetically, defendant's counsel overlooks the fact that this Court conducted a *Frye* inquiry relying on dueling expert affidavits and respective supporting scientific literature as well as dueling affirmations and memoranda of law; all without the need for either party to incur the exorbitant cost of producing experts for a formal *Frye* hearing. While this Court concluded expert testimony relying on these tests did not meet the *Frye* standard at this time; still, these tests and related research are "works in progress" as to their potential, broad-based applications in the diagnosis and treatment of disease. Thus, there is simply no legal/factual basis to invoke any 22 NYCRR § 130–1.1 sanction against plaintiffs and their counsel for attempting to proffer evidence of Salvatore's TBI utilizing QEEG and PET studies to support their case.

For the foregoing reasons, this Court grants the unopposed branch of defendant's post-verdict motion reducing the award for past medical expenses from $40,768 to $25,000. In all other respects, the remaining branches of defendant's motion and plaintiffs' cross-motion are respectively denied. Plaintiffs shall submit a proposed money judgment, on notice, for signature consistent with this Court's Decision and Order. This constitutes the Decision and Order of this Court. Courtesy copies of same have been provided to counsel for the parties.

N.Y.Sup.,2005.
Lamasa v. Bachman
Slip Copy, 8 Misc.3d 1001(A), 2005 WL 1364515 (N.Y.Sup.), 2005 N.Y. Slip Op. 50882(U)

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Document 8

Leung v. Verdugo Hills Hospital

LEUNG v. VERDUGO HILLS HOPSITAL *NO. B204908.*

AIDAN MING-HO LEUNG, Plaintiff, Respondent and Cross-Appellant, v. VERDUGO HILLS HOSPITAL, Defendant, Appellant and Cross-Respondent.

Court of Appeals of California, Second District, Division Four.
Filed January 22, 2013.

Thomas and Thomas, Michael Thomas and Maureen F. Thomas; Greines, Martin, Stein & Richland, Feris M. Greenberger, Jennifer C. Yang and Robert A. Olson for Defendant, Appellant and Cross-Respondent.
LKP Global Law and Luan K. Phan; Esner, Chang & Boyer, Andrew N. Chang and Stuart B. Esner for Plaintiff, Respondent and Cross-Appellant.

NOT TO BE PUBLISHED IN THE OFFICIAL REPORTS

California Rules of Court, rule 8.1115(a), prohibits courts and parties from citing or relying on opinions not certified for publication or ordered published, except as specified by rule 8.1115(b). This opinion has not been certified for publication or ordered published for purposes of rule 8.1115.

WILLHITE, J.

This appeal by defendant Verdugo Hills Hospital (the Hospital) and cross-appeal by plaintiff Aidan Ming-Ho Leung (Aidan) is before us for a second time. In our first opinion, we reversed that portion of the trial court's judgment awarding Aidan economic damages against the Hospital. We reluctantly concluded that under the common law release rule, Aidan's non-good faith settlement with codefendant Dr. Steven Wayne Nishibayashi and his medical corporation released the Hospital from its liability for economic damages. We left undecided four issues that were not necessary for us to address.

The California Supreme Court granted review, abandoned the common law release rule, and held that "when a settlement with a tortfeasor has judicially been determined not to have been made in good faith (see Code Civ. Proc., §§ 877, 877.6, subd. (c)), nonsettling joint tortfeasors remain jointly and severally liable, the amount paid in settlement is credited against any damages awarded against the nonsettling tortfeasors, and the nonsettling tortfeasors are entitled to contribution from the settling tortfeasor for amounts paid in excess of their equitable shares of liability." (*Leung v. Verdugo Hills Hospital* (2012) 55 Cal.4th 291, 308 (*Leung*).)

The Supreme Court therefore reversed our judgment,1 and remanded the case for us to consider the four remaining issues, three arising in the appeal by the Hospital, and one in the cross appeal by Aidan. The issues now before us are as follows. The Hospital contends that the trial court erred in (1) excluding evidence that future insurance benefits would cover much of Aidan's future medical costs; (2) incorporating interest under Civil Code section 3291 into the judgment, and in awarding interest on that part of the judgment representing the present value of future medical expenses; and (3) determining under Code of Civil Procedure section 667.7, subdivision (a), that the Hospital is not adequately insured, thereby requiring it to post security adequate to assure full payment of the periodic payments judgment. Aidan contends in his cross appeal that the trial court erred in the type of security it permitted the Hospital to provide under section 667.7, subdivision (a): an annuity from an approved provider, payable to the Hospital, sufficient to fund the periodic payments in each year they are required. We are not persuaded by the parties' contentions, and affirm the judgment.

BACKGROUND

Six days after birth, Aidan suffered irreversible brain damage caused by "kernicterus," a condition that results when an infant's level of "bilirubin" (a waste product of red blood cells which causes jaundice) becomes toxic. Through his guardian ad litem (his mother, Nancy Leung), Aidan sued his pediatrician, Dr. Nishibayashi, and his professional corporation, alleging that Dr. Nishibayashi was negligent in his care and treatment. Aidan also sued the Hospital, where he was born, alleging that the Hospital was negligent for, inter alia, failing to provide his parents with adequate education on neonatal jaundice and kernicterus, and failing to implement policies to reduce the risk of kernicterus in newborns.

Aidan reached a settlement with Dr. Nishibayashi and his corporation, under which Dr. Nishibayashi agreed to pay the limits of his malpractice insurance, $1 million, and to participate at a trial in which the jury would allocate the negligence, if any, of the Hospital and Dr. Nishibayashi and set the amount of damages. It was this settlement that was the subject of the Supreme Court's opinion in *Leung, supra,* 55 Cal.4th 291.

The case was tried to a jury, which found both the Hospital and Dr. Nishibayashi negligent, and awarded damages of $78,375.55 for past medical costs, $250,000 for noneconomic damages, $82,782,000 for future medical care (with a present value of $14 million) and $13.3 million for loss of future earnings (with a present value of $1,154,000). Apportioning fault, the jury found the Hospital 40 percent negligent, Dr. Nishibayashi 55 percent negligent, and plaintiff's parents, Nancy and Kevin Leung, each 2.5 percent negligent.

Ultimately, the court approved a minor's compromise regarding Aidan's settlement with Dr. Nishibayashi, and incorporated the verdict into a periodic payments judgment under Code of Civil Procedure section 667.7, which declared the Hospital jointly and severally liable for 95 percent of all economic damages found by the jury and severally liable for its 40 percent share of noneconomic damages.

We discuss additional proceedings and evidence as necessary, below.

DISCUSSION

I. EVIDENCE OF FUTURE INSURANCE BENEFITS

The Hospital contends that the trial court misconstrued Civil Code section 3333.1 (hereafter section 3333.1, a provision of MICRA)2 and committed prejudicial error by excluding evidence of potential insurance benefits that would likely cover much of Aidan's future medical expenses. As we explain, we conclude that the record is insufficient to address the issue. In the alternative, we conclude that on the record presented, even assuming that the Hospital's interpretation of section 3333.1 is correct, there was no error. Further, assuming error, there was no prejudice.

A. *SECTION 3333.1*

"Under the traditional collateral source rule, a jury, in calculating a plaintiff's damages in a tort action, does not take into consideration benefits — such as medical insurance or disability payments — which the plaintiff has received from sources other than the defendant — i.e., `collateral sources' — to cover losses resulting from the injury." (*Fein v. Permanente Medical Group* (1985) 38 Cal.3d 137, 164 (*Fein*).) Section 3333.1 modifies this rule in professional negligence actions against a health care provider, such as the instant case. (*Ibid.*) As relevant here, section 3333.1, subdivision (a) provides that in such cases the defendant "may introduce evidence of any amount payable as a benefit to the plaintiff as a result of the personal injury pursuant to [such things as health insurance or state or federal disability payments]. . . . Where the defendant elects to introduce such evidence, the plaintiff may introduce evidence of any amount which the plaintiff has paid or

contributed to secure his right to any insurance benefits concerning which the defendant has introduced evidence."3 "Although section 3333.1, subdivision (a) . . . does not specify how the jury should use such evidence [of collateral source benefits payable to the plaintiff and the amounts paid by the plaintiff to secure those benefits], the Legislature apparently assumed that in most cases the jury would set plaintiff's damages at a lower level because of its awareness of plaintiff's `net' collateral source benefits." (*Fein, supra,* 38 Cal.3d at pp. 164-165.)

The Hospital asserts that in authorizing the defendant to "introduce evidence of *any amount payable* as a benefit to the plaintiff as a result of the personal injury" (italics added), section 3333.1 permits evidence not simply of insurance benefits already paid, but also of benefits likely to be received in the future. The Hospital's reasoning has three primary strands: (1) the assertion that the word "payable" encompasses both past and future payments, (2) the legislative intent of MICRA in general and section 3333.1 in particular to reduce liability for healthcare malpractice claims, and (3) the decision in *Fein, supra,* which contains language suggesting that section 3333.1 permits consideration of collateral source benefits that the plaintiff is likely to receive.4

In *Fein,* as here relevant, the trial court used an anomalous procedure in implementing section 3333.1. It did not permit evidence of collateral source benefits to be introduced into evidence. Rather, because the amount of such benefits was not in dispute, the court ruled that it would simply reduce the verdict by the amount of the benefits. Neither party objected. (*Fein, supra,* 38 Cal.3d at pp. 146, fn. 2, 165, fn. 21.) Thereafter, the jury awarded, inter alia, $63,000 in future medical expenses, and the trial court ordered the defendant to pay the first $63,000 of those expenses "not covered by medical insurance provided by plaintiff's employer, as such expenses were incurred." (*Id.* at p. 146.)

Although this procedure was not raised as an issue on appeal, the Supreme Court observed in a footnote that the plaintiff did "raise a minor contention . . . which is somewhat related to this matter." (*Fein, supra,* 38 Cal.3d at p. 165, fn. 21.) The court explained: "In awarding damages applicable to plaintiff's future medical expenses, the trial court indicated that defendant was to pay the first $63,000 of such expenses *that were not covered by employer-provided medical insurance.* Plaintiff, pointing out that he may not be covered by medical insurance in the future, apparently objects to any reduction of future damages on the basis of potential future collateral source benefits. Under the terms of the trial court's judgment, however, defendant's liability for such damages will be postponed only if plaintiff does in fact receive such collateral benefits; thus, it is difficult to see how plaintiff has any cause to complain about this aspect of the award. *Indeed, if anything, the trial court may have given plaintiff more than he was entitled to, since it did not reduce the jury's $63,000 award by the collateral source benefits plaintiff was likely to receive,* but instead imposed a continuing liability on defendant to pay up to a total of $63,000 for any noncovered medical expenses that plaintiff may incur in the future as a result of the injury. Defendant has not objected to this portion of the judgment." (*Ibid.,* italics added.)

Relying on the italicized language above, the Hospital contends section 3333.1 permits evidence of future collateral source benefits that the plaintiff is "likely to receive" (*Fein, supra,* 38 Cal.3d at p. 165, fn. 21), or more accurately (by the analogy the Hospital draws to the standard of recovery for future medical expenses and lost earnings), benefits that the plaintiff is *reasonably certain* to receive.5

There are good arguments rebutting the Hospital's interpretation of section 3333.1. For instance, the italicized language in *Fein* appears to be dicta, and in any event is noncommittal in referring to the use of future collateral source benefits to offset future damages — it says that the trial court "*may* have given plaintiff more than he was entitled to" by failing to reduce the award by benefits he was likely to receive. It does not say that the court *did* give plaintiff more than he was entitled to. Moreover, construing the language of section 3333.1 to include future insurance coverage is arguably inconsistent with that portion of section 3333.1 which gives the plaintiff the right to introduce "evidence of any amount which the plaintiff *has paid or contributed* to secure his right to any insurance benefits concerning which the defendant has introduced evidence." (§ 3333.1, subd. (a), italics added.) Obviously, a plaintiff cannot have paid for or contributed to insurance coverage that has not been obtained.

Although we acknowledge these arguments concerning the proper interpretation of section 3333.1 (there are others we do not mention), we conclude that we need not address them, because the record on appeal alone defeats the Hospital's contention of error. Therefore, we assume (without deciding) that the Hospital's interpretation of section 3333.1 is correct: the statute permits a defendant to introduce evidence of future insurance benefits that the plaintiff is reasonably certain to receive.

In the Hospital's view, the status of the record is a simple matter: "The trial court preemptively precluded defendants from attempting to introduce evidence that much of plaintiff's future medical expenses would . . . be paid by (or reduced due to) medical insurance. . . . After initially denying plaintiff's motion in limine . . ., the trial court reversed itself and categorically excluded such evidence during trial." Thus, according to the Hospital, the trial court granted a "mid-trial motion in limine [that] barred the Hospital from introducing [evidence] that insurance is paying for and will continue to pay for much of plaintiff's future medical care," based on an interpretation of section 3333.1 that it allows "only the introduction of past expenses paid by medical insurance and not of the likelihood or availability of medical insurance to pay future expenses."

As we explain in detail below, this simplistic view of the record is inaccurate. A full explanation demonstrates that the record is insufficient to address the propriety of the court's ruling, and that, in any event, there was no error. Further, if there was error, it was not prejudicial.

B. *TRIAL COURT PROCEEDINGS*

1. *AIDAN'S PRETRIAL MOTION IN LIMINE*

In its trial brief, filed before trial, the Hospital argued that section 3333.1 permits the introduction of collateral source benefits at trial. It did not mention evidence of potential future collateral source benefits.

Aidan filed a pretrial motion in limine to exclude evidence of collateral source payments. The motion, too, did not mention future benefits. Rather, it assumed that the evidence which the defendants would seek to introduce was evidence of health insurance benefits paid or payable for costs incurred to the time of trial. The motion declared that Aidan's medical bills to date exceeded $400,000, and that a portion had been paid by insurance. The motion argued that evidence of those payments should be excluded under Evidence Code section 352 because it would confuse the jury, and that, rather than permitting evidence of those payments, the court should simply reduce the damage award by the amount of the payments, as was done by the trial court in *Fein, supra,* 38 Cal.3d at pages 146, footnote 2, 165, footnote 21.

The Hospital filed an opposition, arguing that section 3333.1 expressly authorized evidence of collateral source benefits, that the procedure suggested by Aidan was not approved in *Fein,* and that the court had no discretion to exclude evidence of collateral source benefits. Again, the Hospital did not mention future collateral source benefits. In his reply to the Hospital's opposition, Aidan simply reiterated his argument that evidence of payments made to date by his health insurer should be excluded under Evidence Code section 352.

Dr. Nishibayashi also filed an opposition to Aidan's motion in limine. He argued, in part, that section 3333.1 permits evidence of both past and future collateral source benefits. He asserted that he should be permitted to introduce "evidence of the resources available to plaintiff from: (1) private health insurance, (2) Regional Center Services, (3) the public school district and (4) California Children's Services." He made no offer of proof as to what "resources" of private insurance he intended to introduce. Rather, his argument focused on services available from the Regional Centers and public schools, although even as to these sources he made no specific offer as to what he intended to introduce.

Aidan's reply to Dr. Nishibayashi's opposition argued that the contention that evidence of future collateral source payments is admissible was "legally unsubstantiated." He also asserted that the evidence of any such benefits should be excluded under Evidence Code section 352.

2. *THE TRIAL COURT'S PRETRIAL RULING*

At a pretrial hearing before jury selection began, the trial court ruled on, among other matters, the motions in limine. With respect to Aidan's motion to exclude evidence of payments made by his health insurance for medical costs to date, the discussion was brief. The court described the motion as seeking "to exclude evidence of collateral source payments," and stated that its tentative ruling was "to follow Civil Code section [3333.1] in that [the] Legislature gave the option [to] the defendants to decide whether to use that information . . . and that's what I'm inclined to do." Aidan's counsel argued that evidence of "health insurance payments and benefits" would confuse the jury, and suggested that the court use such evidence to offset the verdict after trial. The court declined, stating, in substance, that section 3333.1 required the introduction of such evidence. The court then denied the motion. At no time did the Hospital suggest that it was seeking to introduce evidence of future health insurance benefits.

Next, referring to Dr. Nishibayashi's opposition, the court noted that "there were . . . interesting questions raised in an opposition to this motion that were not raised in the motion itself, which we haven't talked about. And that is evidence concerning . . . collateral sources other than the private health insurance[,] [s]pecifically the regional center or the public . . . schools, etc." The court stated that it would not extend section 3333.1 "beyond its own terms" and that it would enforce the "express terms" of the statute. It therefore denied the request to introduce evidence of such benefits. There was no additional argument, and no ruling on the particular issue of the admissibility of future insurance coverage.

3. *TESTIMONY OF AIDAN'S LIFE CARE PLANNER*

At trial, Aidan called Jan Roughan as his expert in life care planning. She presented three alternative detailed plans for Aidan's care and treatment, one assuming that all contingencies cited by Aidan's physicians requiring enhanced care would occur, the second assuming that only some would occur, and the third assuming that none would occur. The recommended plans covered medications, medication delivery devices, gastronomy tube feeding, architectural changes to the home environment, a certified home health aide and a registered nurse, placement in a supportive living facility at age 21, specialized physicians, specialized healthcare needs, diagnostic tests, therapy (communication, speech, occupational, and physical), therapeutic equipment (such as orthotics and communication devices), replacement costs of necessary equipment, psychosocial services, transportation (such as a wheelchair and modified van), and personal needs (such as a conservator depending on Aidan's intelligence level and communication skills in adulthood). She estimated the costs of all these individual items using retail cost comparisons in "today's healthcare dollars," which were submitted to Aidan's forensic economist, Robert Johnson, for calculation of present value.

In his cross-examination of Roughan, Dr. Nishibayashi's attorney asked several questions without objection concerning whether various items of recommended care and treatment would be covered in the future by health insurance or other services, such as public school and the regional center. In response to questioning about future insurance coverage, Roughan testified that Aidan's family had insurance through Blue Cross,6 but she had not contacted Blue Cross to see how much of the case plan would be covered in the future. She explained that, in creating a life care plan and calculating costs of recommended items, she only determines what would be covered under "the current schedule of benefits. The schedule of benefits changes every single year. And what we see is a trend of less and less . . . coverage." Similarly, she testified that one cannot know what items of the plan might be paid at the health insurer's lower contract rate with a provider rather than the greater retail rate on which she based her cost estimates, because it "would depend upon contractual agreement [between the insurer and the provider], the schedule of benefits, and whether or not somebody within the plan approved it." In his cross-examination, the Hospital's attorney asked no questions concerning future insurance coverage.

4. *AIDAN'S OBJECTION TO EVIDENCE OF FUTURE INSURANCE COVERAGE*

At the beginning of the morning session the next day, Aidan's counsel referred to the cross-examination of Roughan by Dr. Nishibayashi's attorney concerning future coverage by health insurance. Although he had not objected during the questioning, he now argued that it violated section 3333.1 and the court's earlier ruling on the motion in limine. He also argued that evidence as to whether insurance might pay future costs of the health care plan was entirely speculative: "It would be impossible for a jury to . . . make an offset for future payments. . . . You don't know what the insurance company is going to allow. . . . The insurance company could go out of business. The father could not have his job anymore and . . . lose the policy. . . . [T]he insurance company ... retains the right to cancel the policy at any time. . . . [T]he benefits payable under the polic[y] change[] every year. Who knows what is going to be allowed. . . . We're submitting it would be pure speculation and any reference to future coverage by health insurance not be allowed and, in fact, that the jury be instructed to disregard that and not to consider future insurance [benefits]."

Dr. Nishibayashi's counsel argued that his examination of Roughan as to her expectation whether insurance or other services might cover some of the costs of the health care plan was proper. The Hospital's attorney suggested that the concern whether such evidence was speculative was for argument to the jury, and was not a reason to exclude the evidence. The court suggested that the language of section 3333.1 — "any amount payable as a benefit" — "is more conducive to something currently payable than something that might be paid in the future." The court was also concerned about the speculative nature of the evidence, referring to Roughan's testimony that she could not determine what might be covered by insurance in the future because of such things as the changing coverage and schedule of benefits. The court stated that it would do some research into the issue.

Neither Dr. Nishibayashi's attorney nor the Hospital's attorney made any showing of additional evidence of future insurance benefits they might seek to introduce.

5. *RULING ON FUTURE INSURANCE COVERAGE*

After the morning recess, before Aidan called his forensic economist, Robert Johnson, to testify, the court returned to the issue of future insurance benefits. The court stated it agreed with Aidan's attorney's interpretation of section 3333.1: "I don't think the statute contemplates future insurance. . . . [I]t talks about amounts payable in reimbursement for . . . amounts that have been received as full payment for bills already issued and paid." The court could find no case law on the issue, but reasoned that section 3333.1 "is a special exception [to the collateral source rule] and so it's limited to its terms."

Dr. Nishibayashi's attorney asked for the opportunity to do additional research overnight, which the court granted, with the understanding that he would not mention the subject in his cross-examination of Aidan's forensic economist. Dr. Nishibayashi's attorney agreed. Neither he nor the Hospital's attorney suggested that their cross-examination of Johnson would be hampered, and made no offer of proof as to what evidence, if any, concerning future insurance coverage they wished to elicit from him.

6. *ROBERT JOHNSON'S TESTIMONY*

As here relevant, Johnson's testimony concerned the present value of Jan Roughan's life care plan. Based on the opinions of Aidan's physicians, Johnson used a life expectancy of 63 years. Depending on which of Roughan's three alternative plans the jury concluded was appropriate, Johnson estimated a present value of $19,360,830 for the most comprehensive plan, $18,784,000 for the intermediate plan, and $18,004,772 for the least encompassing plan.

7. *STIPULATION TO PAST MEDICAL COSTS*

The parties stipulated that Aidan's past medical costs charged was $405,312, that insurance and government programs had paid $171,949.72, that contractual deductions were $154,986.73, and that Aidan paid and/or incurred costs of $78,375.55.

8. *STACEY HELVIN'S TESTIMONY*

In the defense case, the Hospital and Dr. Nishibayashi jointly called Stacey Helvin to testify concerning her life care plan for Aidan. Her plan covered essentially the same categories of treatment and care as Jan Roughan's — including medication, therapy, specialized physicians, medical equipment and orthotics, modifications to Aidan's home, supportive living, and transportation by wheelchair and modified van — though with some different recommendations in types of care, frequency of care, and equipment. The major difference was that after Aidan reached age 22, Helvin assumed that Aidan would live in a group home setting at the regional center at no cost to Aidan's parents, rather than the private home setting with attendant care contemplated by Roughan.

Helvin also estimated the cost of her plan, but nothing in the record suggests that she was prepared to give testimony on future insurance coverage for those costs, or that she was not permitted to give such testimony based on the court's ruling.

9. *TED VAVOULIS' TESTIMONY*

The Hospital called forensic economist Ted Vavoulis to testify concerning, inter alia, the present value of Helvin's life care plan and the present value of Roughan's plan. Outside the jury's presence, before Vavoulis testified, the Hospital's attorney stated that because of the court's ruling excluding evidence of future insurance coverage, he "needed to have Mr. Vavoulis change his first page of his report because it does talk about insurance coverage figures as it deals with group home and live-in setting." At the request of the Hospital, Vavoulis had already made the changes, and a modified exhibit was provided to all parties and used as a demonstrative exhibit. It was not admitted into evidence and is not part of the record on appeal. Thus, the record does not disclose the changes made by Vavoulis.

In his testimony, Vavoulis used two life expectancy figures for Aidan: age 40 and age 61.7 Using age 40, he estimated the present value of Helvin's life care plan to be between $1,531,050 and $2,627,132, depending on whether Aidan resided in a group home after age 22 (the lower figure, which was cost free to Aidan) or resided at home with attendant care (the greater figure). Using age 61, he calculated the present value to be between $1,756,509 and $2,627,132. He estimated the present value of Roughan's most comprehensive plan to be $9,950,000.

10. *JURY INSTRUCTIONS*

Regarding insurance, the court instructed the jury pursuant to CACI No. 5001: "You must not consider whether any of the parties in this case has insurance. The presence or absence of insurance is totally irrelevant. You must decide this case based only on the law and the evidence."8 Earlier, during the discussion of jury instructions after the close of evidence, the court, in a colloquy with Dr. Nishibayashi's attorney, explained that it had excluded evidence of future insurance because "it's too speculative," and because the court's reading of section 3333.1 suggested that such evidence was not admissible, especially because of its speculative nature. The court rejected a more specific instruction on insurance proposed by Aidan attorney that would have precluded the jury from considering "the possibility of medical insurance coverage" in determining any award for future medical care. The Hospital's attorney did not participate in the discussion concerning how the court should instruct on the subject of insurance.

11. *THE FUTURE MEDICAL COSTS DAMAGE AWARD*

The jury awarded future medical costs of $82,782,000, at a present value of $14 million.

C. *DISCUSSION*

From this record, several things fatal to the Hospital's contention are apparent. First, contrary to the Hospital's recitation of the record (and implications therefrom), the trial court did not somehow mislead the Hospital by ruling on the first motion in limine that evidence of future insurance benefits was admissible, and then, after Jan Roughan's testimony, preemptively preclude such evidence to the Hospital's prejudice. It appears that evidence of future insurance benefits was largely an afterthought.

Though it was mentioned briefly with no specifics in Dr. Nishibayashi's opposition to Aidan's initial motion in limine, no one mentioned the subject of future insurance benefits at the hearing on the motion. The motion itself specifically identified only evidence of past insurance benefits, and in denying the motion the trial court did not mention future insurance benefits.

From that point until the trial court ruled on Aidan's later motion in limine after Jan Roughan's testimony, the Hospital never suggested that it intended to introduce evidence that Aidan was reasonably certain to receive future insurance benefits. Indeed, the Hospital appeared indifferent to the point. During his cross-examination of Roughan, the Hospital's attorney did not seek to elicit any evidence of future insurance coverage, even though Dr. Nishibayashi's attorney did. After the court's ruling excluding evidence of future insurance benefits, the Hospital's attorney did not complain that his cross-examination of Aidan's forensic economist, Robert Johnson, would be hampered, or that the Hospital's defense case would be damaged.

Indeed, other than the Hospital's attorney's brief reference late in the trial to having the defense forensic economist, Ted Vavoulis, "change his first page of his report because it does talk about insurance coverage figures as it deals with group home and live-in setting," the Hospital never mentioned evidence of future insurance coverage. Neither Vavoulis' initial or modified report is part of the record on appeal, and thus the record is silent as to what the precise changes were. The record is also silent as to what qualifications, if any, Vavoulis possessed so as to be qualified to opine on future insurance coverage, and it is likewise silent as to the factual foundation on which he might base any such opinion.

In short, the Hospital asks us to decide the propriety of the trial court's ruling in an evidentiary vacuum. Generally, the failure to make an adequate offer of proof in the trial court precludes appellate review of a trial court's exclusion of evidence. (*Gordon v. Nissan Motor Co., Ltd* (2009) 170 Cal.App.4th 1103, 1113; Evid. Code, § 353.) We conclude that rule applies here.

There is an exception when a court excludes an entire class of evidence (*Beneficial etc. Ins. Co. v. Kurt Hitke & Co.* (1956) 46 Cal.2d 517, 522), under the rationale that in such a situation an offer of proof "would be an idle gesture." (*Caminetti v. Manierre* (1943) 23 Cal.2d 94, 100.) But this exception does not apply here, because the Hospital never purported to have any evidence about the excluded class — that is, nothing in the record suggests that the Hospital possessed evidence that future insurance coverage for Aidan was reasonably certain.

Further, the rationale for the exception does not apply, because an offer of proof would not have been futile. The trial court concluded that

evidence of future insurance coverage was too speculative (Jan Roughan had, in substance, so testified), and that conclusion informed the court's interpretation of section 3333.1. In that context, an offer of proof demonstrating the substance of the intended evidence and the supposed non-speculative nature of that evidence certainly might have influenced the court's decision. The deficiency in failing to make an offer of proof is exacerbated by the absence of any template from prior case law as to the form that evidence of reasonably certain future insurance coverage might take. Neither the record nor the Hospital's briefing describes it. It is impossible to meaningfully evaluate the Hospital's contention that the trial court erred, when we have no idea what that evidence might be in form or substance. Similarly, it is also impossible to evaluate the Hospital's claim of prejudice from the purported error. Thus, we conclude that the record is insufficient to adequately address the propriety of the court's ruling and whether any error was prejudicial. The court's ruling, therefore, must be affirmed. (*Foust v. San Jose Construction Co., Inc.* (2011) 198 Cal.App.4th 181, 187 [inadequacy of record on appeal requires issue to be resolved against appellant].)

Second, assuming that the record is sufficient to address the issue, the only evidence in this record relevant to the propriety of the trial court's ruling — the testimony of Jan Roughan — is that predicting Aidan's future insurance coverage, if any, was entirely speculative. Roughan testified that although Aidan was then covered by Blue Cross insurance, in creating a life care plan and calculating costs of recommended items, she only determines what would be covered under "the current schedule of benefits. The schedule of benefits changes every single year. And what we see is a trend of less and less . . . coverage." Similarly, she testified that one cannot know what items of the life care plan might be paid at the health insurer's lower contract rate with a provider rather than the greater retail rate on which she based her cost estimates, because it "would depend upon contractual agreement [between the insurer and the provider], the schedule of benefits, and whether or not somebody within the plan approved it." Thus, the only evidence before the trial court, and before us on appeal, is that in the present case predictions of future insurance coverage would be entirely speculative.

In its opening brief, the Hospital concedes that the court ruled that predictions of future insurance coverage were speculative ("[t]he trial court reasoned that determining the likelihood that insurance or other benefits will be available in the future was speculative.") In its reply brief, however, the Hospital asserts that the trial court did *not* exclude evidence of future insurance benefits on the basis that it is speculative. The Hospital was correct in its opening brief. The trial court explained when it discussed instructing the jury on the subject of insurance: "I have ruled we won't consider future insurance. It's too speculative. . . . [M]y interpretation of [the language of section 3333.1] suggests . . . that you can't go for future medical expenses, particularly since . . . you can't assume they'll be medical insurance for the future since it's speculative." In sum, assuming the record is adequate, the trial court's ruling is unassailable, because the only showing made to the trial court (in the form of Roughan's testimony) was that in this case one cannot not predict with reasonable certainty the nature or the extent of future insurance coverage for Aidan.

Without mentioning Roughan's testimony, the Hospital contends in the abstract that evidence of future insurance benefits is no more speculative than evidence of future medical costs. On this record, based on Roughan's testimony, that is not accurate. Moreover, the evidence of future medical costs presented by the parties was based on the opinions of qualified life care planners who explained how they came by their recommendations for care and treatment (consultation with, among others, qualified physicians with knowledge of Aidan's condition) and explained how they calculated those costs (referring to cost tables and other sources to obtain present retail costs). Qualified forensic economists, using accepted methodology, then reduced the costs of the plans to present value. The Hospital fails to explain how similarly qualified testimony could be presented to show that it is reasonably certain that Aidan or any other plaintiff with such extensive future medical needs is reasonably likely to have insurance coverage for those needs over part or all of his or her life span. Thus, the notion that predictions of future insurance coverage are no more speculative than predictions of future medical costs is entirely unsupported.

Third, the purported evidence of future coverage that the Hospital appears to assume is admissible does not meet the standard for admissibility the Hospital advocates. The jury's assessment of future medical costs was based on the costs attributed to each item in the detailed life care plans presented by Roughan and Helvin, discounted to present value. The plans covered every category of care and treatment Aidan might require throughout his life. On appeal, the Hospital appears to assume that the most general evidence of potential future insurance would be admissible as a possible offset against the future medical costs specified in the life care plans. Thus, the Hospital argues that "[t]here was ample reason to believe that plaintiff's [present] insurance coverage [would] continue." The Hospital refers to a comment by the trial court that it had "no reason to believe" that insurance was not continuing to cover Aidan's medical costs during the trial. Also, without explaining their terms or their applicability here, the Hospital refers to the availability of "[i]nsurance continuation rights [that] exist under the Consolidated Omnibus Budget Reconciliation Act of 1986 (COBRA) and the Health Insurance Portability and Access Act [citations] and Cal-COBRA," as well as to "California . . . statutory programs for the purchase of medical insurance by persons who otherwise are unable to obtain it. [Citations.]" The Hospital also refers to the United States Supreme Court's decision in *National Federation of Independent Business v. Sebelius* (2012) ___ U.S. ___, 132 S.Ct. 2566, which upheld the constitutionality of the federal Affordable Care Act (with one limited exception), and asserts that the "[t]he availability of such federally mandated available insurance options makes the prospect of future health insurance coverage for plaintiff anything but speculative."

But the mere possibility that private insurance coverage will continue, and the availability of government programs for the purchase of insurance, do not, in themselves, constitute relevant, admissible evidence of the future insurance benefits that a plaintiff is reasonably certain to receive. To show the amount of future insurance coverage that is reasonably certain, the evidence would have to: (1) link particular coverage and coverage amounts to particular items of care and treatment in the life care plan, (2) present a reasonable basis on which to believe that this particular plaintiff is reasonably certain to have that coverage, and (3) provide a basis on which to calculate with reasonable certainty the time period such coverage will exist. The Hospital made no such foundational showing in the trial court, and on appeal appears to assume that even the most nonspecific evidence of future insurance, such as its availability through governmental programs, is admissible. Such evidence, standing alone, is irrelevant to prove reasonably certain insurance coverage as a potential offset against future damages, because it has no tendency in reason to prove that specific items of future care and treatment will be covered, the amount of that coverage, or the duration of that coverage. (Evid. Code, § 210 [defining relevant evidence as "having any tendency in reason to prove or disprove any disputed fact that is of consequence to the determination of the action"].)

Fourth, on the issue of prejudice (assuming for the sake of argument that the trial court erred), the Hospital argues that "the collateral source effect [of the purported excluded evidence of future insurance coverage] is likely significant." It notes, based on the parties' stipulation to past medical expenses, that only $78,375.55 of Aidan's $405,312 in medical expenses (approximately 19 percent) incurred to the date of trial was paid or billed to Aidan's parents. The rest was either paid by insurance or written off by the providers based on discounts negotiated with the insurer. However, there is no evidentiary basis in this record to conclude that this coverage would continue into the future, or for how long it might continue. Rather, the evidence in the record is that such a prediction is entirely speculative. Thus, the evidence of past coverage provides no basis on which to assert that the Hospital was prejudiced.

Similarly, to the extent that the Hospital relies on the apparent modification to the first page of Vavoulis' report, which was described as deleting references to "insurance coverage figures as it deals with group home and live-in setting," that modification does not establish

prejudice. As we have already noted, the record does not reveal what the specific changes were. Moreover, the record does not reveal that Vavoulis' opinion as to future insurance coverage was even admissible under the standard the Hospital advocates, as there was no showing as to his qualifications to express an opinion on future insurance coverage, and no showing as to the foundation on which he might opine that Aidan was reasonably certain to receive future coverage for group home or live-in settings. We note further that both Stacey Helvin and Ted Vavoulis testified that after age 22, Aidan could reside in a group home at no cost to him or his family.

The Hospital's burden is to establish that, in the absence of the trial court's asserted error, there is a reasonable probability of a different result. (*Citizens for Open Government v. City of Lodi* (2012) 205 Cal.App.4th 296, 308.) The Hospital has failed to show that had the trial court not excluded purportedly admissible evidence of future insurance benefits, there is a reasonable probability of a different verdict as to Aidan's future medical costs.

For each of these independent reasons, the Hospital's contention that the trial court committed prejudicial error in excluding evidence of future insurance benefits fails.

II. INTEREST UNDER CIVIL CODE SECTION 3291

Because Aidan received a judgment more favorable than his offer of compromise under Code of Civil Procedure section 998 (hereafter section 998), which the Hospital rejected, he is entitled to interest on the judgment from the date of the offer to the date of satisfaction of judgment pursuant to Civil Code section 3291 (hereafter section 3291).9 In the judgment, the trial court calculated that portion of section 3291 interest from the date of the section 998 offer to the date judgment was entered, using the entire present value of the jury's verdict, including the present value for future medical expenses, even though the periodic payments for those damages were not presently due. The Hospital contends that the trial court erred in incorporating section 3291 interest into the judgment, and in awarding interest on that part of the judgment representing the present value of future medical expenses. We disagree.

Under current law, when a future damage award is periodized, interest is awarded in the judgment for the period from the date of the section 998 offer to the date of judgment, calculated based on the present value of the future damages. Any additional interest accrues only as to later periodic payments that are not paid when due. (*Deocampo v. Ahn* (2002) 101 Cal.App.4th 758, 775-776 [trial court's calculation of section 3291 interest on the present value of future damages "was the proper way to calculate the prejudgment interest on a judgment involving the periodized payment of damages for future losses"; post judgment interest accrues "on each individual periodic payment as that payment becomes due" (italics deleted)]; *Hrimnak v. Watkins* (1995) 38 Cal.App.4th 964, 980 [rejecting contention of amici curiae that section 3291 interest "cannot be awarded on the periodic portion of the judgment" based on present value].)

The Hospital contends that *Hess v. Ford Motor Co.* (2002) 27 Cal.4th 516, 530-533, requires a different result. However, *Hess* held that interest from the date of the section 998 offer to the date of the judgment should not be added to the judgment amount so as to permit post judgment interest to accrue on prejudgment interest under section 3291. That is, under *Hess,* section 3291 does not permit the compounding of interest — post judgment interest calculated on that portion of the judgment representing prejudgment interest. The judgment in the instant case does not provide for such compounding of interest. *Hess* did not involve a periodized judgment, and did not discuss the issue whether the value of such a judgment for calculating interest under section 3291 from the date of the section 998 offer to the date of judgment interest includes the present value of the periodized future damages.

The Hospital also contends that the discussion of section 3291 interest in *Deocampo* and *Hrimnak,* both *supra,* is dicta, and that in any event it is wrong. Dicta or not, we agree with the reasoning of these decisions. As stated in *Hrimnak, supra,* 38 Cal.App.4th at pages 980-981: "Section 998 and Civil Code section 3291 are designed to encourage settlements and penalize those who refuse reasonable settlement offers. [Citations.] Amici curiae's argument [that section 3291 interest cannot be awarded on the present value of future periodic payments], besides mixing legal apples and oranges, would also undermine this purpose."

III. RULING THAT THE HOSPITAL MUST PROVIDE SECURITY

Code of Civil Procedure section 667.7, subdivision (a), provides in relevant part: "As a condition to authorizing periodic payments of future damages, the court shall require the judgment debtor who is not adequately insured to post security adequate to assure full payment of such damages awarded by the judgment. Upon termination of periodic payments of future damages, the court shall order the return of this security, or so much as remains, to the judgment debtor."

In the instant case, the Hospital is jointly and severally liable for 95 percent of all Aiden's economic damages, consisting of $82,782,000 (with a present value of $14 million) for future medical costs, and $13.3 million (with a present value of $1,154,000) for loss of future earnings. Given the size of the future damages award, the trial court required the Hospital to post security by purchasing an annuity sufficient to fund the periodic payment portion of the judgment, which the Hospital did.10 As ultimately incorporated into the judgment (which required an immediate payment of a portion of future damages, thus reducing the future damages which were periodized), the stream of periodic future payments to be paid to Aidan over his life expectancy of 57 additional years exceeds $69 million. The Hospital's combined insurance policy limits covering Aiden's injuries is only $20 million (a primary policy of $5 million per incident with California Healthcare Insurance Company, and an excess policy of $15 million by Zurich/Steadfast Insurance Company).

The trial court reasoned that insurance policy limits of $20 million were not adequate to assure full payment of the much greater sum of payments due Aiden over his lifetime, and that, even though the insurers were currently solvent and promised to pay the periodic judgment, Aiden should not be required to bear the full risk that in future decades the insurers might become insolvent. We find no abuse of discretion in that reasoning

The Hospital contends that in determining whether it was adequately insured, the court was required to use as the benchmark the present value amount that its insurers carriers would have to pay to fund the future periodic payments. We disagree. The Hospital has elected to pay the judgment periodically over time rather than at its present value immediately. In fashioning a periodic payment schedule, the gross amount of future damages is used, not present value of the future damages. (*Deocampo v. Ahn, supra,* 101 Cal.App.4th at p. 771; see *Holt v. Regents of University of California* (1999) 73 Cal.App.4th 871, 880.) That is how the trial court fashioned the periodic payment schedule here. Given that the periodic payment schedule sets the stream of future damages to be paid over time at gross value, the trial court was not unreasonable in considering the gross amount of that stream in determining whether the Hospital's insurance was "adequate," or whether the Hospital should be required "to post security adequate to assure full payment of such damages awarded by the judgment." (§ 667.7, subd. (a).)

IV. SECURITY IN THE FORM OF AN ANNUITY PAYABLE TO THE HOSPITAL

In his cross-appeal, Aiden contends that the trial court erred in the type of security it permitted the Hospital to provide under section 667.7, subdivision (a): an annuity from an approved provider, payable to the Hospital, sufficient to fund the periodic payments in each year they are required. Aidan contends that only a bond or similar type of security, payable to him, can suffice as "security adequate to assure full payment of" the periodic portion of the judgment. (§ 667.7, subd. (a).) We find no abuse of discretion. The annuity provides a stream of income to the

Hospital sufficient to fund the periodic payments. While it is true that Aidan need not accept an annuity in *satisfaction of the judgment* (*Hrimnak, supra,* 38 Cal.App.4th at p. 982), the court's ruling does not violate this rule. The court ruled simply that that an annuity payable to the Hospital is sufficient security to ensure that the Hospital will have the funds to pay the judgment should its insurers default or otherwise deprive the Hospital of the means to pay the judgment. Aidan's concern that the Hospital might become insolvent, might file for bankruptcy, might use the annuity to pay debts other than his judgment, and other similar speculations, are unsupported by any evidence. In any event, they provide no basis for disturbing the trial court's exercise of discretion in determining that an annuity, which provides a stream of income to the Hospital independent of its insurance coverage adequate to fund the periodic payments over Aidan's lifetime, is adequate security under section 667.7, subdivision (a).

DISPOSITION

The judgment is affirmed. Aidan shall recover his costs on appeal, the Hospital shall recover its costs on the cross appeal.

EPSTEIN, P. J. and SUZUKAWA, J., concurs.

Document 9

Treatise Excerpts:
From *Litigating Brain Injuries*
By B. Stern and J. Brown

Chapter 11. Preface: Avoiding Predictable Case Blunders

§11:13.11 New Myth: Misperceiving history means malingering

It is a well known medical and neurobehavioral axiom that "history" – "his or her story" is "80% of the diagnosis."

Consequently, it was drummed into and still is drummed into virtually every first year medical student in every medical school in the country that two of the most important actions one must take – whether it is in the emergency room or in private practice – is to get the answers to the questions:

1. Is the patient a reliable and accurate factual historian?
2. If they are, what does it mean if the history given changes over time?

An individual suffering consequences of traumatic brain injury and issues of whether or not to take a victim's history of fact as literal truth on one hand as well as how to deal with that history subsequently changing are two of the greatest clinical and legal challenges involved – challenges which unfortunately both sides of the case as well as their experts all too often ignore.

At its greatest extreme, when a person has suffered traumatic brain injury but a defense exam or at trial or deposition fails to disclose those the defense

side will claim they are material and significant omissions of fact, done in a way as to deliberately mislead the court, cases – at least in Florida now – run the risk of being dismissed because of arguments that such not recalling important facts constitutes "sentient" and systematic "fraud on the court."

Such findings sound "the death knell of the lawsuit" as originally stated in Aoude v. Mobil Oil Corp.[1], citing with approval an earlier 1983 case, Damiani v. Rhode Island Hospital.[2]

See the discussion of "fraud on the court" in *Neuropsychiatric Defenses by Plaintiffs* to claims of such discussed in Dotson and Brown, *Emotional Injuries: Law and Practice, 2014 Cumulative Supplement* (Eagan, MN: Thomson Reuters) §20:43 at 31358-31368).[3]

It cannot be too strongly emphasized that individuals who truly suffer traumatic brain injury as part-and-parcel of their condition in many cases had deficits in perception, information processing, memory encoding and ability to report memory problems that if a person were not suffering from brain injury or other conditions affecting these functions they at first glance might seem to give credence to "fraud on the court" claims.

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[1] Aoude v. Mobil Oil Corp., 892f.2d115 (1st cir. 1989), citing with approval.
[2] Damiani v. Rhode Island Hospital, 704ftd12, 15-16 (1st cir. 1983).
[3]Dotson and Brown, Emotional Injuries: Law and Practice, 2004 Cumulative Supplement (Eagan, MN: Thomson Reuters) §20:43 at 1358-31368.

However, and as previously noted by one of the editors[4], *"This point cannot be emphasized too strongly – attempts to deprive litigants of their rights to have 'their day in court'"* (emphasis added).

At the same time, it has been the experience of virtually every physician the editors have known that patients – who are not brain injured as well as some who are – do not always disclose all the facts that they are aware of, especially when they are in litigation and doing so in their opinion may hurt their case.

A good – if embarrassing – example of this occurred when one of the editors (JB) was just starting practice. He worked as a plaintiff expert on a case in which there had been an indisputable rupture of a cable holding up an elevator, with an equal indisputable series of injuries that the plaintiff suffered, including a mild concussion/"mild" traumatic brain injury.

However, when one of the editors examined this individual he literally "swore up and down" that he "never, ever" in his life had had any similar injuries; "never, ever" in his life ever had been in litigation before the current litigation; and "never, ever" in his life ever needed the kind of opioid pain medication that he was now taking.

The problem occurred when the case went to trial. After testifying to all of the above, and after the lunch break, the defense attorney, while broadcasting

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[4] Dotson and Brown, Emotional Injuries: Law and Practice, 2004 Cumulative Supplement (Eagan, MN: Thomson Reuters) §20:43 at 1368.

a big smile on her face, came up by the witness stand and asked me the following nine questions:

1. "Dr. Brown, isn't it true that Ms. X told you he never had had any injuries like this before at any time in his life?" (Answer: "Yes").
2. "You said that in your report, didn't you?" (Answer: "Yes").
3. "Isn't it true that this person said he was never in a lawsuit before this one?" (Answer: "Yes").
4. "You said that in your report, didn't you?" (Answer: "Yes").
5. "He said to you that he never took any opioid analgesic for any back pain or neck pain any tie in his life, didn't he?" (Answer: "Yes").
6. "Yet, please look at this deposition transcript. It was taken from this man one week before you saw him. Please read to the jury. Would you believe that he said that he had had all of these injuries from this first accident?" (Answer: "Please read on").
7. "Would you believe that he was taking high doses of opioid analgesics from that accident?" (Answer: "Please read on").
8. "Would you believe that another psychiatrist had said that he was totally disabled from life as a result of this first accident?"
9. "Given the fact that he had these serious injuries and testified at a deposition only a week before you saw him, could you with

reasonable medical probability attribute these denials to what you diagnosed as a mild traumatic brain injury that had occurred six months before this deposition was taken?" (Answer: "No").

At this point, I could only look at the defense attorney, the referring plaintiff attorney and his client and say, "At this point, counselor, I am more likely to believe anything you would say" (!).

What happened was that the plaintiff attorney made an attempt to settle the case, which the defense attorney refused. Although he was awarded medical expenses, the New York State Insurance Fund had a lien on those, so the plaintiff and the referring attorney got nothing.

To this day, the plaintiff attorney, with whom I still speak and for whom I have done other cases, insists that his own client lied to him and that a different attorney was representing him on the other matter.

Then as we were leaving I asked the plaintiff himself to explain why he had denied to me awareness of the prior deposition and accident, he did not say it was because of his brain injury but simply smiled and smirked and said, "Oh, I really didn't think you needed to know that. If you knew it, it would have made the case with you harder to prove!"

In addition to the two extremes of "fraud on the court" claims by defense counsel which frankly are almost never warranted in cases of true traumatic brain injury on one hand and the malingering misrepresentations of the case just

described on the other, there is a huge grey zone/ambiguity which all too often is ignored by attorneys and experts on both sides.

This area goes under the general label of misperception which, depending on the clinical facts, sometimes are the direct result of a brain injury and sometimes instead reflect frankly dishonest behavior on the part of patient litigants.

Chapter 11. Avoiding Predictable Case Blunders

§11:13.12 Myth 3: Specificity Doesn't Matter

The need for plaintiff and defense counsel to be as up-to-date as possible on both the limitations – and dangers of ignoring -- test data specificity issues in particular was highlighted in the July 25, 2013 issue of *The New York Times*.

The article, aptly titled, "High-Tech, High-Risk Forensics,"[5] focused on one of, if not, the most famous pieces of forensic data that, along with fingerprinting, in recent years has barely, if ever, seriously been challenged in court regarding both admissibility and probative value: DNA.

The article describes how in a robbery and murder case, the forensics team found DNA on the victim's fingernails that "belonged to an unknown person, presumably one of the assailants. The sample was put into a DNA database and turned up a 'hit' – a local man by name of Lucas Anderson."

"Bingo. Mr. Anderson was arrested and charged with murder."

However, as the article's author noted, "There was one small problem: the 26-year-old Mr. Anderson couldn't have been the culprit. During the night in question, he was at the Santa Clara Valley Medical Center, suffering from severe intoxication."

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[5] Obasogie, High-Tech, High-Risk Forensics, The New York Times A-27 (July 25,2013).

"Yet he spent more than five months in jail with a possible death sentence hanging over his head. Once presented with Mr. Anderson's hospital records, prosecutors struggled to figure out how an innocent man's DNA could have ended up on the murder victim."

The likely answer found was that the paramedics who had taken Mr. Anderson to the hospital were the very same ones who had responded to the crime scene a few hours later, with the result that Mr. Anderson's DNA "must have been accidentally transferred to the body of the victim by way of the paramedics' clothing or equipment."

The point of the article focused on "the certainty with which prosecutors charged Mr. Anderson with murder" which "highlights the very real injustices that can occur when we place too much faith in DNA forensic technologies."[6]

The article goes on to talk not only about the issue of "contamination" but even a not deemed impossible likelihood that two DNA profiles can match by coincidence.

Moreover – and here the issue with the use and misuse of the newer imaging studies carefully must be assessed – was the fact that "there were also problems with the way DNA evidence is *interpreted and presented* to juries" (emphasis added).[7]

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[6] Obasogie, High-Tech, High-Risk Forensics, The New York Times (July 25,2013) at A-27.
[7] Obasogie, High-Tech, High-Risk Forensics, The New York Times (July 25,2013) at A-27.

For example, the author cited a criminal case in which jurors were – incorrectly – "told that there was only a 1.1 m [million] chance that this DNA match was pure coincidence" with the result that the man involved is serving a life sentence.

However, the chance of an erroneous and misinterpreted coincidental match was based on an erroneous control population (the general population's DNA instead of, as the author of the article argued only profiles in the DNA database should have been used).

If the latter had been done (assuming that the real culprit's profile was not in the database) "the estimate would have changed to one in three...."

The authors caution about DNA forensics as equally relevant for imaging studies used to "prove" the presence or the arguable absence of true traumatic brain injury: these data are "most useful" when "it corroborates other evidence pointing to a suspect" – but not used by itself in a clinical vacuum.

As the article concludes, "the next Lucis Anderson could be you. Better hope your alibi is as well documented as his."

§11:13.13 Myths: Self-Deception: the 800 pound gorilla in the room

When it is virtually indisputable – indeed in one editor's opinion – such a universal and well-known fact of life that it should be subject to judicial notice – that every single plaintiff in a personal injury case contains a hope to be compensated for the injuries they believe they have has the attorney who represents them on a contingency basis clearly hopes that a compensation award or verdict will occur.

A corollary of the above is that a plaintiff in a personal injury case has a motive/incentive to do everything possible that increases the likelihood of their recovery and the likelihood of what to the plaintiff is a fair award or verdict.

However, it does not follow from any of those statements either that plaintiffs of necessity will be driven by the incentive to "win" such that they will deliberately or otherwise misreport important facts of the case.

Similarly, the presence of the above does not necessarily mean either that any statements that plaintiffs make in any personal injury cases, let alone those involving traumatic brain injury, are for "secondary gain" (external) and litigation-associated reasons and necessarily hide important pre-accident history and/or exaggerate post-accident symptoms and claims.

What nonetheless is true at least in one editor's and clinical colleagues' experience that, when facts are distorted and minimized or exaggerated (as independently verified from other materials) by litigants in traumatic brain injury cases, such factual distortions/minimizing/exaggerating more often than not is not the result of conscious deceptive behavior but of misperception and/or self-deception.

The concept of memory misperception and its correlate self-deception do not have their origins in diagnosis or treatment of traumatic brain injury or for that matter in the civil litigation process.

Rather, misperception and self-deception are behaviors known for centuries as well as during the last fifty years and popularized in a song.

One can trace back these concepts at least as far back as the life of the famous Greek orator Demosthenes (384-322 B.C.), whose quote has been repeated through the ages: "Nothing is so easy as to deceive one's self; for what we wish, we readily believe"; "there is a great deal of wishful thinking in such cases; it is easiest thing of all to deceive one's self"; "nothing is easier than self-deceit. For what each man wishes, that he also believes to be true."[8]

The awareness of conscious self-deception and misperception are not limited to the United States.

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[8] *First and Third Olynthiacs.*

On the contrary one of, if not the most famous cinematic portrayals of same occurred in the Japanese movie by the renowned director Kurosawa Akira, "*Rashomon*" *in* 1950, by the Daiei Motion Picture Company, 1950 winner of the Academy Award for best foreign language film in 1951.[9]

Here, a bandit reportedly raped and murdered a woman and her husband in the woods. A priest and woodcutter were summoned to testify at the murder trial as to the defendant and the wife.

Similarly, the bandit/rapist and the victim samurai wife's testimony was so different that a psychic had to be brought in to allow the murdered man himself to give his own testimony. He told a totally different story as did the woodcutter witness.

Closer to home – but bearing the same messages about misperception and self-deception – is the well-known 1957 film, *Twelve Angry Men*.

Once again, the key part of this story relates to jurors changing their views regarding guilt – and one another – is the initial juror vote being one vote short for a vote for execution to a unanimous vote of "not guilty.[10]

One of the most well-known popular song expressing these same views regarding misperception and/or self-deception were literally dramatically

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[9] See Encyclopedia Britannica, http://www.Brittanica.com/ebchecked/topic/491719/Twelve Angry Men.
[10] See Encyclopedia Britannica, http://www.Brittanica.com/ebchecked/topic/491719/Rashomon.

portrayed in the 1958 film *Gigi*.[11] In this song are the words "Yes, I remember it well." This was written by Alan J. Lerner, and include the following verse: "We met at nine, we met at eight, I was on time: no you were late, ah, yes I remember it well."

"We dined with friends, we dined alone, a tenor sang, a baritone, ah yes, I remember it well."

"The dazzling April moon, there was none that night....that carriage ride, you walked me home, you lost a glove, ah ha, it was a comb, ah, yes, I remember it well...."

"You wore a gown of gold, I was all in blue. Am I getting old? Oh, no, not you.... Ah, yes, I remember it well."

A more sophisticated – and neurological theory providing physiological explanation of a neurological theory that partly explains altered perception, especially regarding pain, was developed in the early 1960's by Drs. Ronald Melzack and Patrick Wall.

Their "gate control theory of pain" provides a physiological basis for understanding pain as well as pain encountering spinal cord "nerve gas" that open or close depending on many things – including instructions coming down from the brain. When gates open, pain messages "get through" more easily

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[11] *Gigi*, 1958. See, e.g. Turner Classic Movies.

with more pain but when gates close pain messages are kept from reaching the brain and may not even be experienced.[12]

[12] Melzack and Wall, 150 (3699) Science 971-979 (1965).

Chapter 12. Approaching the Case: A Neuropsychiatric Perspective:

§12:4.11 Understanding the uses and limitations of DSM-5

The fifth edition of the American Psychiatric Association's *Diagnostic and Statistical Manual of Mental Disorders, DSM-5*, finally has been published. It reportedly "brings innovations to the coding, classification, and diagnosis of mental disorders that have far-reaching effects across many disciplines." [13]

Note that caveats about its use once again appear which hold implicit warnings about the criteria being taken too literally when used by attorneys and their experts: "The symptoms contained in the respective diagnostic criteria sets do not constitute comprehensive definitions of underlying disorders, which encompass cognitive, emotional, behavioral and physiologically processes that are far more complex than can be described in these brief summaries....

"It is not sufficient to simply check off the symptoms in the diagnostic criteria to make a mental disorder diagnosis....it requires clinical training to recognize when the combination of predisposing can be precipitating, perpetuating, and protective factors has resulted in the psychological condition in which physical signs and symptoms exceed normal ranges...."

[13] American Psychiatric Association, Desk Reference to the Diagnostic Criteria from DSM-5 (Washington, DC: American Psychiatric Publishing, 2013). viii

"The diagnosis for mental disorders should have clinical utility: it should help clinicians to determine prognosis, treatment plans, and potential treatment outcomes for their patients. However, the diagnoses for mental disorders is not equivalent to a need for treatment....

"This definition of mental disorder was developed for *clinical, public health, and research purposes. Additional information is usually required beyond that contained in the DSM-5 diagnostic criteria in order to make legal judgments on such as criminal responsibility, eligibility for disability compensation, and competency*" (emphasis added).[14]

The current edition in fact goes well beyond the caveats that had appeared in prior editions, with the manual now providing a detailed and specific "Cautionary Statement for Forensic Use of *DSM-5*."

It explicitly recognizes that in addition to its being used to help clinicians it "also is used as a reference for the courts and attorneys in assessing the forensic consequences of mental disorders. As a result, it is important to note that the definition of mental disorders included in *DSM-5* was to develop and meet the needs of *clinicians, public health professionals, and research investigators rather than all of the technical needs of the courts and legal professionals*.

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[14] American Psychiatric Association, Desk Reference to the Diagnostic Criteria from DSM-5 (Washington, DC: viii American Psychiatric Publishing, 2013) at 3-6.

"It is also important to note that *DSM-5* does not provide treatment guidelines for any given disorder.

"When used appropriately, diagnoses and diagnostic information can assist legal decision makers in their determinations," including serving "as a check on ungrounded speculation about mental disorders and about the functioning of a particular individual" – "however, the use of DSM-5 should be informed by an awareness of the risks and limitations that have been used in forensic settings."[15]

"When DSM-5 categories, criteria, and textual descriptions are employed for forensic purposes, there is a risk that that diagnostic information will be misunderstood. These things arise because of the imperfect fit between the questions and ultimate concern to the law and the information contained in the clinical diagnosis" (emphasis added).[16]

> ♦**PRACTICE NOTE:** *DSM-5* does all it can to *drive the point home further that attorneys are neither training to be nor to function as clinicians, let alone to "second guess" clinicians and/or try to equate deposition questions with questions asked during clinical examinations, this section concludes by the clear statement that*

[15] American Psychiatric Association, Desk Reference to the Diagnostic Criteria from DSM-5 (Washington, DC: viii American Psychiatric Publishing, 2013) at 13.
[16] American Psychiatric Association, Desk Reference to the Diagnostic Criteria from DSM-5 (Washington, DC: viii American Psychiatric Publishing, 2013) at 13.

"use of DSM-5 to assess for the presence of mental disorder by non-clinical, non-medical or otherwise insufficiently trained individuals is not advised.

"Non-clinical decision makers should also be cautioned that a diagnosis does not carry any necessary implications regarding the etiology or causes of the individual's mental disorder or the individual's degree of control over behaviors that may be associated with the disorder" (emphases added).[17]

The American Psychiatric Association intended to direct its warnings and caveats about the manual being used for forensic purposes of is directed at the attorney who intends to use the DSM-5 as a "cookbook" to establish either the presence of a psychiatric disorder or, conversely, argue that it is flatly incorrect to claim that "individuals whose symptoms do not meet full criteria for mental disorder" necessarily then do not "demonstrate a clear need for treatment or care."

"The fact that some individuals do not show all symptoms indicative of a diagnosis should not be used to justify limiting their

[17] American Psychiatric Association, Desk Reference to the Diagnostic Criteria from DSM-5 (Washington, DC: viii American Psychiatric Publishing, 2013) at p. 14.

access to appropriate care[18] -- a statement clearly directed as insurers that might by implication defense counsel would attempt to claim that meeting all DSM-5 criteria for a disorder is a necessary prerequisite determining entitlement for care reimbursement.

Note also the clear warning that appears directed at any attorney or any other person using the manual "to assess for the mental disorder" when they are "nonclinical, nonmedical or otherwise insufficiently trained individuals...*nonclinical decision makers should also be cautioned that a diagnosis does not carry any necessary implications* regarding "the etiology for causes of the individuals mental disorder or the individuals' degree of control over behaviors that may be associated with the disorder" (emphasis added).[19]

One of the articles that has been published specifically assessing "the *DSM-5* and the Law" appeared in the June, 2013 issue of *The New York State Bar Association Journal*. [20]

The author, a psychologist who is on the Board of Directors of the Medical Legal Society of British Columbia, states that although the manual provides "the

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[18] American Psychiatric Association, Desk Reference to the Diagnostic Criteria from DSM-5 (Washington, DC: viii American Psychiatric Publishing, 2013) at 5.

[19] American Psychiatric Association, Desk Reference to the Diagnostic Criteria from DSM-5 (Washington, DC: viii American Psychiatric Publishing, 2013) at 14.

[20] Cochrane, The DSM-5 And The Law: When Hard Science Meets Soft Science In Psychology, 85(5) New York State Bar Association Journal 20-35 (2013).

framework for most psychological assessments and for all forms of psychotherapy" it actually is a "meld of science, theory and opinion" based not only on "research principles" but on "subjective realities."

Dr. Cochrane goes on to state that by using a "contextual approach" attorneys can both "understand" – and legitimately question – "the research behind the various diagnostic symptom criteria rather than just looking at the symptoms lists themselves."[21]

Dr. Cochrane rightly cautions – in a fashion that simply goes way beyond DSM-5 but also applies to the use of behavioral science in court generally – that the "unavoidable situation" of psychology often involving "the application of hard science principles to soft science phenomena....creates fertile ground for biological oversimplification and the attributes in the factual information to that which is really a psychological metaphor."[22]

Yet "much of this meaning attribution and misinformation goes unchallenged because most people, including attorneys, witnesses, judges and jury members, do not have the information necessary to easily recognize and

[21] Cochrane, The DSM-5 And The Law: When Hard Science Meets Soft Science In Psychology, 85(5) New York State Bar Association Journal (2013) at 20.
[22] Cochrane, The DSM-5 And The Law: When Hard Science Meets Soft Science In Psychology, 85(5) New York State Bar Association Journal (2013) at 20.

effectively challenge the aspects of law-related psychology that fall into the category of 'what we know isn't so.'"[23]

Dr. Cochrane goes on rightly to caution that "correlation is not causation" but regarding depression specifically there are "multiple variables, including the uniqueness of the individuals are involved in the causation of depression."[24]

He also points out that "*a key variable that is rarely included in psychology research is the self-efficacy of the individuals being studied. Research design for treatment effectiveness is based on the unspoken premise that each person in the study has the same ability to utilize the cognitive, behavioral and emotional tools provided in the treatment model*" (emphasis added).[25]

He also adds his voice to those questioning the reliability and validity of self-reports – and implicitly although he does not state this, plaintiff self-reports of injury, symptoms, and response to treatment.

What Dr. Gordon does emphasize is that "*self-reports, which are often used in outcome research [and, of course, the editors note, by plaintiff attorneys in litigation], are the least reliable measures*" (emphasis added).[26]

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[23] Cochrane, The DSM-5 And The Law: When Hard Science Meets Soft Science In Psychology, 85(5) New York State Bar Association Journal (2013) at 21.
[24] Cochrane, The DSM-5 And The Law: When Hard Science Meets Soft Science In Psychology, 85(5) New York State Bar Association Journal (2013) at 22.
[25] Cochrane, The DSM-5 And The Law: When Hard Science Meets Soft Science In Psychology, 85(5) New York State Bar Association Journal (2013) at 22.
[26] Cochrane, The DSM-5 And The Law: When Hard Science Meets Soft Science In Psychology, 85(5) New York State Bar Association Journal (2013) at 23.

He then goes on to point out that a significant change between *DSM-5* and its predecessor was that ten different personality disorders are now listed where as the previous edition listed six.

He notes that "existing case law involving Personality Disorders is based on the *DSM-IV* model. Therefore, until a new body of case law has been established, opinion evidence and often, conflicting opinion evidence, will be the norm."[27]

He also points out – and here the issue of substance abuse/dependence has profound legal consequences, the editor's note – that "the *DSM-5* does not distinguish, as did the *DSM-IV* between concepts of abuse and dependence....The *DSM-5* committee concluded that current research supports the decision to combine abuse and dependence into a single disorder with a grading scale of severity."[28]

He then goes on specifically to caution against the uses of "the disease model of addiction" which in turn are based "on the premise that addiction is a disease, and that this disease is such that the addicted individual [necessarily] is unable [voluntarily] to break his or her addiction" and consequently "cannot held be responsible for the negative consequences arising from their powerlessness in the face of their addiction disease.... [Yet] *it is important to*

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[27] Cochrane, The DSM-5 And The Law: When Hard Science Meets Soft Science In Psychology, 85(5) New York State Bar Association Journal (2013) at 23.
[28] Cochrane, The DSM-5 And The Law: When Hard Science Meets Soft Science In Psychology, 85(5) New York State Bar Association Journal (2013) at 26.

remember that the disease model is a theoretical and, in some circles, and opinion model, rather than a research-validated model" (emphasis added).[29]

He also notes that the definition of posttraumatic stress disorder to some extent has been broadened regarding "the circumstances wherein a person may suffer identifiable PTSD symptoms."[30]

He then gave a detailed analysis of the *DSM-5* criterion A for posttraumatic stress disorder, which he notes included multiple subjective components involving "the perceptions" of the "person directly involved."[31]

He notes that the criteria focus on a person perceiving a threat – but notes that "when a person perceives, he or she does so in terms of the *anticipated outcome rather than in terms of the actual outcome. It can be difficult for a court to reliably determine in hindsight, whether an individual's perception that he or she faced a serious threat was a misperception of the circumstances, was influenced by pre-existing situations or a pre-existing condition or was a purposeful attempt to receive*" (emphasis added).[32]

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[29] Cochrane, The DSM-5 And The Law: When Hard Science Meets Soft Science In Psychology, 85(5) New York State Bar Association Journal (2013) at 28.
[30] Cochrane, The DSM-5 And The Law: When Hard Science Meets Soft Science In Psychology, 85(5) New York State Bar Association Journal (2013) at 28.
[31] Cochrane, The DSM-5 And The Law: When Hard Science Meets Soft Science In Psychology, 85(5) New York State Bar Association Journal (2013) at 28.
[32] Cochrane, The DSM-5 And The Law: When Hard Science Meets Soft Science in Psychology, 85(5) New York State Bar Association Journal (2013) at 28.

He then in his continuing assessment of posttraumatic disorder – which occurs in more of the article than his discussing any other condition[33] -- notes both that "an accurate determination of whether a client suffers from PTSD cannot be made on the basis of the event alone. People react differently to potentially traumatizing events" and "in fact, many individuals who are exposed to trauma do not develop PTSD."[34]

Finally, he emphasizes as a final point that "no one can tell ahead of time whether your PTSD clients will recover quickly, eventually or not at all. Therefore, when seeking damages, consider the extent of assistance that your clients made need rather than accepting an arbitrary number."[35]

He concludes his article by discussing the somatoform disorders and malingering.

He then asserts that "*nobody, expert or novice, in spite of confidence in his or her detection skills, performs significantly better than chance when it comes to determining if a person is telling the truth.... Human beings fill in gaps of uncertainty with attributed meaning and do so with surprising confidence*" (emphasis added). [36]

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[33] Cochrane, The DSM-5 And The Law: When Hard Science Meets Soft Science in Psychology, 85(5) New York State Bar Association Journal (2013) at 28-33.
[34] Cochrane, The DSM-5 And The Law: When Hard Science Meets Soft Science in Psychology, 85(5) New York State Bar Association Journal (2013) at 29.
[35] Cochrane, The DSM-5 And The Law: When Hard Science Meets Soft Science in Psychology, 85(5) New York State Bar Association Journal (2013) at 31.
[36] Cochrane, The DSM-5 And The Law: When Hard Science Meets Soft Science in Psychology, 85(5) New York State Bar Association Journal (2013) at 34.

Dr. Cochrane then talks about "alleged malingering" but unfortunately does not explain much about a type of "direct and verifiable evidence of malingering" would in his view be clinically credible, said that unless such is "brought to light," "you stand and fight on behalf of your client. This is a *subjective ground but its subjective nature* does not mean that your client is faking his or her symptoms"[37] (emphasis added).

[37] Cochrane, The DSM-5 And The Law: When Hard Science Meets Soft Science in Psychology, 85(5) New York State Bar Association Journal (2013) at 35.

§12:14.12 DSM-5 and Malingering

Note specifically that malingering still is present as a diagnosis, coded under "Other Circumstances of Personal History."[38]

Note, however, that "malingering" as such in the *DSM-5* does *not* appear in the index of this volume although the description that does appear is, criteria-wise, the same that appears in *DSM-IV-TR*.[39]

There are some differences between the two diagnostic manuals regarding the description of "Malingering," however, especially in regards to the distinction between "Malingering" and "Factitious Disorder."

Note specifically that:

1. In both systems malingering is deemed to be produced by "an external incentive, whereas "Factitious Disorder external incentives are absent," in *DSM-IV* the next statement is that: evidence of an intrapsychic need to maintain the sick role suggests Factitious Disorder, *DSM-5* goes on at the end to state that "definite evidence of feigning (such as clear evidence that loss of function is present

[38] American Psychiatric Association, Desk Reference to the Diagnostic Criteria from DSM-5 (Washington, DC: viii American Psychiatric Publishing, 2013) at 373-374.

[39] Compare American Psychiatric Association, Desk Reference to the Diagnostic Criteria from DSM-5 (Washington, DC: viii American Psychiatric Publishing, 2013) at 373-374 with American Psychiatric Association, Desk Reference to the Diagnostic Criteria from DSM-5 (Arlington, VA: American Psychiatric Association, 2013) at 302 and 309-310.

during the examination but not at home) would suggest a diagnosis "Factitious Disorder" if the individual's apparent aim is to assume the sick role, while malingering if it is to obtain an incentive, such as money."[40]

2. Left out of *DSM-5* was the statement in *DSM-IV-TR* that "in malingering (in contrast to Conversion Disorder) symptom relief is not often obtained by suggestion or hypnosis."[41]

Unfortunately, in the editors' view, however, *DSM-5* no more than *DSM-IV-TR* even considers the possibility – let alone likelihood – that there are many combined conscious as well as unconscious incentives to any individual involved in litigation to "misremember" past history that weakens the plaintiff attorney's theory of the case as well as to present an retroactively exaggerated description of post-trauma symptoms and limitations.

In other words, it is the editors' experience that both sets of incentives are present. From a clinical standpoint, there often in litigant's presentation is a combination of both "primary" (internal) as well as "secondary (external) combinations of psychological and financial incentives to present such a picture.

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[40] American Psychiatric Association, Desk Reference to the Diagnostic Criteria from DSM-5 (Arlington, VA: American Psychiatric Association, 2013) at 374.

[41] American Psychiatric Association, Desk Reference to the Diagnostic Criteria from DSM-5 (Arlington, VA: American Psychiatric Association, 2013) at 310.

Nor does the new diagnostic manual even consider the likelihood that it is simply human nature for those who are interested in a financially fair outcome of litigation (including payment of accident-caused medical expenses, lost wages, pain and suffering, etc.) to so want the dramatic picture of injuries to be presented to the jury that all of the above, quite in good faith and with all sincerity will present a misperceived – *as opposed to fraudulent and deliberately misrepresented* – version of facts.

The significance of all this? Simply that it is the editors' consistent experience that 90% to 95% of these cases get settled prior to being tried to a verdict. Consequently, accepting the reality of such "mixed" psychological behaviors should make even "hardnosed" defense counsel avoid falling into the trap of "polarizing" plaintiffs as malingerers whose claims simply cannot have any financial value.

Similarly, equally "hardnosed" plaintiff counsel should look at their own behaviors when they chose insulting defense experts and manipulating them into adopting extreme "polarized" positions and thereby fail their clients who need to understand and accept reasonable settlements.

Furthermore, by both sides attempting to see the legitimacy of the others' legal and expert positions will more likely be much more effective in creating an atmosphere leading to fairer and more rapid settlements in new cases in the future.

♦**PRACTICE NOTE:** The overwhelming likelihood that the vast majority of mild traumatic brain injury cases have been and will continue to be settled, it is simply foolish for either side to attempt "to polarize" issues and/or experts.

§12:4.13 DSM-5 and "Neurocognitive Disorders": new DSM05 approaches and new limitations

This new *DSM-5* Diagnostic Manual has replaced its most immediate predecessor, *DSM-IV-TR*.[47] The uses – and limitations – the *DSM-5* are discussed in the 2014 Cumulative Supplement to *Emotional Injuries: Law and Practice* and will not be repeated verbatim here, but rather summarized.[48]

In general, while it is true that "superficially *DSM-5* appears to be merely a clarification and extension of *DSM-IV-TR*, this manual in fact has within it some radical departures from *DSM-IV-TR*, departures which likely will have a dramatic impact on the entire area of emotional injury and neuropsychiatric litigation."[49]

One of the, if the not perhaps the most dramatic departure in the approach of *DSM-5* has been the complete abandonment of the multiaxial format that had been at the core of *DSM-IV-TR* with there having been "virtually nothing written in detail explaining why *DSM-5* abandoned *DSM-IV-TR* 'multiaxial system,'" in which each Axis at least according to *DSM-IV-TR* "refers to a

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[47] See, e.g., American Psychiatric Association, Desk Reference to the Diagnostic Criteria for DSM-IV-TR (Washington, D.C.: American Psychiatric Association, 2000).

[48] See, Dotson and Brown, Emotional Injuries: Law and Practice, 2014 Cumulative Supplement (Eagan, MN: Thomson Reuters) §19:15.30 (DSM-5), "A Radical – And Potentially Chaos Causing-Transformation? at 1017-1025 in 19:15.70, with the DSM-IV-TR and DSM-5 writers in ternate: Cautionary Statements at 1025-1030.

[49] See Dotson and Brown, Emotional Injuries: Law and Practice, 2004 Cumulative Supplement (Eagan, MN: Thomson Reuters) §19:19 at 1017.

different domain of information "*that may help the clinician plan treatment and predict outcome*" (emphasis added).[50]

In the article appearing in *Emotional Injuries* the editors there review all of the multiple difficulties involving the attempt of *DSM-5* to "medicalize" psychiatry, the problems associated with the complexity of the rating scales given, the exclusion of relational and family issues and the contributions of non-psychiatric disciplines and the complexity of the diagnostic criteria.

For example, in *DSM-IV-TR* posttraumatic stress disorder is described in approximately two pages of text whereas double that amount was required in *DSM-5*. [51]

Although *DSM-5* did attempt to clarify and elaborate distinctions amongst and between cognitive disorders and those associated with traumatic brain injury, comparison of the two desk references for these two diagnostic manual also reveals that *DSM-5* has created in the editors' view at least as many problems that had been attempted to solve.

Note for example that in *DSM-IV-TR* there are a multitude of cognitive disorders including "Amnestic Disorders," "Delirium," "Dementia," "Age-Related Cognitive Decline" and "Cognitive Disorder Not Otherwise Specified" including

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[50]American Psychiatric Association, Desk Reference to the Diagnostic Criteria from DSM-IV-TR (Washington, D.C.: American Psychiatric Association, 2000) at 37.

[51] Compare American Psychiatric Association, Desk Reference to DSM-IV-TR (Washington, D.C.: American Psychiatric Association, 2000) at 218-220 with American Psychiatric Association, Desk Reference of the Diagnostic Criteria for DSM-5 (Arlington, VA: American Psychiatric Association, 2013) at 143-149.

dementia of the Alzheimer's type, dementia "Due To Multiple Ideologies," "Dementia Due to a Multitude of Specific Medical Conditions," "Vascular Dementia" and "Substance-Abuse Persistent Dementia" and others. [52]

Traumatic brain injury generally is included under cognitive disorders not otherwise specified with "Mild Neurocognitive Disorder" and "Post-Concussional Disorder" being mentioned along with "suggested *research criteria*" (emphasis added).[53]

What *DSM-5* does is a much larger section on "neurocogntive disorders" (thirty-five pages long) that includes specific sections on "major neurocogntive disorder,"[54] "major or mild frontotemporal neurocognitive disorder,"[55] "major or mild neurocogntive disorder due to Alzheimer's disease,"[56] "major or mild neurocognitive disorder due to another medical condition,"[57] "major or mild cognitive neurocognitive disorder due to HIV infection,"[58] "major or mild neurocognitive disorder due to Huntington's disease,"[59] "major or mild

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[52] American Psychiatric Association, Desk Reference to the Diagnostic Criteria from DSM-IV-TR (Washington, D.C.: American Psychiatric Association, 2000) at 83-87, 91-95.
[53] American Psychiatric Association, Desk Reference to the Diagnostic Criteria from DSM-IV-TR (Washington, D.C.: American Psychiatric Association, 2000) at 98 and in Appendix B.
[54] American Psychiatric Association, Desk Reference to the Diagnostic Criteria from DSM-5 (Arlington, VA: American Psychiatric Association, 2013) at 299-300, 304.
[55]American Psychiatric Association, Desk Reference to the Diagnostic Criteria from DSM-5 (Arlington, VA: American Psychiatric Association, 2013) at 302, 306, 308.
[56]American Psychiatric Association, Desk Reference to the Diagnostic Criteria from DSM-5 (Arlington, VA: American Psychiatric Association, 2013) at 302, 305-306.
[57]American Psychiatric Association, Desk Reference to the Diagnostic Criteria from DSM-5 (Arlington, VA: American Psychiatric Association, 2013) at 304 and 318-319.
[58] American Psychiatric Association, Desk Reference to the Diagnostic Criteria from DSM-5 (Arlington, VA: American Psychiatric Association, 2013) at 303 and 315-316.
[59] American Psychiatric Association, Desk Reference to the Diagnostic Criteria from DSM-5 (Arlington, VA: American Psychiatric Association, 2013) at 303 and 317-318.

neurocognitive disorder with Lewi body issues,"[60] "major or mild neurocognitive disorder due to multiple etiologies,"[61] "major or mild neurocognitive disorder due to Parkinson's Disease,"[62] "major or mild neurocognitive disorder due to prion disease,"[63] "major or mild substance/medication-induced neurocogntive disorder,"[64] "major or mild vascular neurocognitive disorder,"[65] "mild neurocogntive disorder,"[66] with a specific discussion of "neurocogntive domains,"[67] "recording procedures" for cognitive disorder,[68] and "unspecific neurocogntive disorder."[69]

Furthermore, is a significant and substantial section on "neurodevelopmental disorders"[70] – which of course often are associated with cognitive deficits.

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[60] American Psychiatric Association, Desk Reference to the Diagnostic Criteria from DSM-5 (Arlington, VA: American Psychiatric Association, 2013) at 302, 308-309.
[61] American Psychiatric Association, Desk Reference to the Diagnostic Criteria from DSM-5 (Arlington, VA: American Psychiatric Association, 2013) at 304 and 319-320.
[62] American Psychiatric Association, Desk Reference to the Diagnostic Criteria from DSM-5 (Arlington, VA: American Psychiatric Association, 2013) at 303 and 316-317.
[63] American Psychiatric Association, Desk Reference to the Diagnostic Criteria from DSM-5 (Arlington, VA: American Psychiatric Association, 2013) at 303 and 316; see also the discussion (later in this supplement @ 12:4.40.
[64] American Psychiatric Association, Desk Reference to the Diagnostic Criteria from DSM-5 (Arlington, VA: American Psychiatric Association, 2013) at 303 and 311-315.
[65] American Psychiatric Association, Desk Reference to the Diagnostic Criteria from DSM-5 (Arlington, VA: American Psychiatric Association, 2013) at 302 and 309-310.
[66] American Psychiatric Association, Desk Reference to the Diagnostic Criteria from DSM-5 (Arlington, VA: American Psychiatric Association, 2013) at 300-304.
[67] American Psychiatric Association, Desk Reference to the Diagnostic Criteria from DSM-5 (Arlington, VA: American Psychiatric Association, 2013) at 285 and 286-291.
[68] American Psychiatric Association, Desk Reference to the Diagnostic Criteria from DSM-5 (Arlington, VA: American Psychiatric Association, 2013) at 301-303.
[69] American Psychiatric Association, Desk Reference to the Diagnostic Criteria from DSM-5 (Arlington, VA: American Psychiatric Association, 2013) at 304 and 320.
[70] American Psychiatric Association, Desk Reference to the Diagnostic Criteria from DSM-5 (Arlington, VA: American Psychiatric Association, 2013) at 17-44.

These include "attention-deficit/hyperactivity disorder,"[71] "autism spectrum disorder,"[72] "communication disorders,"[73] "intellectual disabilities,"[74] "unspecified learning disorder,"[75] "other specified neurodevelopmental disorder,"[76] and "unspecific neurodevelopmental disorder."[77]

Where does traumatic brain injury fit into all of this? Generally, under the title for the diagnoses of "traumatic brain injury, major or mild neurocognitive disorder due to traumatic brain injury," warranting only three pages in the text.[78]

Note on one hand that the *DSM-5* diagnosis of "Major or Mild Neurocognitive Disorder Due to Traumatic Brain Injury" can be met by any of four different criteria for "Major and Mild Neurocogntive Disorder" – along with there being "evidence of a traumatic brain injury" – that is, an impact of the head or other mechanisms of rapid movement or displacement of the brain within the skull.

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[71] American Psychiatric Association, Desk Reference to the Diagnostic Criteria from DSM-5 (Arlington, VA: American Psychiatric Association, 2013) at 31-35.
[72] American Psychiatric Association, Desk Reference to the Diagnostic Criteria from DSM-5 (Arlington, VA: American Psychiatric Association, 2013) at 27 and 31.
[73] American Psychiatric Association, Desk Reference to the Diagnostic Criteria from DSM-5 (Arlington, VA: American Psychiatric Association, 2013) at 24-27.
[74] American Psychiatric Association, Desk Reference to the Diagnostic Criteria from DSM-5 (Arlington, VA: American Psychiatric Association, 2013) at 17-23.
[75] American Psychiatric Association, Desk Reference to the Diagnostic Criteria from DSM-5 (Arlington, VA: American Psychiatric Association, 2013) at 36-39.
[76] American Psychiatric Association, Desk Reference to the Diagnostic Criteria from DSM-5 (Arlington, VA: American Psychiatric Association, 2013) at 43.
[77] American Psychiatric Association, Desk Reference to the Diagnostic Criteria from DSM-5 (Arlington, VA: American Psychiatric Association, 2013) at 44.
[78] American Psychiatric Association, Desk Reference to the Diagnostic Criteria from DSM-5 (Arlington, VA: American Psychiatric Association, 2013) at 302 and 310-311.

The four criteria, any one of which would meet these criteria include not just "loss of consciousness" but also "posttraumatic amnesia" (not here specifically defined regarding length), "disorientation and confusion" (again not specifically defined by length of time or degree necessary), and "neurological signs" which here given as an examples of "neuroimaging demonstrating injury; a new onset of seizures; a marked worsening of the preexisting seizure disorder; visual field cut; anosmia; hemiparesis."[79]

Furthermore, it was noted that "the neurocognitive disorder presents immediately after the occurrence of the traumatic injury or immediately after recovery of consciousness and persists past the post-injury period."[80]

Note that there is no recognition here of even the possibility of there not being any immediate presentation of these symptoms or signs after a delay that goes on after – again undefined – "acute post-injury period."[81]

Note further that there is another problem posed by these criteria for plaintiff attorneys under the requirements for diagnosis of "major neurocognitive disorder" -- that "*the cognitive deficits are not better explained by another mental disorder" (e.g., major depressive disorder, schizophrenia) – and that the diagnosis of "major cognitive disorder"* is not limited to that resulting from

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[79] American Psychiatric Association, Desk Reference to the Diagnostic Criteria from DSM-5 (Arlington, VA: American Psychiatric Association, 2013) at 310.
[80] American Psychiatric Association, Desk Reference to the Diagnostic Criteria from DSM-5 (Arlington, VA: American Psychiatric Association, 2013) at 310-311.
[81] American Psychiatric Association, Desk Reference to the Diagnostic Criteria from DSM-5 (Arlington, VA: American Psychiatric Association, 2013) at 311.

traumatic brain injury but that it also can be described as resulting from twelve other possibilities – including the medical condition and "unspecified" (emphasis added).[82]

Specifically, in addition to traumatic brain injury, this diagnosis can be given for those who will suffer from:

1. "Alzheimer's disease."
2. "Frontotemporal lobar degeneration."
3. "Lewi body disease."
4. "Vascular disease."
5. "Traumatic brain injury."
6. "Substance/medication use."
7. "HIV infection."
8. "Prion disease."
9. "Parkinson's disease."
10. "Huntington's disease."
11. "Another medical condition."
12. "Multiple etiologies."
13. "Unspecified."[83]

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[82] American Psychiatric Association, Desk Reference to the Diagnostic Criteria from DSM-5 (Arlington, VA: American Psychiatric Association, 2013) at 311.

[83] American Psychiatric Association, Desk Reference to the Diagnostic Criteria from DSM-5 (Arlington, VA: American Psychiatric Association, 2013) at 299-300.

The clinical and legal challenge then is to what extent is one required either as a physician or plaintiff attorney to have the burden of disproving the likely or even possible existence of other causes of the found cognitive impairment before even being able to make the clinical – let alone legal – argument and "diagnosis" that the patient-litigant's presentation is uniquely or even largely the result of traumatic brain injury versus of the other causes of the neurocognitive disorder described in the new diagnostic manual?

One of the more daunting challenges that the plaintiff attorney community has not apparently yet completely come to grips with is the high likelihood that nonphysician neuropsychologists and others will be deemed by courts as frankly incompetent to be able to talk about "causes" of cognitive impairment or even the bases of their own psychometric conclusions since as nonphysicians they are not capable of distinguishing diagnostically among the multiplicity of potential "causes" of cognitive impairment that clearly are medical in nature and listed in such detail in *DSM-5*....

Another difference – and problem for anyone attempting to use *DSM-5* as *DSM-IV-TR* has been accused as being a "cookbook" of diagnoses used by attorneys not qualified to discuss the limitations of these criteria apparent in an even larger section of *DSM-5* than had appeared in *DSM-IV-TR*.

Specifically, whereas *DSM-IV-TR* basically had only one page of a "cautionary statement" instead of acknowledging that the classification

represents only a "evolving knowledge in our field" and "does not imply that" any of the conditions listed meet "legal or other non-medical criteria for what constitutes a medical disease or mental disability" – and that the characterizations "may not be wholly relevant to legal judgments."[84]

In *DSM-5* there is an explicit – not in the preface either but in the text – a specific – and 50% longer – "Cautionary Statement for forensic use of *DSM-5*."[85]

As noted in the *Emotional Injuries: Law and Practice Cumulative Supplement, DSM-5* does explicitly recognize that although the *DSM-5 Diagnostic Criteria and Text* are "primarily designed to assist clinicians in conducting *clinical* assessments, case formulation, treatment planning" (emphasis added), they authors of *DSM-5* did recognize that the manual "is also used as a reference for the courts and attorneys in assessing the forensic consequences of mental disorders. As a result, *it is important to note that the definition of mental disorder in DSM-5 was developed to meet the needs of clinicians, public health professionals, research investigators, rather than all of the technical needs of the courts and legal professionals*" (emphasis added).[86]

To drive home the point about the need to avoid *unjustified use of this manual* as a "cookbook" on individual cases – let alone as one that can be

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[84] American Psychiatric Association, Desk Reference to the Diagnostic Criteria for DSM-IV-TR (Washington, D.C.: American Psychiatric Association, 2000) at xi-xii.
[85] American Psychiatric Association, Desk Reference to the Diagnostic Criteria for DSM-IV-TR (Washington, D.C.: American Psychiatric Association, 2000) at 13-14.
[86] American Psychiatric Association, Desk Reference to the Diagnostic Criteria from DSM-5 (Arlington, VA: American Psychiatric Association, 2013) at 13.

used by attorneys to cross-examine expert witnesses – it was stated that the writers of the manual intended at most that the manual "may facilitate" the understanding by "legal decision makers" of the "relevant characteristics of mental disorders" – but nonetheless "*serves as a check on ungrounded speculation about mental disorders and about functioning of a particular individual*" (emphasis added).[87]

Moreover, the editors further state that diagnostic information about "longitudinal course may" – not must or falls into the realm of "reasonable medical probability, let alone certainty" – "improve legal decision making when the legal issue concerns an individual's mental functioning at a past or future point in time."[88]

These cautions and caveats for non-sufficient and the editors go on to drive home the point once again that "the use of *DSM-5* should be informed by an awareness of the *risks and limitations of its use in forensic settings. When DSM-5 categories, criteria, and textual descriptions are employed for forensic purposes, there is a risk that diagnostic information will be misused and misunderstood. These dangers arise because of the imperfect fit between the*

[87] American Psychiatric Association, Desk Reference to the Diagnostic Criteria from DSM-5 (Arlington, VA: American Psychiatric Association, 2013) at 13.
[88] American Psychiatric Association, Desk Reference to the Diagnostic Criteria from DSM-5 (Arlington, VA: American Psychiatric Association, 2013) at 13.

questions of ultimate concern to the law and the information contained in a clinical diagnosis" (emphasis added).[89]

Then, if the reading attorneys have still not yet gotten the point, the editors go on to once again hammer home the specific point that *"it is precisely because impairments, abilities, and disabilities vary widely within each diagnostic category that the assignment of a particular diagnosis does not imply a specific level of impairment or disability"* (emphasis added).[90]

Note then that attempts made by plaintiff experts – or life care planners – or economists – or vocational rehabilitation specialists – to assign "a specific level of impairment of disability" that is in any substantial way contingent upon the assignment of a "particular diagnosis" to a specific individual frankly appeared to be invited by the manual writers to invoke *Daubert* and try to preclude admissibility of such testimony....

Finally, if this is not enough, the authors of *DSM-5* specifically state that the "use of DSM-5 to assess for the presence of a mental disorder by non-clinical, non-medical or otherwise insufficiently trained individual individuals" – Attorneys? Life care planners? Psychologists? Social workers? – is not advised. *"Non-clinical decision makers* should also be *cautioned that a diagnosis does not carry any necessary implications regarding the etiology or causes of the*

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[89] American Psychiatric Association, Desk Reference to the Diagnostic Criteria from DSM-5 (Arlington, VA: American Psychiatric Association, 2013) at 13.

[90] American Psychiatric Association, Desk Reference to the Diagnostic Criteria from DSM-5 (Arlington, VA: American Psychiatric Association, 2013) at 14.

individual's mental disorder" or the individual's degree of control over behaviors that may be associated with the disorder" (emphasis added).[91]

♦**PRACTICE NOTE:** Comments like the above clearly – in cases of traumatic brain injury even when criteria for cognitive disorders are met – must along with their experts right from the beginning of the case -- take into account this warning about the use of any *DSM-5* diagnosis as **not** carrying any "necessary implications regarding the etiology or causes of the individual's mental disorder, the individual's degree of control over behaviors that may be associated with the disorder."

Taken as a whole then, and comparing *DSM-5* with its predecessor, it is at least one of the editors' opinion that this manual frankly overall makes the process of proving "causation" with the help of expert testimony, establishing permanency and disability, and even establishing the validity of a late onset cognitive disorder that does have its origins in traumatic brain injury will be far more difficult under *DSM-5* than it has been in the past under DSM-IV and *DSM-IV-TR*.

[91] American Psychiatric Association, Desk Reference to the Diagnostic Criteria from DSM-5 (Arlington, VA: American Psychiatric Association, 2013) at 14.

Consequently, plaintiff attorneys will be well advised to literally invest in a far more complete "triaging" process and neurodiagnostic screening involving multiple disciplines including neurology, neuropsychology, neuroimaging – and neuropsychiatry – than this examiner has seen employed during nearly forty years of consulting with plaintiff attorneys.

Defense counsel similarly when faced with settlements demands at any early stage in the case usefully would consider the importance of being willing to pay for treatments that result in resilience and recovery as payment for treatments that have been established as likely accelerating recovery and returning plaintiff litigants who present as disabled to the workforce by making vocational rehabilitation arrangements a mandatory part of any settlement discussion.

§12:4.14 The other 800 pound gorilla in the room that DSM-5 also leaves out: the "unused" brain

As comprehensive as *DSM-5* is, there is one critically important clinical as well as forensic issue that *DSM-5* ignores: what a recent journalist writing in the August 3, 2014 *New York Times* described "*Three Myths About the Brain.*"[92]

This explains what probably is one of the most important – yet consistently ignored by plaintiff and defense attorneys alike – the "popular myth" that "we use only a small portion – 10 percent is the figure most often cited – of our brain. An early incarnation of the idea can be found in the work of two different 19th century French neurophysiologists, Pierre Flourens and Brown, Sequard. The latter at 1876 "wrote of the powers of the human brain 'that very few people develop very much, perhaps nobody quite fully....

"The newly released movie, 'Lucy" about a woman who has acquires super human abilities by tapping the full potential of her brain, is only the latest and most prominent expression of this idea."[93]

The writer goes on to state that "myths about the brain typically arise in this fashion: An intriguing experimental result generates a speculative

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[92] Hickok, Three Myths About the Brain, The New York Times, 9 (August 3, 2014).
[93] Hickok, Three Myths About the Brain, The New York Times, (August 3, 2014) at 9.

interpretation that a small part of the lobe is sufficient (that is later over extended or distorted) will use only 10% of our brain, the character ultimately infiltrates pop culture and takes on a life of its own, quite independent from the facts which spawned it."[94]

He then discusses two other myths, including "the idea that the left and right hemispheres of the brain are fundamentally different" although the writers claims that "the fact is that the two sides of the brain are more similar to each other than they are different, and both sides participate in most tasks, especially complex ones like acts of creativity and peaks of logic."[95]

He then goes on to describe a "new myth" which is "the myth of mirror neurons, or the idea that a certain class of brain cells discovered in the Macaque monkey is the key to understanding the human mind....it has been claimed that humans have their own mirror system (most likely true), which not only allows us to understand actions but also underlies a wide range of our mental skills – language, imitation, empathy – as well as disorders, such as autism in which the systems is said to be dysfunctional."[96]

Yet "the motor neuron claim has escaped the lab and is starting to find its way into popular culture.... But as with older myths, this speculation of course

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[94] Hickok, Three Myths About the Brain, The New York Times, (August 3, 2014) at 9.
[95] Hickok, Three Myths About the Brain, The New York Times, (August 3, 2014) at 9.
[96] Hickok, Three Myths About the Brain, The New York Times, (August 3, 2014) at 9.

has connection to the data. We now recognize that physical movements themselves uniquely determine our understanding of them." [97]

The significance of all of the above? Far more than the editors have seen attorneys on either side acknowledge.

The "10% myth" holds great potential pitfalls for plaintiff attorneys as well as great temptations to over-simplify and misuse it by defense counsel.

Simply put, assuming the brain has one hundred billion neurons, and we use – only! – ten billion neurons – how many neurons need to be killed or even damaged before any kind of true *functionally limiting and clinically significant permanent damage results*? A hundred thousand neurons? A million neurons? A billion neurons? The reality is that no one really knows.

The legal significance of this? Quite simply that even establishing beyond all doubt that some brain cells have been damaged as a result of a traumatic injury, with the areas of damage being documented quite clearly by all available clinical and research tools (MRI, CAT scans, diffusion tensor imaging, PET scans, neuropsychological tests), the critical legal question remains basically – so what? If it takes killing off more than a billon neurocells to link these findings with actual "real world, real time" functional disabilities, the credibility of all of these data call into question *if they are used by plaintiff attorneys to try to establish causal connections between the presence of these data abnormalities*

[97] Hickok, Three Myths About the Brain, The New York Times, (August 3, 2014) at 9.

on one hand, specific "causation" from traumatic brain injury on the other, and permanency and disability as well?

At the same time, if we do have 90% of our brain neurons – 90 billion brain neurons as well as corresponding synapses – what is the purpose of that reserve pool of neurons?

Since once must speculate here since there is no real scientific proof one way or the other, the editors rely on a variation of assumed common sense – that these neurons are in the brain for a purpose, and that a likely purpose at least as a hypothesis is to provide a pool of resilience – not just an area for future brain or evolution.

In other words, if 90% of the brain's neurons are being held in reserve at the present time to be recruited for brain resilience, there will be profound implications for both sides of any brain injury case:

1. From the defense perspective, if and when it is scientifically demonstrated – even more than presently – that these brain cells can be recruited by dedifferentiation, by providing areas of functional reserve, etc. – and plaintiff claims that "hard" findings on neuroimaging necessarily predict permanency can be totally discounted by jurors.

   Even, for example, the proving of various encephalomalacia – brain softening or "holes in the brain" – itself may not necessarily

establish permanent brain functional damage if other areas of the brain can be shown to take on the functions of these damaged areas much like after a heart attack although parts of the heart tissue are destroyed "collateral circulation" around the damaged areas occurs that becomes actually the scientific basis of the cardiac rehabilitation.

2. So too why could not successful cognitive retraining be explained as in part a function of recruiting of undamaged cells to take on functions of permanently destroyed ones?

At the same time, as – the editors believe – scientific links involving the functioning of the "silent majority" of the 90% of brain tissue in functional resilience likely would impose important financial as well as legal duties on insurers to pay for and plan for paying for as extensive a period of treatment that would maximize the recruitment of such currently claimed inactive brain cells into the rehabilitation process.

3. To put this in different terms, defense as well as plaintiff life care planners would need to plan for the costs and length of time that neurorehabilitation and cognitive remediation techniques and treatments are used – based on forthcoming experimental data

and clinical experience that describes the conditions under which brain resilience can and should be maximized.

This also has advocatability to the second "myth" described in the *New York Times* article: The claim that the "right and left sides of the brain" are "fundamentally different. If they are not, why then could not each side of the brain as a whole be trained to take on functions of the other side if there is damage?

If research demonstrates this then another corollary that defense counsel must be aware of and plaintiff counsel must explore is whether or not there is demonstrably substantial damage to the corpus callosum – the part of the brain that links the two hemispheres.

Finally, to the extent that "mirror neurons" are demonstrated to be present and functionally important to human beings, these too would at least in principle provide another pool of potential resilient neurons that could lead to the need to pay for clinical treatments that maximize the improvement of such neurons into the rehabilitation process.

♦**PRACTICE NOTE:** Wise plaintiff and defense counsel will, even from the very start of cases, bear in mind the likelihood that their cases will be settled. One of the keys to such settlement would be the increasing recognition on both sides about the need to define – and "sell" to plaintiff litigants as well as to insurance adjustors – the

concept that even established brain injuries do not necessarily result in global permanent functional impairment – as well as the corresponding concept that treatment to prevent global permanent impairment must be incorporated into the therapeutic and life care plans made by the experts and attorneys on both sides to reach some type of mutual understandings on these complex issues for settlement purposes.

§12:4.40 New neuroscientific tools that should be used as early as possible when choosing clients: diffusion tensor imaging

Mr. Bruce Stern in the prior edition of this Supplement wrote a clear, thorough and comprehensive review of the recent series and "The role of diffusion tensor imaging and diagnosing and treating brain injuries – admissibility under *Daubert*."[98]

He noted that DTI "can" be used "to map out the white matter portion of the brain" because in a mild case "water can move a significant distance in the brain over various types of tissue components, doctors can track their movements to determine the layout of certain parts of the brain with better accuracy than a standard MRI. The movement of the molecules is anisotropic – that is, it is not the same in all directions."[99]

This type of anisotropism occurs when "the presence of obstacles limit molecular movement in some directions" – with Mr. Stern carefully using the qualifying phrase "such as" in "the white matter and the brain."

Mr. Stern goes on carefully to use the word "can" before proceeding in his discussion of the implications of DTI: because DTI can "detect" this type of anisotropism it "can" be "used to help diagnose persistent post [concessional]

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[98] Stern and Brown, Litigating Brain Injuries 2013-2014 Supplement, §6:12:30 @ 76.
[99] Stern and Brown, Litigating Brain Injuries 2013-2014 Supplement, §6:12:30 @ 76.

syndrome (PCS)," a syndrome which indeed does as he put it "plagues many TBI victims." He then notes that it "can" result "in behavioral, cognitive and somatic problems" plaguing as many as "15% PCS victims" according to the literature.[100]

He notes that "researchers" do "believe" that persistent post-concussional syndrome "may" be "predominantly caused by diffuse axonal injury" within the white matter of the brain – highlighting the potential importance of "studying" diffuse axonal injury – a process which "may" lead to "breakthroughs" in research involving mild traumatic brain injury. Overall then brain DTI is considered "a promising tool" to study the diffuse axonal injury.[101]

Indeed, review of the recent neurological and neuroradiological literature is filled with examples of studies that underscore the real potential clinical as well as research – and implicitly future legal – uses of diffusion tensor imaging in providing data *consistent with* traumatic brain injury.

Typical of such research was an article that was prepared on-line and then republished in the *Journal of Neurology* by J.Y. Wang and Associates.[102]

The study demonstrated that within two days after a traumatic brain injury, DTI "damage" to the white matter were deemed to be present in multiple

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[100] Stern and Brown, Litigating Brain Injuries 2013-2014 Supplement, §6:12:30 @ 76.
[101] Stern and Brown, Litigating Brain Injuries 2013-2014 Supplement, §6:12:30 @ 76.
[102] Wang, et. al., Longitudinal Changes of Structural Connectivity and Traumatic Axonal Injury, 27 Neurology, 818-826 (2011); with information deemed "current" as of March 4, 2003. See also Kline and Bigler, White Matter in Traumatic Brain Injury: Dys- or Disconnection?" 27 Neurology at 810.

areas including the "corpus callosum, cingulum, cerebral peduncular, in the inferior part of the occipital lobe, and elsewhere.

A recent article published on-line on February 11, 2014, by Sharp and colleagues, specifically investigated connections between two different networks "the salient network and the default mode network" of important information processing. They "highlight" how such structural damage – and note the vilification here – "might" interact with inflammatory and neurodegenerative processes involved in, amongst other things, Alzheimer's Disease and chronic traumatic encephalopathy.[103]

In another on-line article and published in *Science Daily* on 7/16/14 by the American Academy of Neurology confirmed the basic principle that "even" mild traumatic injury "may" cause "brain damage and thinking and memory problems," again focusing on white matter. Test scores and verbal letter fluency, a test of thinking and memory skills, were 25% lower than in healthy people. This was strongly related to the measures of white matter damage.

Note at the same time that "one year after the injury, the scores on thinking and memory tests were the same *for the people with brain injuries and no injuries*, but there were *still areas of brain damage in people with injuries*" (emphasis added).

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[103] Sharp, et al, Network Dysfunction After Traumatic Brain Injury, published on-line in X. Nature Reviews, Neurology 156-166 (2014).

Note that the study author, Andrew Blamire, Ph.D., of New Castle University in the United Kingdom did conclude that "*these results show that thinking skills were recovering over time....the areas of brain damage were not as widespread across the brain as previously, but focused concern areas of the brain*" (emphasis added) – which in turn "*could indicate that the brain was compensating for the injuries*" (emphasis added). [104]

At the same time and once again demonstrating the limits of white matter studies including diffusion tensor imaging in demonstrating, let alone proving, "causation" between the imaging findings and the presence of traumatic brain injury as the reason was another study published on February 12, 2014 that demonstrated individuals who were not noted to be brain damaged but rather sufferers of bipolar I disorder who had psychotic features had, compared with controls "*significant reductions of meaned fractional anisotropy values along the body of the splenium of the corpus and left cingulum, and the interior part of the left arcuate fasciculus....patients with psychotic features had a lower mean generalized fractional anisotropy value than along the outer body of the corpus callosum" (emphasis added).*[105]

♦**PRACTICE NOTE:** Note that all of these studies once again showed that, while diffusion tensor imaging clearly can in many cases be a

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[104] Sarrazin, et. al., A Multicentered Tractography Study of Deep White Matter Tracts in Bipolar I Disorder: Psychotic Features and Interhemispheric Disconnectivity," 71 JAMA Psychiatry 388-391 (2014).
[105] Sarrazin, et. al., A Multicentered Tractography Study of Deep White Matter Tracts in Bipolar I Disorder: Psychotic Features and Interhemispheric Disconnectivity," 71 JAMA Psychiatry (2014) at 388.,

sensitive indicator that can detect the presence of mild traumatic brain injury, it is neither specific for doing so nor justified in being used either to prove specific "causation" on one hand or "permanency" of brain injury on the other.

Partly as a result of this current state of the art, researchers are trying to focus more specifically on the presence of there being parts of the brain that would not demonstrate damage but for traumatic brain injury being a likely cause.

One such area is that of cerebral microbleeds (CMBs).

One recent study published on-line on 7/11/14 from radiologists from radiologists in China discussed "diffuse axonal injury after traumatic cerebral microbleeds: evaluation of imaging techniques."[106]

However, once again it was noted that even the presence of these and associated hemosiderin were *not specific* for traumatic brain injury because these lesions also are indeed "primarily seen in cerebral amyloid angiopathy and hypertensive vasculopathy."

One of, if not the most comprehensive (in 2012) transcripts describing the current state of the art of "Advanced Neuroimaging and Traumatic Brain Injury" appeared in the September, 2012 issue of *Seminars in Neurology*.[107]

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[106] Jiu, et. al., (12) nrronline.org/article, 1222-1230 (2014).

While praising the fact that "the growing body of evidence that FA [fractional anisotropy, the foundation of DTI findings] relied that biologically valid and functionally relevant assessment of white matter integrity" is such that indeed "suggests" that "clinical implementation of DTI is rapidly approaching," even having been used by the United States military in Afghanistan to detect traumatic axonal injury "in military personnel exposed to blast-related head trauma" but nonetheless were a number of barriers to the full acceptance of DTI findings with problems being "broadly characterized as pertaining to aquisitional data post-processing." [108]

Specifically, the authors note the following problems that *in its current state* diffusion tensor imaging being able to be used as a reliable instrument, even regarding clinical diagnosis (let alone as a standalone technique being able to be used in making any statements about "causation"):

1. "From a data acquisition standpoint, an important methodological issue is that of reproducibility of a quantitative anisotropy and diffusivity values. Both hardware (i.e., the MRI scanner) and software (i.e. the pulse sequence) may affect the characterization of the diffusion tensor.

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[107] Edlownwu, Advanced Neuroimaging in Traumatic Brain Injury, 32 (4) Seminars in Neurology 374-400 (2012); http:\\www.ncvi.lmn.nih.gov/pmc/articles/PMC37794691-35 (8/5/2014), part of NIH Public Access Author Manuscript available in PMC format on 1/29/14.

[108] Edlownwu, Advanced Neuroimaging in Traumatic Brain Injury, 32 (4) Seminars in Neurology 374-400 (2012); http:\\www.ncvi.lmn.nih.gov/pmc/articles/PMC37794691-35 (8/5/2014), part of NIH Public Access Author Manuscript available in PMC format on 1/29/14 (PMC I.D.: pmc3779469, NIH, MSID: NIHMSO5421); online version at 6.

"With regard to hardware, the degree to which a particular type of MRI scanner alters quantitative diffusion measurements, even using the same magnetic field strength and the same DTI sequence has yet to be determined.

"Potential effects of the scanner on the diffusion measurements include inconsistent shimming, gradient miscalibration, and gradient non-linearity, each of which may lead to signal attenuation and/or inconsistent measures."[109]

2. "As a result of this concern for scanner-related differences in DTI measurements of anisotropy, some investigators have argued that anisotropy measurements from TBI patients should be normalized to anisotropy measurements acquired on controls using the same MRI scanner.

"Clearly, the need to normalize data on each scanner would represent a major barrier to widespread clinical utilization of DTI scalar metrics, and therefore, the effect of scanner type and magnetic field strength on DTI quantitative measurements is currently an active area of research.

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[109] Edlownwu, Advanced Neuroimaging in Traumatic Brain Injury, 32 (4) Seminars in Neurology 374-400 (2012); http:\\www.ncvi.lmn.nih.gov/pmc/articles/PMC37794691-35 (8/5/2014), part of NIH Public Access Author Manuscript available in PMC format on 1/29/14 (PMC I.D.: pmc3779469, NIH, MSID: NIHMSO5421); online version at 8-9.

"Even if standardized hardware and software are ultimately used in DTI analyses, white matter anisotropy may still vary with gender and age, and therefore normalization according to these demographic characteristics may be necessary.

"Thus, the utility of DTI scalar metrics in prognosticating outcomes on an individual patient basis is still up for debate. Of the various scalar metric, FA currently appears most useful for diagnosis, prognosis, and exploring mechanisms of brain injury and recovery."[110]

3. "Another important consideration in the data acquisition stage of DTI is the number of directional diffusion gradients that are used to measure FA.

Although DTI data can be acquired with as few as 6 diffusion-encoding directions, Jones demonstrated that at least 20 directional measurements may be needed to generate accurate, reproducible measures of FA."[111]

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[110] Edlownwu, Advanced Neuroimaging in Traumatic Brain Injury, 32 (4) Seminars in Neurology 374-400 (2012); http:\\www.ncvi.lmn.nih.gov/pmc/articles/PMC37794691-35 (8/5/2014), part of NIH Public Access Author Manuscript available in PMC format on 1/29/14 (PMC I.D.: pmc3779469, NIH, MSID: NIHMSO5421); online version at 7.

[111] Edlownwu, Advanced Neuroimaging in Traumatic Brain Injury, 32 (4) Seminars in Neurology 374-400 (2012); http:\\www.ncvi.lmn.nih.gov/pmc/articles/PMC37794691-35 (8/5/2014), part of NIH Public Access Author Manuscript available in PMC format on 1/29/14 (PMC I.D.: pmc3779469, NIH, MSID: NIHMSO5421); online version at 8-9.

4. "Adding further complexity to the question 'what is the right DTI sequence to use clinically' are the results of recent studies showing that even more diffusion directions (i.e. >30) may be needed to produce reliable diffusion tensor tractography results."[112]

5. "Patient motion during a DTI scan can significant alter FA measurements, which argues for minimizing the time of data acquisition whenever possible. Reduction of DTI data acquisition time is currently an active area of investigation that will be important to facilitating clinical implementation."

6. "Methodological considerations during the statistical analysis stage of evaluating DTI metrics have an equally substantial impact on the validity of the data. The mean FA within a white matter bundle can be measured using a variety of methods, including manual tracing of a region of interest (ROI), automated segmentation of an ROI and voxel-based analysis.

"Manual ROI placement has been used frequently in DTI studies of patients with TBI and in patients with severe TBI this approach may be more feasible than template-based

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[112] Edlownwu, Advanced Neuroimaging in Traumatic Brain Injury, 32 (4) Seminars in Neurology 374-400 (2012); http:\\www.ncvi.lmn.nih.gov/pmc/articles/PMC37794691-35 (8/5/2014), part of NIH Public Access Author Manuscript available in PMC format on 1/29/14 (PMC I.D.: pmc3779469, NIH, MSID: NIHMSO5421); online version at 8-9.

approached, because acute tissue shifts and chronic atrophy may preclude automatic segmentation of white matter tracts.

"However, manual tracing of white matter ROIs can be time consuming and requires neuroanatomic expertise, which limits the feasibility of this approach in clinical practice." [113]

7. "Both manual and automated segmentation of white matter ROIs are susceptible to a variety of errors, including volume-averaging of FA in voxels that contain both white matter and nearby non-white matter structure."

8. "Voxel-based analysis may be performed more rapidly and provides the benefit of increased sampling (i.e., whole-brain voxel-basis analysis), but this technique is susceptible to false positive findings and therefore requires correction for multiple comparisons." [114]

9. When a three dimensional variation of diffusion tensor imaging is used, diffusion tensor tractography which does provide three-dimensional analyses in the human brain of living beings, here the

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[113] Edlownwu, Advanced Neuroimaging in Traumatic Brain Injury, 32 (4) Seminars in Neurology 374-400 (2012); http:\\www.ncvi.lmn.nih.gov/pmc/articles/PMC37794691-35 (8/5/2014), part of NIH Public Access Author Manuscript available in PMC format on 1/29/14 (PMC I.D.: pmc3779469, NIH, MSID: NIHMSO5421); online version at 8-9.

[114] Edlownwu, Advanced Neuroimaging in Traumatic Brain Injury, 32 (4) Seminars in Neurology 374-400 (2012); http:\\www.ncvi.lmn.nih.gov/pmc/articles/PMC37794691-35 (8/5/2014), part of NIH Public Access Author Manuscript available in PMC format on 1/29/14 (PMC I.D.: pmc3779469, NIH, MSID: NIHMSO5421); online version at 8-9.

> authors caution that "regardless of which ROI methodology or tractography algorithm is being used, it is important to emphasize that tractography is an inferential technique in which white matter tracts are reconstructed on the basis of water diffusion measurements. The number of axons that corresponds to a single fiber tract remains unknown..... All tractography results the editors predict with caution given the inherent limitations of the technique."[115]

The authors conclude that "despite *preliminary* evidence that diffusion tensor tractography may be used to detect TAI (Tract Axonal Injury) and predict outcomes in patients with TBI, major obstacles and challenges to clinical implementation remain."[116]

1. "The results of any tractography analysis depend significantly upon the data acquisition and post-processing parameters, and therefore tractography results must always be interpreted in the context of the analytic techniques that are being utilized."

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[115] Edlownwu, Advanced Neuroimaging in Traumatic Brain Injury, 32 (4) Seminars in Neurology 374-400 (2012); http:\\www.ncvi.lmn.nih.gov/pmc/articles/PMC37794691-35 (8/5/2014), part of NIH Public Access Author Manuscript available in PMC format on 1/29/14 (PMC I.D.: pmc3779469, NIH, MSID: NIHMSO5421); online version at 8-9.

[116] Edlownwu, Advanced Neuroimaging in Traumatic Brain Injury, 32 (4) Seminars in Neurology 374-400 (2012); http:\\www.ncvi.lmn.nih.gov/pmc/articles/PMC37794691-35 (8/5/2014), part of NIH Public Access Author Manuscript available in PMC format on 1/29/14 (PMC I.D.: pmc3779469, NIH, MSID: NIHMSO5421); online version at 9.

2. "Several of those mythological factors have been discussed above in the section on DTI, but there are additional considerations that are unique to diffusion tensor tractography."

3. "The potential confounding effect of extracellular edema on DTI measurements of FA and diffusion tensor tractography measurements of white matter connectivity can be more broadly be considered in the context of current debates about the optimal timing of data acquisition. If DTI scalar metrics and diffusion tensor tractography are to be integrated into clinical practice, clinicians will need to consider how the dynamic pathophysiological changes associated with TAI will affect data interpretation."

    a. "In the acute stage of TAI, white matter FA changes are variable with studies showing both increases and decreases in FA. These erogenous FA changes in the acute stage of TAI may be attributable to the differential effects on intracellular and extracellular edema on FA."

    b. "In the former, FA may increase, since more water molecules are trapped in the intracellular compartment where diffusion preferentially occurs along the axis of the axon."

    c. "In the latter, FA may decreases since more water molecules are located in the extracellular compartment, where diffusion

is more isotropic (non-directional). Given that complete axonal transaction and incompletely, non-disruptive axonally injury do not have clear distinguishable profiles of intracellular and extracellular edema, the heterogeneous FA responses observed in the acute sage of TAI can make outcome prediction difficult."

d. "In other words, since the pathophysiological and radiologic profiles of complete (irreversible) and incomplete (reversible) TAI in the human brain are incompletely understood, the ate of any region of white matter affected by TAI is difficult to determine in the acute period. Moreover, individual patients may contain multiple TAI lesions with variable increases and decreases in FA, further complicating the assessment of individual lesions."

The authors conclude that chronic rather than acute or sub acute traumatic axonal injury that "appears to have a more predictable effect on FA, with studies consistently showing that a decline in FA correlates with poor neurocogntive test performance for GOSE [Glasgow Outcome Scale-Extended] scores." [117]

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[117] Edlownwu, Advanced Neuroimaging in Traumatic Brain Injury, 32 (4) Seminars in Neurology 374-400 (2012); http:\\www.ncvi.lmn.nih.gov/pmc/articles/PMC37794691-35 (8/5/2014), part of NIH Public Access Author

Consequently, the authors conclude that it is "possible" that diffusion tensor imaging and diffusion tensor tractography "will provide more clinically relevant and readily interpretable data in the sub-acute than in the acute period." [118]

In any event, the authors concluded that ultimately clinicians [and attorneys surely, the editors note] will need to balance their competing goals of obtaining advanced imaging data early enough to guide diagnosis, prognosis, and therapeutic decision-making and acquiring the data late enough that the confounding effects of acute edema are minimized."[119]

Finally, the authors talk about a variety of new cutting edge techniques including High Angular Resolution Diffusion Imaging (HARDI) tractography, one variation of which "provides perhaps the greatest potential for clinicians to obtain biologically valid, quantitative metrics of white matter connectivity in patients with TBI."

Manuscript available in PMC format on 1/29/14 (PMC I.D.: pmc3779469, NIH, MSID: NIHMSO5421); online version at 10.

[118] Edlownwu, Advanced Neuroimaging in Traumatic Brain Injury, 32 (4) Seminars in Neurology 374-400 (2012); http:\\www.ncvi.lmn.nih.gov/pmc/articles/PMC37794691-35 (8/5/2014), part of NIH Public Access Author Manuscript available in PMC format on 1/29/14 (PMC I.D.: pmc3779469, NIH, MSID: NIHMSO5421); online version at 10.

[119] Edlownwu, Advanced Neuroimaging in Traumatic Brain Injury, 32 (4) Seminars in Neurology 374-400 (2012); http:\\www.ncvi.lmn.nih.gov/pmc/articles/PMC37794691-35 (8/5/2014), part of NIH Public Access Author Manuscript available in PMC format on 1/29/14 (PMC I.D.: pmc3779469, NIH, MSID: NIHMSO5421); online version at 10.

However, even these techniques were carefully noted to be having applications still "in its infancy" with "substantial work remaining before the approaches are validated for clinical use."[120]

Mr. Stern in doing his review of the scientific literature does note that diffusion tensor imaging can have positive findings in many conditions in addition to traumatic brain injury. He notes that "examples include multiple sclerosis, leukoencephalopathy, Wallerian degeneration," Alzheimer's Disease, subcortical infarcts, and a type of arteriopathy.[121]

The technique also "could be used to assess pain maturation in children, newborns, or premature babies." DTI data also has "been recorded in left frontal regions in schizophrenic patients and in left temporal-parietal regions in dyslexic adults, in "brain tumor grading, trauma, hypertensive hydrocephalus, AIDS, eclampsia, leukoaraiosis, migraine and the spinal cord in animals and humans."[122]

He notes that doctors "may" be able to make "detection" of mild traumatic brain injury also "more accurate and efficient to the expanded use of DTI," with him citing medical literature supporting this view[123] including

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[120] Edlownwu, Advanced Neuroimaging in Traumatic Brain Injury, 32 (4) Seminars in Neurology 374-400 (2012); http:\\www.ncvi.lmn.nih.gov/pmc/articles/PMC37794691-35 (8/5/2014), part of NIH Public Access Author Manuscript available in PMC format on 1/29/14 (PMC I.D.: pmc3779469, NIH, MSID: NIHMSO5421); online version at 10-12.

[121] Stern and Brown, Litigating Brain Injuries 2013-2014 Supplement, §6:12:30 @ 77.

[122] Stern and Brown, Litigating Brain Injuries 2013-2014 Supplement, §6:12:30 @ 77.

[123] Stern and Brown, Litigating Brain Injuries 2013-2014 Supplement, §6:12:30 @ 77-78.

specifically recently in regard to fractional anisotropy reductions in the corpus callosum.

At the same time, note that he carefully uses the words "hypothesized" and the qualifications when he talked about *potential* links between DTI findings and the likelihood "that the microstructure brain damage in MTBI patients can" be detected with diffusion tensor imaging. Note that he characterized in the conclusions of one of the researchers that found the evidence was "strong" the conclusion was that DTI "can" detect "micro structural damage in the white matter of MTBI patients" with his highlighting it's "potential" use in clinical settings.[124]

He also goes on to cite the data indicating that on one hand "there was a great variability in DTI" but that on the other the data "nonetheless" were "striking in that they all suggest" that "radiological evidence supports more unsettled brain injuries than MTBI."[125]

Finally, he cites a 2013 article on the use of DTI in studying traumatic brain injury as presenting "evidence" for the "association" between "elevated axial diffusivity, and the processing speed and executive function in the TBI group providing a snapshot of white matter track recovery and its relationship with neuropsychological variables in chronic TBI."[126]

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[124] Stern and Brown, Litigating Brain Injuries 2013-2014 Supplement, §6:12:30 @ 79-80.
[125] Stern and Brown, Litigating Brain Injuries 2013-2014 Supplement, §6:12:30 @ 84.
[126] Stern and Brown, Litigating Brain Injuries 2013-2014 Supplement, §6:12:30 @ 86.

The clinical conclusion one reasonably can draw from all of the above?

1. That diffusion tensor imaging is indeed a promising *research* tool;
2. That diffusions tensor imaging *can* be a positive finding for mild traumatic brain injury, including specifically the "callosum" as well elsewhere;
3. That DTI studies have *"potential use for this in clinical settings* – and as a consequence in *ultimately forensic setting*";
4. That DTI findings are not *specific to traumatic brain injury but can be positive in a host of other conditions; and*
5. That notwithstanding the above, and as discussed later in this supplement regarding prion disease the ultimate goal of medicine is to take into account and use all data that had potential usefulness, it is completely reasonable from a clinical basis for evaluating clinicians to benefit from the use of diffusion tensor imaging to see if the DTI findings do or do not "match up" with the other clinical and radiological findings uncovered during the assessment of mild traumatic brain injury.[127]

♦**PRACTICE NOTE:** Note then that although the finding of abnormal diffusion tensor imaging has *not*, even from a clinical let alone legal "stand alone" method of proving a clinical, let alone legal, unique

[127] Stern and Brown, Litigating Brain Injuries 2013-2014 Supplement, §6:12.40 @ 86.

1:1 causal connection between abnormal DTI white matter findings and the previous presence of a mild traumatic brain injury, the data nonetheless are extremely useful to a clinician in determining whether or not the diffusion tensor imaging findings add to or subtract from the reasonable medical probability/likelihood that a true clinical "causal connection" exists between the DTI data and the likelihood of a previous mild traumatic brain injury having been the specific cause of the patient's current clinical condition.

In this regard, the editors suggest that it would be extremely helpful for plaintiff attorneys in particular to use DTI *as part of their case screening and selection assessments.* A negative diffusion tensor imaging study would be highly consistent with a lack of white matter injury and thus, as physicians should use diffusion tensor imaging to increase or reduce their assessment of the clinical likelihood of a "causal connection" between the findings and the existence of mild traumatic brain injury, so should attorneys use DTI findings to increase or decrease their willingness to take on a mild traumatic brain injury case in the first place.

Positive DTI findings on the other hand should be used to increase the competence and aggressiveness with which plaintiff attorneys pursue a potential mild traumatic brain injury case.

> Finally, whether or not an attorney takes on a client presenting with mild traumatic brain injury symptoms and/or claims in part should be determined by the plaintiff attorney's initial "triaging" assessment about what likely will happen if defense counsel contest the admissibility of the diffusion tensor imaging data and/or if admissible, its credibility.

These issues in the context of another risk of using DTI data that frankly this editor (JB) has not yet seen being given the concern it warrants by plaintiff attorneys in particular: the "Trojan horse" phenomena of defense attorneys being perfectly content not to fight diffusion tensor imaging on the admissibility front but rather to get plaintiff attorneys into making exaggerated claims so that DTI specificity and/or to establish "causal connections" between the findings and the cause of those findings specifically being useful in "proving" connections between the data and mild traumatic brain injury.

The likelihood that defense counsel adopt this "Trojan horse" approach in the editors' view is increased by the likelihood that illegal barriers to admissibility of diffusion tensor imaging data increasingly will fall.

As Mr. Stern rightly pointed out in the previous edition discussing "lowered diffusion tensor imaging and diagnosing and treating brain injuries – admissibility

under *Daubert*[128] although diffusion tensor imaging uses "a relatively fledging technology" and "there is as yet little legal precedent in the United States" regarding the admissibility of DTI, nonetheless "there have been several cases in which courts had admitted testimony into evidence in which DTI *was one of the methods* that an expert utilized to determine whether a person was suffering from a traumatic brain injury" (italics added).[129]

Mr. Stern goes on to cite a variety of cases in Mexico, Colorado, Florida and elsewhere in which the *Daubert* challenges to the admissibility of DTI were defeated.[130]

At the same time, the determination that, as noted by Mr. Stern, Board-certified radiologists testify "that DTI studies are definitely accepted by practicing radiologists and are depended upon by physicians who order them *to assist* in diagnosing and treating traumatic brain injury" also contain the statement that diffusion tensor imaging, if it's available, is helpful in *many indications, including, but not limited to, acute and chronic neurological deficits, headache, mental status change suspicious of non-accident trauma*" as well as "post-traumatic conditions," *amongst others* (emphasis added).[131]

It is important to note that Mr. Stern gave a complete description of *a* Colorado case in which diffusion tensor imaging was found to be admissible

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[128] Stern and Brown, Litigating Brain Injuries 2013-2014 Supplement, §6:12.40 @ 87.
[129] Stern and Brown, Litigating Brain Injuries 2013-2014 Supplement, §6:12.40 @ 88.
[130] See Stern and Brown, Litigating Brain Injuries 2013-2014 Supplement, §6:12.40 @ 89-90.
[131] Stern and Brown, Litigating Brain Injuries 2013-2014 Supplement, §6:12.40 @ 89-90.

that involve the court expressing "serious concerns about the appropriateness of diagnosing mild traumatic brain injury as the cause of the abnormality *based solely upon the presence of abnormalities of revealed by the technology. It was undisputed that some, if not all, of the abnormalities revealed by the testing could result from many causes*" (emphasis added).[132]

"Thus, the court found that it was the intention of the plaintiff to elicit from Dr. Orrison an opinion that the presence of these abnormalities, *without more, is diagnostic in mild traumatic brain injury, defendants would be permitted to review their motion and in all likelihood his opinion would be disallowed.*

"The court found that the technology had not yet been proven to be of sufficient value as to reasonably exclude other reasonable probable causes" (emphasis added).[133]

At the same time, as Mr. Stern explained, "the court understood that Dr. Orrison's opinion was based *not only on his reading of the diagnostic testing, but coupled with the plaintiff's history. The court noted that this is a common issue that arises in tort cases and that it would be left to the attorneys to address any limitations on cross-examination"* (emphasis added). [134]

Mr. Stern then quite accurately summarized all the available legal implications of the above by concluding that "while DTI cannot *solely* be the

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[132] Stern and Brown, Litigating Brain Injuries 2013-2014 Supplement, §6:12.40 @ 93.
[133] Stern and Brown, Litigating Brain Injuries 2013-2014 Supplement, §6:12.40 @ 92-93.
[134] Stern and Brown, Litigating Brain Injuries 2013-2014 Supplement, §6:12.40 @ 93.

grounds for making a diagnosis of traumatic brain injury, DTI abnormalities, *along with the clinical exam, history and review of medical records* creates a sound basis for the diagnosis" (emphasis added).[135]

The only caveat the other editor of this volume (JAB) has Mr. Stern's summary statement was the words "provides" as opposed to "often will problem – but does not necessarily always provide" a "sound basis for the diagnosis."[136]

This editor also has independently reviewed the neuropsychiatric as well as legal literature related to diffusion tensor imaging, with the neuropsychiatric aspect of such being addressed in the June, 2014 Cumulative Supplement to a book he co-authored with Mark Dotson, *Emotional Injuries: Law and Practice* (Thomson West, 2014) in §19:19 "the use and misuse of newer diagnostic tools."

Here it is noted that, related to the uses of tests now and in the future in court, that "data on specificity and sensitivity of this technique typically have not been included in the articles reviewed, leaving open the question as to whether this technique – like many other neuroradiological techniques that have preceded it – though *sensitive measures of brain injury* are 'probative of the *specific' cause of the abnormalities found*" (emphasis added).[137]

"Indeed, a recent study using diffusion tensor imaging was not done on individuals with traumatic brain injury but rather on children with attention-

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[135] Stern and Brown, Litigating Brain Injuries 2013-2014 Supplement, §6:12.40 @ 93.
[136] Stern and Brown, Litigating Brain Injuries 2013-2014 Supplement, §6:12.40 @ 93.
[137] Dotson and Brown, Emotional Injuries: Law and Practice, 2004 Cumulative Supplement (Eagan, MN: Thomson Reuters) §19:19 at 1048-1049.

deficit/hyperactivity disorder. These studies revealed that, not only are the frontal lobes and cerebellum smaller in patients having this condition, frequently there are also 'abnormalities in the fiber pathways in the frontal cortex, basal ganglia, brain stem and cerebellum' in ADHD children."[138]

Another issue that this examiner has up-to-date never seen addressed either by plaintiff or defense attorneys dealing with diffusion tensor imaging relates to the possibility if not likelihood that, *over time DTI findings consistent with axonal injuries can spontaneously resolve or even disappear.*

To put this in another way, an issue seemingly almost universally ignored by both plaintiff and defense attorneys so far relates to the possibility or even likelihood that, with proper medication, cognitive rehabilitation and other treatment, the white matter abnormalities that all too often are documented *only* right after a traumatic brain injury and never followed up upon by anyone in fact can resolve with proper treatment as a result of *neuroplasticity and treatment effectiveness.*

Note for example recent research done by Manzar Ashtari, Ph.D. that found that the axonal injury/pathway abnormalities in fact have been "less pronounced in children" who have been treated with stimulant medications, compared with those who had not received such treatment. Dr. Ashtari in fact

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[138] Dotson and Brown, Emotional Injuries: Law and Practice, 2004 Cumulative Supplement (Eagan, MN: Thomson Reuters) §19:19 at 1048-1049.

has made a comment – so far ignored by all attorneys and in all court decisions this examiner has reviewed that the results of his studies indeed "*suggest that perhaps the medication is doing something to normalize the brain abnormalities such as remylinating the axons*" (emphasis added).[139]

Dr. Ashtari also had noted that not just his but "other studies into the effects of medication showed that the white matter of the brain increases to close to normal in medicated children.[140]

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[139] See Dotson and Brown, Emotional Injuries: Law and Practice, 2004 Cumulative Supplement (Eagan, MN: Thomson Reuters) §19:19 at 1049.

[140] See Dotson and Brown, Emotional Injuries: Law and Practice, 2004 Cumulative Supplement (Eagan, MN: Thomson Reuters) §19:19 at 1049.

Chapter 13. Pre-Trial Preparations

§13:75 The uses and misuses of video depositions and video testimony

In many states plaintiff counsel have the right to have defense neuropsychiatric and other neurobehavioral examinations videotaped. At the same time, the editors know of no state which permits clinical assessment by "treating testifiers" similarly to be subject to videotaping.

Conversely, it is the editor's experience that defense counsel, perhaps because of the above limitations on videotaping plaintiff expert examinations, increasingly and aggressively are videotaping plaintiff depositions.

Finally, although live in-court testimony is generally viewed in the editor's experience as much better than video deposition testimony, in some cases judicial and/or attorney unwillingness/refusal to reserve (and in the case of the attorneys) paying in advance for trial time that may not be used necessitates *de bene esse* video depositions be used instead of live testimony.

One of the most recent and thorough explorations of at least part of the video deposition issue and the use of same at trial, and one written from the

plaintiff attorney's perspective appeared in the July 15, 2013 issue of the *New York Law Journal.*[141]

The authors make the important point that "information that we both see and hear is processed and retained better than that which we hear alone. Studies have repeatedly shown that people recall sixty-five percent of the information that they have seen and heard after three days, when compared to 10 percent of information that they have only heard."[142]

The authors note that both the federal rules of single procedures [FRCP30(3)3] and New York State's CPLR (§3113(b)] do permit videotaped depositions without any showing of "special circumstances" – "provided appropriate notice is given and the procedure rules are followed."[143]

The question at the outset therefore is "not whether you can take a video deposition, but whether the video deposition is appropriate for the specific case" – and of course "the question is always whether the video will help or hurt your case."[144]

The authors make the point that when a same deposition is presented in video form as opposed to in transcript form to jurors (e.g., when a witness is outside the court's subpoena power or otherwise unavailable) "that same

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[141] Rubinowitz , et al, The Use Of Video Depositions At Trial, 3, 38 The New York Law Journal (July 15, 2013).
[142] Rubinowitz , et al, The Use Of Video Depositions At Trial, 3, 38 The New York Law Journal (July 17, 2013) at 3 citing Mosmann, Communicating With The 21st Century Juror, 10 Vori Dire No. 3 (2003).
[143] Rubinowitz , et al, The Use Of Video Depositions At Trial, The New York Law Journal (July 15, 2013) at 3.
[144] Rubinowitz , et al, The Use Of Video Depositions At Trial, The New York Law Journal (July 17, 2013) at 3.

deposition when presented as a video to the jurors will unquestionably hold their attention for a greater period of time and served to enhance the presentation of proof."[145]

Furthermore, the authors rightly point out the "behavioral" advantages of a video deposition, particularly when "you know, prior to taking the deposition, that your adversary [or the adversary's expert] will likely be overly aggressive, annoying or obstreperous in defending the deposition. Knowing that these tactics will be preserved on tape will cause the defending attorney to modify or curtail such behavior."[146]

Moreover, "rude and nasty conduct will unquestionably work to the attorney's disadvantage."[147]

Another advantage of a videotape is that here there was a clear record of how long it takes witnesses to answer questions. Thus, "the witness who thinks long and hard before each answer might come off as one who is less than candid."[148]

Clearly, "the non-verbal response by a witness who pauses for too long a period of time between the questions and the answers runs the risk of being

[145] Rubinowitz , et al, The Use Of Video Depositions At Trial, The New York Law Journal (July 17, 2013) at 3.
[146] Rubinowitz , et al, The Use Of Video Depositions At Trial, The New York Law Journal (July 17, 2013) at 3.
[147] Rubinowitz , et al, The Use Of Video Depositions At Trial, The New York Law Journal (July 17, 2013) at 3.
[148] Rubinowitz , et al, The Use Of Video Depositions At Trial, The New York Law Journal (July 17, 2013) at 3.

viewed as dishonest"[149] - a risk of course that is assumed whenever any expert for either side or any witness for either side is videotaped.

Although not discussed in the article, the editors note that one of the potent uses of video depositions in brain injury cases is that they clearly reveal to the jury to what extent the plaintiff in particular is objectively demonstrating the kinds of signs of traumatic brain injury that their own treating physicians testify they have – or if these are demonstrably absent.

♦**PRACTICE NOTE**: In cases during which plaintiffs and their attorneys are asserting that the brain injury caused difficulties in information processing, confusion, short-term memory problems, etc. their video deposition testimony would strongly provide jurors with behavioral evidence of the above.

Conversely, plaintiff lack of confusion or – worse for the plaintiff – had been instances in which the plaintiff made statements during defense depositions during which the plaintiff reminds the defense attorneys that he/she had been asked the very same question twenty minutes before.

Even worse than this – when the plaintiff's facial expressions had been captured on the videotape – with the plaintiff clearly demonstrating anger at the defense attorney when they had been

[149] Rubinowitz , et al, The Use Of Video Depositions At Trial, The New York Law Journal (July 17, 2013) at 3.

asked questions to which the plaintiff responds, "What does that question have to do with my case?"

In other words, either way, "truth wins" and the likelihood of that truth being demonstrable to the jury is much greater when there is video deposition testimony that will be used at trial.

Chapter 14. At Trial: Cutting Edge Science on Key Clinical Conditions

§14:7.23.1 Co-Causality: explaining catastrophic emotional responses to only mild traumatic brain injury: posttraumatic stress disorder

One of the most common clinical scenarios in many motor vehicle accidents involves an automobile accident victim suffering a catastrophic combination of orthopedic, pain, psychiatric stress, and brain injury-related conditions.

> ♦**PRACTICE NOTE**: Even when the technical degree of brain injury is "mild" – with defense attorneys particularly in the past having in the editor's experience been involved in cases in which initial CAT studies are negative for brain bleeding, there is a period of loss or alteration of consciousness of no more than a few minutes, there is a period of arguable posttraumatic amnesia of less than twenty-four hours, etc. – the issue of *interactions amongst all of the patients' clinical conditions invariably gets minimized by defense experts.*

Plaintiff experts on the other hand in this editor's experience all too often leave out all of the "pertinent negatives" that cast doubt on the severity of the initial brain injury and/or magnify the interactions involved without citing the

data easily available in the emergency room, paramedic, and medical records describing the patient's Glasgow Coma Scale, neurological status, etc..

What experts on both sides all too often fail to address is the presence or absence of yet another and increasingly recognized clinically complicating factor for many victims of trauma: effects of being in intensive care.

A July 23, 2013 article from *The New York Times* provides one of the best reviews of this problem, one easily understandable by a juror.[150]

The article describes a patient who had been "sedated, intubated, and strapped down" in a Texas hospital" – and while there, she was "[w]racked" by paranoid hallucinations and delusions.

These included her claiming she saw helicopters outside of her window "evacuating patients from an impending tornado, leaving her behind. Nurses plotted to toss her into rough lake waters. She hallucinated and escaped from the I.C.U. – she ducked into a food freezer, herself surrounded by body parts."[151]

The patient despite her recovering physically "for several years" was "tormented" by her stay in the Intensive Care Unit.

Moreover, in addition to difficulty sleeping, she had the kinds of symptoms that one associates with traumatic brain injury – even though she was not seen for that but rather for consequences of "abdominal infections and surgeries": she had difficulty sleeping and "*short-term memory loss*" (emphasis added).

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[150] Hoffman, Nightmares After the ICU, The New York Times D1, D5 (July 23, 2013).
[151] Hoffman, Nightmares After the ICU, The New York Times (July 23, 2013) at D1.

Moreover, she had symptoms consistent with posttraumatic stress disorder. These included her refusing "to go into an ocean or a lake," being "terrified to fly or even travel alone" being unable to talk about it because she was afraid that "either people think you are crazy or you scare them," and having nightmares.[152]

All of this occurred despite the fact that the patient herself was a registered nurse!

The article went on to state that each year up to 35% of the five million patients who stay in an intensive care unit in the United States "may have symptoms of PTSD for as long as two years after the experience, particularly if they had had a prolonged stay due to a critical illness with severe infection or respiratory failure.

"These persistent symptoms include intrusive thoughts, avoidant behaviors, mood swings, emotional numbness and reckless behavior."[153]

An important point for both plaintiff and defense attorneys is the fact that *the nature of the PTSD symptoms did not necessarily correlate with the nature of the initial injuries, which brought the person to the hospital.*

As the author wrote, unlike other PTSD symptoms that are victims of combat, sexual assault, natural disasters, etc. of course "endure flashbacks" –

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[152] Hoffman, Nightmares After the ICU, The New York Times (July 23, 2013) at D1.
[153] Hoffman, Nightmares After the ICU, The New York Times (July 23, 2013) at D1.

"but there's are grounded in *episodes that cannot often be corroborated. What is unsettling for post-I.C.U. patients is that no one can verify their seemingly real horrors; one patient described a food cart in the I.C.U. selling strips of filleted flesh... I.C.U. patients have vivid memories of events that objectively didn't occur" (emphasis added).*[154]

In other words, the validity and reality of posttraumatic stress disorder being caused by the traumatic incident is not *necessarily* invalidated but rather *in some cases* actually strengthened for example by patients recalling "being raped and tortured as opposed to what really happened," with the author giving an example of the true "cause" of the PTSD symptoms being "painful procedures like the insertion of catheters and IV lines."[155]

> ♦**PRACTICE NOTE:** The fact that a patient has posttraumatic stress disorder symptoms that are not specifically related to and *objectively* corroborated by what their actual injuries are does *not* rule out the validity or reality of the accident/injury at issue in the lawsuit being highly legally as well as clinically relevant as nonetheless "causing" the patient's chronic distress and difficulties.

"Certain treatments in the I.C.U. may be grim, but they are essential" with intubation being used as an example. Yet "the feeling of near-suffocation and

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[154] Hoffman, Nightmares After the ICU, The New York Times (July 23, 2013) at D5.
[155] Hoffman, Nightmares After the ICU, The New York Times (July 23, 2013) at D5.

the inability to speak can be nightmarish. Such invasive features may raise the odds that a patient develops PTSD."[156]

Furthermore, the longer the I.C.U. stay, the greater the likelihood of subsequent and I.C.U.-caused posttraumatic stress disorder symptoms.

Moreover, there were data that indicate – in classic "eggshell" fashion – that those who come to the I.C.U. with a prior history of "depression or other emotional difficulties" (emphasis added) *may be at more risk for the appearance of this disorder, as they age:*

Although "elderly patients generally recover more slowly" from these problems, it in fact is the younger patients who "may be more likely to develop symptoms of PTSD. Experts suspect that young patients, further from that natural mortality, are even more shaken by the possibility of unanticipated deaths" – with of course the complicating factor being that gunshots and car crashes "tend to happen to younger people" as well.[157]

Although sedation to manage pain and to keep patients from fighting ventilators is a "crucial" part of I.C.U. care, these same sedatives at the same time in many cases "contribute to the patient's delirium and intense hallucinations, which can return, unbidden for years."[158]

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[156] Hoffman, Nightmares After the ICU, The New York Times (July 23, 2013) at D5.
[157] Hoffman, Nightmares After the ICU, The New York Times (July 23, 2013) at D5.
[158] Hoffman, Nightmares After the ICU, The New York Times (July 23, 2013) at D5.

One example was a rather dramatic one cited in a British medical journal by a British physician, who herself had been intubated after having a reaction to asthma medication. She had hallucinated that there was "blood seeping through holes and cracks in my skin, forming a puddle of red around me" which ultimately in her case reportedly led to her having PTSD.

She could not work for hospitals for months and even now and although practicing medicine she said "I still cannot bear a shower curtain to be drawn as it reminds me of closed hospital curtains and hidden death."[159]

Moreover, many medications that have been used to even treat anxiety and pain, with Valium and Ativan in the first group and opioids in the second, in fact may intensify hallucinations and thus instead of reducing or avoiding PTSD symptoms actually in many cases worsened them as well as create amnesia.

Indeed, regarding the latter issue, it had been thought that "if a patient was heavily sedated and saw doctors, the resulting amnesia about the ordeal would be worthwhile" – a school of thought that has been basically reversed in many cases over the past ten years.[160]

The article also highlights the need for rapid psychiatric/psychological consultation and treatment – the lack of such in the editor's view likely would lead to liability exposure for those working in the I.C.U. who focus on the physical exclusively at the exclusion of the psychological on one hand and ultimately on

[159] Hoffman, Nightmares After the ICU, The New York Times (July 23, 2013) at D5.
[160] Hoffman, Nightmares After the ICU, The New York Times (July 23, 2013) at D5.

insurance companies who refuse to authorize payment for aggressive diagnostic assessment and treatment of pain and anxiety.

> ♦**PRACTICE NOTE:** There also is likely to be increasing legal obligations placed on patient plaintiffs and their families as they become more aware of these issues since it is becoming clear that "many patients return home mentally shaken, with physical and cognitive weaknesses"[161] – *with the patients and their families clearly needing to assume responsibility for spotting some of these difficulties and seeking appropriate follow-up care.*

Indeed, already in "Britain, Germany, and some Scandinavian countries, nurses in many critical care units keep a diary of the care they provide to a patient" – with contributions from the family, which they give to the patient upon discharge."[162]

The author goes on to specifically that "if you give relatives things to do – applying lip balm and hand lotion to the patient, keeping their joints limber – it keeps their minds active and decreases a fear response and helplessness"[163] – again implying that the likely imposition of a duty to "mitigate" on the families of patient litigants as well as ultimately on the patients themselves.

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[161] Hoffman, Nightmares After the ICU, The New York Times (July 23, 2013) at D5.
[162] Hoffman, Nightmares After the ICU, The New York Times (July 23, 2013) at D5.
[163] Hoffman, Nightmares After the ICU, The New York Times (July 23, 2013) at D5.

Yet "whether patients or family members develop PTSD symptoms or the full disorder, persuading them to seek treatment poses unique challenges." One of the reasons give as an example was a woman who "though she knows she needs help" was "too anxious to go back to the community hospital, which she associates with so much anguish.

"Such avoidant behavior...is among the most debilitating of PTSD symptoms," making it "hard for individuals who need help to take the necessary steps to get it."[164]

♦**PRACTICE NOTE:** The editors predict that under those conditions wouldn't it be reasonable to expect that the attorney representing such an individual, particularly those who deem themselves experts in trauma and/or traumatic brain injury and/or in representing PTSD symptoms to have the legal duty to see to it that their patients get the follow-up they need?

Indeed, why wouldn't the attorney under these conditions ultimately be held negligent for failing to push clients to follow-up in the same fashion that an attorney representing a brain injured individual who fails to see if they need a legal guardian and otherwise are competent to participate in the prosecution of their

[164] Hoffman, Nightmares After the ICU, The New York Times (July 23, 2013) at D5.

claim also would be finding themselves subject to malpractice exposure?

The entire issue of the nature of an attorney's obligation to see to it that their clients have proper follow-up medical treatment, like the insurance company's obligation to see to it that prompt effective intervention is paid for, likely will become new frontiers of future litigation.

Both plaintiff attorneys and insurance companies likely will be finding themselves literally on the defensive when patients and patient families ultimately end up suing them for the disastrous consequences of lack of common sense guidance to treatment resources and/or refusal to pay for early treatment of any traumatic condition which can interfere with a patient litigants' ability to make clear judgments regarding need for future care by themselves.

§14:7.33 Hearing loss and dementia

Recent studies would suggest that there is a correlation/co-morbidity between hearing loss and dementia. Recent research in this area was summarized in the February 12, 2013 issue of *The New York Times*.[165]

The article, "First Hearing Loss, Then Dementia" indicates that when individuals who have a "mild," "moderate" and "severe" hearing loss are compared with those with normal hearing, those with moderate hearing loss a 2-fold increased risk of developing dementia over the eighteen year study cited, those with moderate hearing loss had a 3-fold increased risk of developing dementia and those with hearing loss had a "5-fold increased risk of developing dementia."[166]

In other words, "the worst the hearing loss, the greater the risk of developing dementia. The correlation remains true even with age, diabetes and hypertension – other conditions associated with dementia – were ruled out."[167]

Even in the absence of traumatic brain injury – a factor noteworthy for not being addressed in the study – there were multiple "causal" explanations for this

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[165] Bouton, First Hearing Loss, The Dementia, The New York Times D1, D7 (February 12, 2013).
[166] Bouton, First Hearing Loss, The Dementia, The New York Times D1, D7 (February 12, 2013).
[167] Bouton, First Hearing Loss, The Dementia, The New York Times (February 12, 2013) at D7.

association: "the first is social isolation, which may come with hearing loss, a known risk factor for dementia. Another possibility is cognitive load, and a third is some pathological process that causes *both* hearing loss and dementia."[168]

Moreover the authors of the 2011 research cited in a more recent study that had started in 1997-1998 found that those having hearing loss had a "30 to 40 percent faster rate of loss of thinking and memory abilities" over that six year study when compared with people with normal hearing. "Again, the worse the hearing loss, the worse the rate of cognitive decline."[169]

Yet, both studies also found "somewhat surprisingly" that hearing aids did not significantly lower the risk for cognitive impairment – something that one frankly would expect to find if there were a true "causal" connection between the loss of hearing and the subsequent development of dementia.[170]

Yet – as, the editor's note, in many other issues related to self-reported history, the "self-reporting of hearing-aids is unreliable," with the author of the two research papers, Dr. Lin at John's Hopkins Medical School, now understandably planning to research specifically on "the way hearing aids: for how long, how frequently, how well they have been fitted, what kind of

[168] Bouton, First Hearing Loss, The Dementia, The New York Times (February 12, 2013) at D7.
[169] Bouton, First Hearing Loss, The Dementia, The New York Times (February 12, 2013) at D7.
[170] Bouton, First Hearing Loss, The Dementia, The New York Times (February 12, 2013) at D7.

counseling the user received, and what other technologies they use to supplement hearing-aid use."[171]

The authors then explored the research indicating the possibility of a "common pathological process" noting that a neurologist, Dr. John Gallaher and his colleagues are Cardiff University suggested the "possibility of a genetic or environmental factor that could be causing both hearing loss and dementia – and perhaps not in that order.

"A phenomenon called *reverse causation*, a degenerative pathology that at least in early dementia might prove to be a cause of hearing loss" (emphasis added).[172]

Further complicating all of the above was the increasing importance of accepting the reality of subjective perception, even misperception, as nonetheless being a "real" cause of functional pathology even in the absence of objective measures.

The writer here cites the work of the Director of the Social Neuroscience Laboratory at the University of Chicago, whose "multidisciplinary studies on isolation has shown that *perceived* isolation or loneliness is a 'more important predictor of a variety of adverse health outcomes than is objective social isolation.'"[173]

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[171] Bouton, First Hearing Loss, The Dementia, The New York Times (February 12, 2013) at D7.
[172] Bouton, First Hearing Loss, The Dementia, The New York Times (February 12, 2013) at D7.
[173] Bouton, First Hearing Loss, The Dementia, The New York Times (February 12, 2013) at D7.

♦**PRACTICE NOTE**: Articles and research increasingly have pointed to the importance of attorneys on both sides understanding:

1. The "real" functional significance of misperception and subjective complaints even when objective data do not substantiate them as explaining "real life, real time" functional impairment.
2. Even in the absence of traumatic brain injury, dementia is noted to be partly caused by aging, diabetes, and high blood pressure – all conditions then whose presence or absence when there also is traumatic brain injury need to be considered – again pointing to the importance of a multifactorial "risk factor" approach by both attorneys and experts dealing with traumatic brain injury cases.
3. The presence of absence of hearing loss and brain trauma both being the result of a particular event clearly is important to identify, especially when there is actual evidence for the subsequent development of cognitive decline. Again, as with medications, the concept of escalating interactions amongst all the factors causing the current state of functional

impairment need to be considered and analyzed by experts on "both sides" of a traumatic brain injury case.

Chapter 15. The Coming Era of Biomarkers For Traumatic Brain Injury

§15:15.21 More on uses and limitations of biomarkers in diagnosing traumatic brain injury and other conditions

The increasing diagnostic use of biomarkers for a host of conditions, not just for heart disease and traumatic brain injury is accelerating.

However, discussed throughout this book, one must temper enthusiasm for the increasing data pointing to the *sensitivity* of these new tests with the caveats regarding the limits on the *specificity* of these tests.

Yet although more and more biomarker tests are becoming available and used to detect multiple conditions, the sensitivity research demonstrating the clinical significance of negative tests when the tested for conditions are not present has not been nearly as extensive as the specificity research.

Nonetheless, an article appearing in the July 23, 2013 *New York Times*[174] highlights very well a growing trend that ultimately will have great implications for those attorneys pursuing or defending against all kinds of "causation" claims that have been tied to traumatic brain injury, up to and including issues related to late onset dementias or even Alzheimer's disease deemed to be the specific result of a brain injury occurring earlier in life, even a "mild" one.

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[174] Stipp, Meaningful Markers of Aging, The New York Times (July 23, 2013) at D3.

Moreover, not just brain injury cases but many cases that depend on life care planners and others to predict lifelong needs for treatment, lost wages, etc. historically have relied on life tables and other incidents regarded by insurance companies that themselves depend on calculations in chronological age.

One article in the 2010 study revealed "oddly" that "contrast sensitivity – measured by a test of the eye's ability to pick out very lightly shaded images on white backgrounds, was among the most predictable of the 377 factors evaluated, as was the number of rapid step-ups on a low platform that the subjects could complete in 10 seconds."[175]

More recently, with novel technologies that can detect thousands of age-associated molecular changes in cells have come to the forefront in the biomarker hunt," including some type of "molecular aging clock" whose "speed can be measured via blood testing. The moving parts of the [molecular aging] clock consist of chemical tags on DNA molecules that control whether genes are active in cells."[176]

"The researchers found that the patterns of the tags, called epigenetic markers predictably change with age."

Indeed, in a January, 2013 study, after scientists "scrutinized around 485,000 of these tags in blood cells of 656 people aged 19 To 101" in fact a large

[175] Stipp, Meaningful Markers of Aging, The New York Times (July 23, 2013) at D3.
[176] Stipp, Meaningful Markers of Aging, The New York Times (July 23, 2013) at D3.

number – 70,387 – of these tags in fact "were predictive of chronological age" and collectively "these tags spell out a 'signature for age' that is 'largely not changed by disease or ethnic background'" according to an expert on aging at the National Institute of Aging.[177]

Not mentioned in the article but of course clearly likely both legally and clinically relevant data surely to be the focus of such studies will be the impact of a known traumatic event on any change in the speed of one's biological clock, especially if there has been a pre-accident baseline created by a person having taken the kind of tests described in the article as a precondition for life or health insurance having been issued.

Then a clear "before and after" biochemical comparison would be available that could, likely would, for example, result in the acceleration of post-traumatic aging, as documented by these molecular biomarker studies, reflect admissible and highly probative evidence of the *destructive interactions* of traumatic brain injury, pain, medications and posttraumatic stress disorder unlimiting a person's life expectancy.

One important area at the frontier of biomarker research is the ongoing hunt for "biological markers of age that reliably register how fast the aging process is unfolding."

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[177] Stipp, Meaningful Markers of Aging, The New York Times (July 23, 2013) at D3.

The authors note that even growth markers like "wrinkles" are not specific for aging but "often have more to do with sun exposure than aging." Moreover, "markers like age-related increases in blood pressure are similarly problematic, often *by factors unrelated to aging*" (emphasis added).[178]

Although "proposed biomarkers of aging haven't yet convincingly cleared these hurdles" that are needed to "foretell the remaining life spans a middle-aged person more accurately than chronological age does."

The practical point for both brain injury attorneys as well as attorneys dealing with posttraumatic stress disorder is clearly set forth in this article, both regarding implicit additional patient plaintiff duties to mitigate on one hand to obligations/duties on insurers to tie premiums and benefits to the results of such tests.

Note specifically the author's predictions about the future: "insurers might demand that customers take them [aging-rate tests] in order to set premiums for life and healthcare policies. These tests may also reveal how factors like exposure to environmental toxins and the stress of job loss accelerate ranging and by how much – *fodder for lawsuits*" (emphasis added).

[178] Stipp, Meaningful Markers of Aging, The New York Times D3 (July 23, 2013).

§15:23 The coming neuropsychiatric revolution and its legal consequences: Prions

This year Stanley B. Prusiner, M.D., Director of the Institute for Neurodegenerative Diseases and Professor of Neurology at the University of California, San Francisco, apparently was not satisfied merely to have won the 1997 Nobel Prize in Physiology or Medicine. Instead, his groundbreaking work he continued and culminated in what the editors believe has been a groundbreaking book linking biochemistry, *Madness and Memory*.[225]

This book focuses on prions – infectious proteins believed first to cause a disease called Scrapie that include neurobehavioral symptoms– as well as the kinds of amyloid fibrils that coalesce into plaques of the type seen in Alzheimer's Disease as well as a "wide array of neurodegenerative diseases."[226]

Part of the Dr. Prusiner's genius was that he then was able to link his theory to the presence of a specific protein PrP27-30 (within the amyloid plaques found in a variety of degenerative diseases) – and then pursue the "path to the gene through a unique amino acid sequence."[227]

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[225] Prusiner, Madness and Memory: The Discovery of Prions-a New Biological Principle of Disease (New Haven: Yale University Press, 2014).
[226] Prusiner, Madness and Memory: The Discovery of Prions-a New Biological Principle of Disease (New Haven: Yale University Press, 2014) at 108.
[227] Prusiner, Madness and Memory: The Discovery of Prions-a New Biological Principle of Disease (New Haven: Yale University Press, 2014) at 129.

A spongiform encephalopathy together with altered gait and convulsions (and goats).

Dr. Prusiner then went on to assess human prion diseases in those associated with progressive dementias, paralysis, myoclonus, and other symptoms. These include Creutzfeldt-Jakob Disease ("Mad Cow Disease"), late onset neurodegenerative diseases, Alzheimer's Disease and Parkinson's Disease.[228]

He then focused on the "frontal temporo dementias at the interface between psychiatry and neurology" that are called "tauopathies."[229]

He then went on – and here the eyes of the plaintiff and defense counsel should be widening – to link – with studies of posttraumatic frontal temporal dementias. He noted that "clinical symptoms can appear decades after the subject experienced a traumatic brain injury."[230]

He noted that, regarding combat, it is still "unknown" what the "number of soldiers suffering from posttraumatic stress disorder" have these dementias – as it still is unknown "the number of episodes a traumatic brain injury needed to induce FTD (fronto temporal dementia). It seems rightly that the number of

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[228] Prusiner, Madness and Memory: The Discovery of Prions-a New Biological Principle of Disease (New Haven: Yale University Press, 2014) at 236-237.
[229] Prusiner, Madness and Memory: The Discovery of Prions-a New Biological Principle of Disease (New Haven: Yale University Press, 2014) at 244.
[230] Prusiner, Madness and Memory: The Discovery of Prions-a New Biological Principle of Disease (New Haven: Yale University Press, 2014) at 245.

episodes will vary from one person to another and will also depend on the type and extent of the brain injury."[231]

He does not leave his analysis at this point – but then talks about the future and how "understanding the structural transitions in TAU that occur in sporadic and inherited cases of FTD would be critical in developing effective drugs and informative molecular diagnostics."[232]

Not surprisingly given this man's amazing logic and intelligence, he then goes on to the next step: speaking of occasion for "early diagnosis" in order to facilitate "identification of prions long before symptoms appear. Meaningful treatments will probably require cocktails of drugs to diminish the precursor protein, interfere with his conversion into prions, and enhance their clearance."[233]

The "remarkable convergence" that forms the end of the book specifically relates to a finding with dramatic future neurobehavioral as well as forensic significance": the presence of "the convergence of studies demonstrating the prions featured in the pathogenesis of the common

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[231] Prusiner, Madness and Memory: The Discovery of Prions-a New Biological Principle of Disease (New Haven: Yale University Press, 2014) at 245.
[232] Prusiner, Madness and Memory: The Discovery of Prions-a New Biological Principle of Disease (New Haven: Yale University Press, 2014) at 245.
[233] Prusiner, Madness and Memory: The Discovery of Prions-a New Biological Principle of Disease (New Haven: Yale University Press, 2014) at 250.

neurogenics of maladies," a convergence which in turn "has created a profound change in thinking about these devastating illnesses."[234]

In his "epilogue" he once again comes to a basic principle of both god medical and personal injury practice: "You have to give people some hope."[235]

He even goes on to speculate about a possible link between posttraumatic stress disorder. He notes for example that studies of U.S. combatants "argue" – note don't prove, however – "that mild concussion significantly increase the likelihood of developing posttraumatic stress disorder."[236]

He then asks, "how many military personnel with posttraumatic stress disorder have a TAU prions, induced by head trauma, perforating in their brains" – but note that this amount "remains to be determined" by "brain imaging procedures that can detect TAU prions."[237]

♦**PRACTICE NOTE:** It is clear that research into prions has potentially huge legal/clinical implications.

If links are found between the presence of prions on one hand and the emergence of neurodegenerative diseases with

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[234] Prusiner, Madness and Memory: The Discovery of Prions-a New Biological Principle of Disease (New Haven: Yale University Press, 2014) at 250.
[235] Prusiner, Madness and Memory: The Discovery of Prions-a New Biological Principle of Disease (New Haven: Yale University Press, 2014) at 253.
[236] Prusiner, Madness and Memory: The Discovery of Prions-a New Biological Principle of Disease (New Haven: Yale University Press, 2014) at 259.
[237] Prusiner, Madness and Memory: The Discovery of Prions-a New Biological Principle of Disease (New Haven: Yale University Press, 2014) at 259.

posttraumatic stress disorder on the other, the entire arena for arguing and proving both "causation" and huge damages in "mild" brain injury cases is enormous.

At the same time – and as at least one of the editors of this book believes – prion research, like that related to diffusion tensor imaging, now holding huge clinical and legal premise has not yet reached the point in which findings can be taken as unequivocally proving a "causal connection" between a traumatic event and the laboratory or clinical findings."[238]

Rather, current *most accurate and objective use of prion data that does exist, as the best clinical use of diffusion tensor imaging data that exists relates to the findings of abnormalities being consistent with if not conclusively establishing* a causal connection being present between the traumatic event and any positive findings.

Another important lesson from reading *Madness and Memory* was a clear demonstration hidden in the pages of the differences between medical/clinical/inductive and legal/deductive reasoning – as well as the legal and clinical magic of the words "consistent with" and "inconsistent with."

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[238] Prusiner, Madness and Memory: The Discovery of Prions-a New Biological Principle of Disease (New Haven: Yale University Press, 2014) at

He cited a slide sent to him by urologist Hilary Koprowski entitled "*Four Stages of Adopting a New Idea*" which was (pardon the pun) hilarious.

1. The first stage is "It's impossible, it's nonsense, don't waste my time."
2. The second is "Maybe it's possible, but it's not interesting. It's clearly not important."
3. The third is, "It's true and I told you so. I always said it was a good idea."
4. The fourth is, "I thought of it first."[239]

♦**PRACTICE NOTE:** The reality is that good medicine and good science do require a combination of experimentation, speculation, and considering alternatives often times of seemingly speculative assumptions and theories. In this sense, good science and good medicine fundamentally differ – and often represent the reverse – of the lawyers much more than honoring precedent. Medicine instead focuses on challenging precedent if data allows to justify such a challenge.

[239] Prusiner, Madness and Memory: The Discovery of Prions-a New Biological Principle of Disease (New Haven: Yale University Press, 2014) at 188.

In this regard, a magazine written by a nonphysician science journalist that justifiably appeared to both Dr. Prusiner may well have had its affect upon him because the article appear to reflect more of a legal than a truly clinical perspective. Here the nonphysician journalist sarcastically stated that "Sure, Stanley Prusiner there's a price for his persistence, not for his prions. Nobody said the Nobel Committee was infallible. It did, after all, give Henry Kissinger the Peace Prize in 1973...." but "if it turns out the values *due* cause these diseases [Mad Cow and Creutzfeldt-Jakob] then Prusiner will have won the prize for the discovery of something spectacularly wrong."[240]

Ironically, Dr. Prusiner noted that a colleague later on met Mr. Tau who smiled and claimed that "My article got stamped Prusiner and Nobel Prize." Dr. Prusiner replied, "That's the definition of Chutzpah."[241]

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[240]Prusiner, Madness and Memory: The Discovery of Prions-a New Biological Principle of Disease (New Haven: Yale University Press, 2014) at 225.

[241] Prusiner, Madness and Memory: The Discovery of Prions-a New Biological Principle of Disease (New Haven: Yale University Press, 2014) at 225.

§15:24 The coming duty to mitigate by plaintiff litigants and plaintiff counsel in all future pain and brain cases

A previous section (§14:7.23.1) explained how family involvement in the prevention and treatment of intensive care unit-caused posttraumatic stress disorder and psychiatric disorders in some areas already has become a standard part of prevention and treatment of these problems.

t is clear to the editors that we historically are in an era in which victims of trauma or even gross injustice are being expected by society to do more than seek, as advertised by many plaintiff firms, "large cash awards" for their suffering.

Indeed, it is the editor's experience that sophisticated defense counsel already are seeking out jurors – and experts – who themselves have had a host of significant physical injuries, ranging from quadriplegia to brain tumors – but yet themselves have demonstrated the determination and ability to return to work and maximize life functioning after their clinical catastrophes rather than, as defense counsel often claim, expect to "sit back and collect."

Of course sometimes defense counsel enthusiasm in seeking out experts who themselves have suffered severe physical stigmata can be so pronounced as to be absurd, potentially even to jurors.

One of the editors, for example, recalls that one day after he had gotten out of surgery after having had his own (benign) brain tumor removed three different defense attorneys visited him in the hospital. The editor naively had believed that the attorneys were showing care and concern for him and wanted to wish him a speedy recovery from his own operation.

Instead each defense attorney separately said to him words like, "You look so terrible we don't even want you to testify at trial. Instead we want you to have a *de benne esse video deposition* instead of live testimony so the jury can see how awful you look and yet you are so willing to work!"

Despite situations like the above, yet even now all too many brain injury experts on both sides fail to mention either the pressing need for extensive vocational rehabilitation or the need for brain injured and chronic pain patients and their families to assume the responsibilities of getting the victims quickly to the right physician for the right kind of help and compliant with all treatment recommendations.

Moreover, experts on both sides still all too often in the editor's view leave out any mention of vocational rehabilitation and job retraining costs. Plaintiff experts sometimes claim they do mention this for fear of "putting pressure" on patients who need to "accept" their brain injuries as being "permanent."

Defense experts in turn all too often claim they leave out this discussion because they do not want their insurer clients to have the financial liability of

paying for what could be an extensive course of vocational rehabilitation not covered by increasingly financially strapped state vocational rehabilitation agencies.

In either case, it is the editors' view that ultimately it is the patients who "win" when they both are given the resources from their insurance companies to pay for the treatment they require on one hand and on the other are prevented by their treating testifier clinicians from slipping into a state of self-perceived invalidism where they are excused from having to assume any personal responsibility for their recovery and/or being excuse from actively having to use their brains in a planned return-to-work or volunteer effort.

One of the sadder and all too often failures by some plaintiff attorneys is the failure by some plaintiff attorneys and their experts is to protect plaintiffs from unnecessarily invasive surgical procedures.

These attorneys and experts, some in an attempt to "build up" damages and others having the mistaken belief that the presence of a subject complaint does not warrant operative intervention in the absence of objective preoperative testing and psychiatric screening, end up ultimately victimizing their own clients and subjecting them to sometimes catastrophic consequences of unnecessary surgeries and unnecessary mediation.

On the other hand, equally damaging to those truly victimized by traumatic brain injury and chronic pain is the failure by not only some plaintiff

attorneys and plaintiff experts but some defense attorneys and defense experts to make sure that patients follow-up with treatment recommendations.

The reality is that many victims of brain injury and pain syndromes become depressed or otherwise lack the motivation or even ability to keep appointments that are given, and moreover often are too embarrassed or ashamed to admit this failure of treatment compliance to either their treating clinicians or their attorneys.

The result? Patient failure to improve because of noncompliance all too often has led to erroneous plaintiff attorney claims in some cases of demonstrated injury permanency on one hand and on the other hand inaccurate defense attorney accusations that such failure to keep scheduled appointments necessarily represents a conscious lack of cooperation or even malingering behavior.

One of the newest frontiers of the growing expectation that patients' claims of fact and even promises to seek care cannot be taken as necessarily being accurate with the corresponding implication that plaintiff attorneys, plaintiff experts, defense attorneys, and defense experts all need to help patients recover faster by following up with prescribed treatment in the field of chronic pain.

Note in this regard an article appearing in the weekend issue of the *Wall Street Journal,* "More Patients' Painkillers With Strings Attached: Doctors

Demand Urine Samples to Prove Use, Written Promises Not to Resell the Drugs; a 'Trust and Verified Situation.'"[242]

In one example in Arkansas, the article notes that "for decades, William Piechel trusted patients who said they were taking their pain medications as prescribed. Now, he is asking them to prove it."[243]

This physician is "one of a growing number of pain doctors requiring patients to submit urine samples to demonstrate they are taking pain medications such as OxyCodone as directed. Individuals also are being asked to sign written agreements promising they won't sell their drugs on the side and will seek prescription painkillers only from Dr. Piechal's clinic while under his care. If they refuse, he said he won't provide a prescription."[244]

Dr. Piechal said that "this is where the chronic pain treatment is headed," who called the "initial urine sample results he received last year 'shocking' because some failed tests came from individual he had treatment for more than a decade."[245]

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[242] Martin, "More Patients' Painkillers With Strings Attached: Doctors Demand Urine Samples To Prove Use, Written Promises Not To Resell The Drugs; A 'Trust And Verified Situation,'" The Wall Street Journal A3 (July 20-21, 2013).
[243] Martin, "More Patients' Painkillers With Strings Attached: Doctors Demand Urine Samples To Prove Use, Written Promises Not To Resell The Drugs; A 'Trust And Verified Situation,'" The Wall Street Journal (July 20-21, 2013) at A3.
[244] Martin, "More Patients' Painkillers With Strings Attached: Doctors Demand Urine Samples To Prove Use, Written Promises Not To Resell The Drugs; A 'Trust And Verified Situation,'" The Wall Street Journal (July 20-21, 2013) at A3.
[245] Martin, "More Patients' Painkillers With Strings Attached: Doctors Demand Urine Samples To Prove Use, Written Promises Not To Resell The Drugs; A 'Trust And Verified Situation,'" The Wall Street Journal (July 20-21, 2013) at A3.

"Failed tests revealed some were taking opioids he hadn't prescribed like marijuana or methamphetamine."[246]

"Behind the new rules is a growing concern among physicians that they will be held responsible for painkiller-over dose-related deaths and accidents. For years, efforts to stymie the epidemic of abuse had been led by law enforcement and targeted shady operators called 'pill mills' that supply the black market for OxyCodone and Hydrocodone."[247]

"Last year, the American Society of Interventional Pain Physicians, a professional group with 4,000 members, adopted guidelines that urine tests 'must be implemented' from the initial visit to see whether patients are already abusing drugs – or are likely to."[248]

"At least three other pain physician groups, including the American Pain Society, have endorsed such testing for high-risk patients in recent years. And at least 10 states – including Kentucky and Washington, long hotbeds of abuse – recommend some level of urine-test monitoring."[249]

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[246] Martin, "More Patients' Painkillers With Strings Attached: Doctors Demand Urine Samples To Prove Use, Written Promises Not To Resell The Drugs; A 'Trust And Verified Situation,'" The Wall Street Journal (July 20-21, 2013) at A3.
[247] Martin, "More Patients' Painkillers With Strings Attached: Doctors Demand Urine Samples To Prove Use, Written Promises Not To Resell The Drugs; A 'Trust And Verified Situation,'" The Wall Street Journal (July 20-21, 2013) at A3.
[248] Martin, "More Patients' Painkillers With Strings Attached: Doctors Demand Urine Samples To Prove Use, Written Promises Not To Resell The Drugs; A 'Trust And Verified Situation,'" The Wall Street Journal (July 20-21, 2013) at A3.
[249] Martin, "More Patients' Painkillers With Strings Attached: Doctors Demand Urine Samples To Prove Use, Written Promises Not To Resell The Drugs; A 'Trust And Verified Situation,'" The Wall Street Journal (July 20-21, 2013) at A3.

"Urine tests can give us a lot of information to understand if somebody is taking the medications properly – or if they're diverting them," said Hans Hansen, SIPP president and a practicing pain doctor in Conover, N.C. The efforts have their skeptics."[250]

Although clearly such approaches regarding not necessarily taking patients at their word as well as not trusting efforts in complying have clear implications for those individuals being treated for many conditions beyond chronic pain – notably including traumatic brain injury.

♦**PRACTICE NOTE:** The legal implications of the above literature are huge. Defense attorneys and their experts likely will use same as they likely will point out that any plaintiff expert who takes every plaintiff patient claim of fact as being necessarily true is demonstrating clinical ignorance.

Plaintiff attorneys in turn will likely take defense experts to task when they challenge the accuracy of patient history when available records actually corroborate this history.

An example of the above would be when, for example, alcohol and blood testing records are readily available in the hospital after an accident that clearly demonstrate that an

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[250] Martin, "More Patients' Painkillers With Strings Attached: Doctors Demand Urine Samples To Prove Use, Written Promises Not To Resell The Drugs; A 'Trust And Verified Situation,'" The Wall Street Journal (July 20-21, 2013) at A3.

accident victim was not demonstrating opioids in urine screenings or elevated blood alcohol levels.

Finally, complicating all of this is the fact that at the present time "some insurers don't cover the urine test costs at all."[251]

[251] Martin, "More Patients' Painkillers With Strings Attached: Doctors Demand Urine Samples To Prove Use, Written Promises Not To Resell The Drugs; A 'Trust And Verified Situation'" The Wall Street Journal (July 20-21, 2013) at A3.

§15:25 Testing the limits of expert knowledge: awareness of "cutting edge" clinical research or not

Clearly, it is not reasonable to expect that every traumatic brain injury expert physically and intellectually can master the cascading crescendo of new research findings.

Thus, trying to humiliate an expert on cross-examination who does not know a particular piece of research or even in well-known newspapers and journals is unrealistic.

Further, if the jury deems an expert to be unfairly harassed by this attempt to portray the expert as being ignorant of something important, such an attempt to discredit the expert by attacking the expert's knowledge could well backfire and lead the jury to perceive the cross-examining attorney as being too aggressive, insensitive, harassing, or just plain ignorant of the reality of there being practical limits to how much a clinical expert can be expected to be kept up-to-date.

At the same time, if testifying experts do not acknowledge that there are some limits to their knowledge but instead attempt to portray themselves as knowing "everything about everything," confronting them with their lack of clinical knowledge would, in the editors' opinions, keep jurors from being

influenced too much by opinions that are not backed up with the most recent available clinical data.

Arrogant experts on either side for example should have their arrogance questioned when they claim to "know everything about everything" involving traumatic brain injury by being questions about their knowledge of "optogenetics."[252]

These experts should know, for example, that this technique – which involves "blending gene therapy, neuroengineering and fiberoptics" in fact "hasn't been tried yet in people." At the same time, they also should know that when this technique was used in laboratory animals such use actually resulted in the instant modification of animal behavior, suppressing memories and laying their "biological underpinnings of psychiatric disorders."[253]

Moreover, the essential core of the technique – "eliminating neurons primed with light-sensitive proteins" by using selective wave lengths of laser light already "is transforming basic brain research."[254]

Some of the results of this research – again which can be used to cross-examine "know it all" experts on either side of the case have been noted to include the following:

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[252] Hotz, Scientists Cast Light Onto Roots of Illness Deep in Brain, The Wall Street Journal D1, D3 (January 22, 2013).
[253]Hotz, Scientists Cast Light Onto Roots of Illness Deep in Brain, The Wall Street Journal (January 22, 2013) at D1.
[254]Hotz , Scientists Cast Light Onto Roots of Illness Deep in Brain, The Wall Street Journal (January 22, 2013) at D1.

1. With the laser light on, "mice freeze in fear. Light off: they scamper freely."[255]

Researchers at both Stanford University and MIT had generated these studies by activating "light-sensitive neurons in the brain's hippocampus involved in the memory of fright."[256]

2. With the laser light on, "addicted mice lose their taste for cocaine" but with the light off "they avidly seek the drug." Here the targeted neurons done by researchers at the Medical University of South Carolina and the University of Iowa had "targeted neurons in a part of the cortex – the brain's outer layer associated with seeking of reward."[257]

3. Furthermore – and importantly given the issues related to seizures in those suffering traumatic brain injury and the allegations of "permanency" of seizures when there had been seizures in traumatic brain injury as well as claims of lack of necessary permanency of those seizures, was the finding that with the laser light on "epileptic seizures stopped" and with the light off the seizures resumed.[258]

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[255] Hotz, Scientists Cast Light Onto Roots of Illness Deep in Brain, The Wall Street Journal (January 22, 2013) at D1.
[256] Hotz, Scientists Cast Light Onto Roots of Illness Deep in Brain, The Wall Street Journal (January 22, 2013) at D1, D3.
[257] Hotz, Scientists Cast Light Onto Roots of Illness Deep in Brain, The Wall Street Journal (January 22, 2013) at D3.
[258] Hotz, Scientists Cast Light Onto Roots of Illness Deep in Brain, The Wall Street Journal (January 22, 2013) at D1, D3.

4. Even in "psychiatric" disorders such as depression, there were direct behavioral responses to the shining of the laser light in parts of the brain: with the light on "depressed mice became more socially active and more eager for sugar" whereas with the light off "listlessness and indifference to sweets returned."[259]

Here, Stanford and MIT scientists had targeted "the dopamine neurons, which make a chemical thought to elevate mood in a reward circuit located in the midbrain."[260]

Moreover, since "most of the cells of the brain don't respond to light" when the entire brain was based in light "in millisecond pulses" and affected only the brain cells made sensitive to light according to a Stanford researcher, "the effect achieved is instantaneous." [261]

Note that one of the reasons why studies like these have, according to a Harvard Medical School researcher who uses this technique to study primate brains has "revolutionized research" already was the ability to shine a specific wave length to "perturb a specific type. That's the beauty."[262]

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[259] Hotz, Scientists Cast Light Onto Roots of Illness Deep in Brain, The Wall Street Journal (January 22, 2013) at D1, D3.
[260] Hotz, Scientists Cast Light Onto Roots of Illness Deep in Brain, The Wall Street Journal (January 22, 2013) at D1, D3.
[261] Hotz, Scientists Cast Light Onto Roots of Illness Deep in Brain, The Wall Street Journal (January 22, 2013) at D1, D3.
[262] Hotz, Scientists Cast Light Onto Roots of Illness Deep in Brain, The Wall Street Journal (January 22, 2013) at D1, D3.

Document 10

Lugo v. New York City Health and Hospitals Corp.

Supreme Court of the State of New York
Appellate Division: Second Judicial Department

D32260
H/ct/prt

_____AD3d_____ Argued - June 24, 2011

REINALDO E. RIVERA, J.P.
JOSEPH COVELLO
ANITA R. FLORIO
PLUMMER E. LOTT, JJ.

2010-00962 OPINION & ORDER
2010-02506

Jacob Lugo, etc., et al., appellants, v New York City Health and Hospitals Corporation, etc., respondent.

(Index No. 37871/04)

APPEALS by the plaintiffs in an action, inter alia, to recover damages for medical malpractice, etc., (1) from an order of the Supreme Court (Allen Hurkin-Torres, J.), entered December 15, 2009, in Kings County, which, after a hearing, granted that branch of the defendant's motion which was for summary judgment dismissing the complaint, and (2) from a judgment of the same court entered February 1, 2010, which, upon the order, is in favor of the defendant and against them dismissing the complaint.

Fitzgerald & Fitzgerald, P.C., Yonkers, N.Y. (John E. Fitzgerald, John M. Daly, Eugene S. R. Pagano, Mitchell L. Gittin, and John R. Langdell of counsel), for appellants.

Michael A. Cardozo, Corporation Counsel, New York, N.Y. (Edward F.X. Hart and Jane L. Gordon of counsel), for respondent.

COVELLO, J.

Introduction

New York courts apply the rule of *Frye v United States* (293 F 1013) that expert testimony based on scientific principles or procedures is admissible, but only after a principle or

procedure has gained general acceptance in its specified field. In this medical malpractice action, the principal question presented on this appeal is whether the Supreme Court, in applying the *Frye* test, properly determined that the opinion testimony of the plaintiffs' experts that the infant plaintiff's brain injuries were caused by an episode of severe neonatal hypoglycemia lasting 81 minutes was inadmissible. For the reasons set forth below, we answer this question in the negative.

Factual and Procedural Background

Factual Background

In 2001, the plaintiff Brenda Almodovar (hereinafter the mother), who was pregnant with the infant plaintiff, Jacob Lugo, began receiving prenatal care at Woodhull Hospital (hereinafter Woodhull), a facility owned and operated by the defendant. On August 11, 2001, at 31 weeks of gestation, the mother was admitted to Woodhull for signs of preterm labor. During that admission, her blood glucose level was measured at 26 mg/dL, an abnormally low level, but was subsequently measured at a normal level. The mother was discharged on August 13, 2001.

On September 2, 2001, at 34 weeks of gestation, the mother, who had a history of seizures dating back to childhood, was brought to Woodhull by emergency medical services (hereinafter EMS) personnel after experiencing a grand mal seizure. On that date, she was evaluated but not admitted.

On October 5, 2001, the mother gave birth to Lugo at Woodhull by normal spontaneous vaginal delivery at 11:39 A.M. Lugo's Apgar scores, 9 at one minute, and 9 at five minutes, were "excellent," and he initially appeared normal. However, by the time Lugo was 40 minutes old, he was experiencing tremors and, at 12:25 P.M., he was admitted to the neonatal intensive care unit.

According to the deposition testimony of Dr. Frantz Brea, the director of neonatology at Woodhull, tremors are a sign of hypoglycemia[1] in a newborn. At 12:25 P.M., when Lugo was admitted to the neonatal intensive care unit, his blood glucose level was measured, through a "heel stick" test, at less than 20 mg/dL, and laboratory testing of blood drawn from Lugo at that time later measured a glucose level of 3 mg/dL. According to Dr. Brea, a normal glucose level for an infant approximately 40 minutes old is about 40 mg/dL. Lugo was given a "glucose IV push" and a glucose infusion, and at 1:00 P.M., his blood glucose level was measured at 71 mg/dL, within normal limits.

[1]Hypoglycemia means low blood sugar.

Thereafter, Lugo's blood glucose level remained within normal limits until he was discharged from Woodhull on October 7, 2001.

In 2002, Lugo was referred to Woodhull for evaluation due to his delays in reaching certain developmental milestones. On April 29, 2003, Lugo underwent a brain magnetic resonance imaging (hereinafter MRI) examination at Brookdale Hospital, and the resulting MRI report set forth a finding of "non-specific white matter loss in parietal and occipital lobes with dilation of the occipital horn . . . which suggests periventricular leukomalacia, as can be seen with perinatal ischemia."[2] Ultimately, Lugo was diagnosed with cerebral palsy (spastic diplegia type).

Commencement of this Action

Lugo, by his mother, and the mother, suing derivatively, commenced this action, inter alia, to recover damages for medical malpractice. In their verified bill of particulars, the plaintiffs alleged that the defendant had departed from good and accepted medical practice by, among other things, failing to timely diagnose and treat the hypoglycemia of both the mother and Lugo. They alleged that Lugo's hypoglycemia had caused, among other things, his brain damage and cerebral palsy.

The Defendant's Motion for Summary Judgment or a *Frye* Hearing

By notice of motion dated May 15, 2007, the defendant moved for summary judgment dismissing the complaint or, in the alternative, for a *Frye* hearing in the event that the plaintiffs, in opposition to the motion, proffered a sworn statement from an expert opining that Lugo's injuries were caused by the "possible transient episode" of maternal hypoglycemia on August 11, 2001, or the "transient episode" of hypoglycemia on October 5, 2001. As relevant here, the defendant supported its motion with the expert affirmation of Dr. Armando Grassi, who opined that Lugo's episode of neonatal hypoglycemia did not cause his alleged injuries. According to Dr. Grassi, the white matter loss shown on Lugo's April 2003 MRI was in the periventricular area and was a typical lesion resulting from a decrease in oxygenation or perfusion to the brain. In contrast, he affirmed, lesions typical of hypoglycemia are "diffuse lesions" in the brain and are not found in the periventricular area. Dr. Grassi opined that Lugo's brain injury, as depicted on his MRI, was a result

[2]According to expert testimony presented in this matter, perinatal ischemia—in the context of the instant action—is a decrease in the flow of blood and/or oxygen to the brain of a fetus.

of decreased oxygenation to his brain at 32-34 weeks gestation, and was not caused by the "transient hypoglycemic episode" at his birth. Dr. Grassi asserted that it was not accepted in the medical profession that "a short and promptly treated" episode of hypoglycemia in a newborn could cause brain damage in the periventricular area, as seen on Lugo's MRI film, and that Dr. Grassi had "never heard or read of a single case of periventricular leukomalacia caused by hypoglycemia."

In opposition, the plaintiffs argued, inter alia, that summary judgment was improper because there were triable issues of fact concerning, among other things, the nature and cause of Lugo's periventricular leukomalacia (hereinafter PVL) and cerebral palsy. As relevant here, they submitted the expert affirmation of Dr. Rosario Trifiletti. Dr. Trifiletti opined that Lugo had been born with "profound hypoglycemia," and that the delay in diagnosis and treatment from 11:39 A.M. to 1:00 P.M. was a substantial factor in causing his brain damage. Dr. Trifiletti disagreed with Dr. Grassi's conclusion that the mother's seizure had caused Lugo's brain injuries. According to Dr. Trifiletti, Lugo's normal appearance and good Apgar scores at birth, and the delay of the onset of his tremors until approximately 40 minutes after birth, were consistent with depletion of glucose stores after birth rather than a primary hypoxic injury. Dr. Trifiletti characterized Lugo's post-birth tremors as "subtle seizures" as defined in Volpe's Neurology of the Newborn (hereinafter the Volpe textbook), and he opined that Lugo's "tremors" or "subtle seizures" had been caused by his profound hypoglycemia at birth.

In Dr. Trifiletti's opinion, Lugo's MRI report was "essentially accurate" in its finding of PVL about the posterior (occipital) horns of the lateral ventricles, and he disagreed with Dr. Grassi's assertion that the pattern of injury it depicted was not characteristic of lesions caused by hypoglycemia. Dr. Trifiletti affirmed that there is "substantial overlap" in the lesions resulting from hypoxia and from hypoglycemic injury. Citing Arie L. Alkalay, *et al*., *Brain Imaging Findings in Neonatal Hypoglycemia: Case Report and Review of 23 Cases,* 44 Clin Pediatr 783-790 (2005), an article published in the November/December 2005 edition of the journal Clinical Pediatrics, Dr. Trifiletti asserted that there was a tendency towards occipital injury (as was seen in Lugo's case) with hypoglycemia. He saw nothing on Lugo's MRI film that excluded hypoglycemia as the etiology of the "obvious white matter loss and occipital horn dilation" and, in his experience of reviewing brain MRIs as part of his clinical practice over the years, he had seen "similar patterns of brain injury in comparable instances of perinatal hypoglycemia."

In its reply papers, the defendant proffered the expert affirmation of Dr. Steven Pavlakis. Dr. Pavlakis affirmed, among other things, that after performing a search on "Pub Med,"

he found no evidence that the white matter damage seen on Lugo's MRI film could be caused by "short lived transient hypoglycemia," and that it was not generally accepted that a period of transient neonatal hypoglycemia such as that suffered by Lugo could cause his clinical outcome. Dr. Pavlakis disagreed with Dr. Trifiletti's opinion that Lugo had suffered from "subtle seizures" as defined in the Volpe textbook, and he asserted that the Alkalay article cited by Dr. Trifiletti did not discuss any patients who had experienced an episode of hypoglycemia similar to that experienced by Lugo.

In an order dated November 5, 2007, the Supreme Court granted that branch of the defendant's motion which was for a *Frye* hearing and held in abeyance that branch of the defendant's motion which was for summary judgment dismissing the complaint. The Supreme Court determined that the plaintiffs' experts had provided "scant reference" to medical or scientific literature to support their opinions, and that a *Frye* hearing should be held to determine whether their deductions were based on principles which were sufficiently established to have gained general acceptance.

The *Frye* Hearing

After additional motion practice not at issue on this appeal, the Supreme Court conducted a *Frye* hearing in April and May 2009. The first expert to testify for the plaintiffs was Dr. Michael Katz, a private practitioner who was board-certified in pediatric neurology and neurodevelopmental disabilities. As background, Dr. Katz testified that the normal blood glucose range for newborns is between 40 and 60 mg/dL, that a level below 40 mg/dL is considered hypoglycemia, that Lugo's measured blood glucose level of 3 mg/dL was "[p]rofoundly low," and that hypoglycemia is a medical emergency which must be treated immediately because it is a toxic state which causes brain damage. Dr. Katz's working hypothesis was that Lugo's blood glucose level was 3 mg/dL from 11:39 A.M., when he was born, until 1:00 P.M., when his blood sugar was normalized. In Dr. Katz's opinion, Lugo's brain injury was caused by this episode of hypoglycemia.

Dr. Katz testified that his opinion that an episode of hypoglycemia at a level of 3 mg/dL lasting 1 hour and 21 minutes could cause neurologic damage of the type sustained by Lugo was based on the following generally accepted scientific principles: (1) hypoglycemia causes brain injury; (2) certain infants are more susceptible than others to neurologic injury secondary to hypoglycemia; (3) hypoglycemia is a toxic and dangerous state; and (4) there is no safe level of hypoglycemia. Dr. Katz testified that his opinion that hypoglycemia caused Lugo's brain injury was based on the fact that Lugo's MRI film showed a brain injury, that Lugo had suffered from a period of proven and profound hypoglycemia, and that there appeared to be nothing else in the record or

around the time of Lugo's birth suggesting that anything besides hypoglycemia caused Lugo's injury. Dr. Katz did not believe that the mother's seizure at 34 weeks of gestation had injured Lugo in the nature of a hypoxic ischemic event resulting in brain MRI abnormalities because Dr. Katz had difficulty visualizing a mechanism by which a seizure during pregnancy could cause a decrease in blood flow in the infant's brain.

Dr. Katz addressed, at length, the medical literature upon which his theory of causation was based. He noted that the Volpe textbook indicated that hypoglycemia causes brain injury and brain damage. In addition, the Volpe textbook discussed neuropathic studies indicating that hypoglycemia is a precedent of PVL and that both perinatal ischemia and hypoglycemia could cause an identical brain injury: namely, PVL. Dr. Katz explained that PVL is an injury to the white brain matter in the distribution around the ventricles.

Next, Dr. Katz discussed Arie L. Alkalay, *et al., Plasma Glucose Concentrations in Profound Neonatal Hypoglycemia,* 45 Clin Pediatr 550 (2006), an article published in the July 2006 edition of the journal Clinical Pediatrics (hereinafter the Alkalay article). He explained that the authors had compiled 16 different studies in an attempt to define low thresholds of plasma glucose concentrations constituting treatable or profound hypoglycemia, and they had concluded that plasma glucose levels of less than 25 mg/dL of several hours' duration may increase the relative risk for adverse neurologic outcome. Dr. Katz testified that a plasma glucose level is essentially the same as a whole blood glucose level, and that a plasma glucose level of 25 mg/dL is "much higher" than a whole blood glucose level of 3 mg/dL.

Dr. Katz acknowledged that one of the studies reviewed in the Alkalay article, Anne Kinnala, *et al., Cerebral Magnetic Resonance Imaging and Ultrasonography Findings After Neonatal Hypoglycemia,* 103 Pediatrics 724-729 (1999) (hereinafter the Kinnala article), published in the April 1999 edition of the journal Pediatrics, had excluded infants who had experienced only one episode of hypoglycemia before six hours of age. However, he did not believe that this fact affected the overall conclusion of the Alkalay article, which had examined 15 other studies besides the Kinnala article. Dr. Katz noted that the Kinnala article included a patient who had shown evidence of neurologic injury on an MRI after experiencing a hypoglycemic episode lasting two hours where the lowest glucose level was 32 mg/dL, a level "dramatically" higher than Lugo's glucose level of 3 mg/dL.

Finally, Dr. Katz discussed Burns, *et al., Patterns of Cerebral Injury and Neurodevelopmental Outcomes After Symptomatic Neonatal Hypoglycemia,* 122 Pediatrics 65

(2008) (hereinafter the Burns article), an article published in the journal Pediatrics in 2008. He explained that the authors had studied 35 term infants and had attempted to limit their study to symptomatic neonatal hypoglycemic patients, meaning those who had suffered from tremors, and to exclude brain injuries from other causes such as hypoxic ischemic encephalopathy. Sixty-three percent of the patients studied in the Burns article had experienced only one episode of hypoglycemia which had resolved promptly with treatment, and 94% of all of the patients studied had shown evidence of MRI abnormalities. The article also examined neurodevelopmental outcomes and determined that six of the subjects had developed cerebral palsy and three had developed mild motor delays.

Dr. Katz acknowledged that it was "unclear" exactly what duration and level of hypoglycemia causes neurologic injury in humans, and that there was no specific article, report, or study stating, in unambiguous terms, that an episode of hypoglycemia lasting 1 hour and 21 minutes at a level of 3 mg/dL had caused, or could cause, neonatal brain injury. However, he testified that there was not a "whole lot" of medical literature on hypoglycemia because "it is really an impossible task to prospectively look at hypoglycemia in children." Dr. Katz also acknowledged that there are a number of potential causes of PVL in addition to hypoglycemia, including hypoxic ischemia, and that it was possible that Lugo had sustained his injury during the mother's seizure and been asymptomatic at the time of birth. Dr. Katz stressed, however, that Lugo had been symptomatic for hypoglycemia, that Lugo's MRI results were consistent with hypoglycemia, that the medical literature indicates that low blood sugar causes brain damage, and that his opinion was based on the "confluence" of the medical information he had discussed.

Dr. Robert Peyster, the chief of neuroradiology at Stony Brook University Medical Center, also testified for the plaintiffs. Dr. Peyster explained that PVL is not a specific term, but, rather, refers to damage to the deep white brain matter next to the ventricles that appears as an abnormality on a CT scan or an MRI, and that PVL can be caused by both hypoglycemia and perinatal asphyxia. At the hearing, Dr. Peyster reviewed Lugo's MRI films in detail and testified that they depicted PVL. Based on Lugo's measured profound hypoglycemia and high Apgar scores, Dr. Peyster opined that the cause of Lugo's PVL was his episode of hypoglycemia and not perinatal asphyxia. Although he acknowledged that a seizure during pregnancy could potentially be severe enough to damage the brain of a fetus by reducing blood flow across the placenta, he was unaware of any reported cases where a child who had experienced such an event had received normal Apgar scores at birth.

Like Dr. Katz, Dr. Peyster addressed relevant medical literature at length. He agreed with Dr. Katz that the Volpe textbook supported the position that hypoglycemia leads to PVL. Dr. Peyster testified that the Burns article was significant because it was the largest series to date addressing MRI findings and other issues in neonatal hypoglycemia, because it had excluded patients who might have had hypoxic ischemia, and because 94% of the patients had shown white matter abnormalities on their MRI brain scans. He considered the Burns article to be a "good paper" and the best available article addressing generalized principles regarding hypoglycemia and injuries to infants. However, Dr. Peyster conceded that the Burns article had not been designed to test the relationship between the severity or duration of hypoglycemia and neurodevelopmental outcomes and had not found any such relationship, and that the subjects studied in the Burns article had received MRI brain scans at a much earlier age than Lugo had.

Dr. Peyster acknowledged that he had not located any articles or reports specifically addressing a patient who had experienced an episode of hypoglycemia of the same level and duration as Lugo's episode, but he testified that this fact did not change his opinion that Lugo's injuries were caused by hypoglycemia because the literature he had reviewed had studied cases representing a wide range of duration times, Lugo had PVL, and Lugo's glucose level had been measured at close to zero. Dr. Peyster testified that there was no threshold of duration and severity, generally accepted by most physicians, below which hypoglycemia could *not* cause abnormalities like those seen on Lugo's MRI.

After the plaintiffs' experts testified, the defendant presented the testimony of Dr. Caren Jahre, a private practitioner and an assistant professor of radiology at New York University School of Medicine. Dr. Jahre testified that Lugo's MRI films depicted a "classic pattern" of PVL seen in the context of hypoxic encephalopathy or perinatal ischemia at 26 to 34 weeks of gestation, and that the literature she had reviewed did not associate this specific pattern with neonatal hypoglycemia. According to Dr. Jahre, medical literature indicated that the "hallmark" of brain damage resulting from hypoglycemia is cortical involvement, and some of that literature reported white matter damage caused by hypoglycemia either "out in the periphery" or against the ventricles, but limited to certain areas. In contrast, according to Dr. Jahre, the brain damage on Lugo's MRI film had a diffuse pattern tracking along the ventricles and no cortical involvement. However, she acknowledged that she and Dr. Peyster disagreed on the precise appearance of the pattern depicted on Lugo's MRI film.

In Dr. Jahre's opinion, the Burns article was flawed because, based upon the medical records of the patients it had studied, the authors had failed to exclude patients who had suffered from

health issues other than neonatal hypoglycemia, including hypoxic ischemic encephalopathy. Additionally, according to Dr. Jahre, none of the MRI images in any of the literature discussed at the *Frye* hearing looked "anything close to what [Lugo's] brain looks like."

The defendant also presented the testimony of Dr. Steven Pavlakis, a professor of neurology and pediatrics at Mt. Sinai School of Medicine and the director of pediatric neurology at Maimonides Hospital. Dr. Pavlakis had performed a search and had found no literature on MRI changes resulting from hypoglycemia in newborns lasting less than two hours. He agreed that hypoglycemia can cause MRI abnormalities, that severe hypoglycemia can cause brain damage, and that Lugo's measured glucose level of 3 mg/dL was very low. In addition, he acknowledged that the scientific community does not recognize any specific level or duration of hypoglycemia which would *not* cause brain damage and that it was a generally accepted medical principle that individual susceptibility to toxic states varies.

According to Dr. Pavlakis, it was "relatively common" for newborns to have hypoglycemia, low blood sugar was a common cause of tremors such as those experienced by Lugo, and such tremors were distinguishable from seizures and did not correlate to an underlying condition or particular outcome. Based on Lugo's normal appearance at birth and recovery with sugar infusions, Dr. Pavlakis did not believe that his episode of hypoglycemia had caused his brain damage. Dr. Pavlakis also excluded hypoglycemia as a cause of Lugo's injuries because "there's no case like him" of which Dr. Pavlakis was aware in the literature or in his practice.

According to Dr. Pavlakis, decreased oxygen or blood flow to a fetus between the ages of 28 to 40 weeks is the cause of PVL in "99.99 percent" of cases. He testified that PVL could be caused by anything that decreases oxygen or blood supply to a fetus under 40 weeks of gestation, including, hypothetically, a seizure like the one experienced by the mother. However, like the plaintiffs' expert Dr. Katz, Dr. Pavlakis was unaware of any instance in which such a seizure had actually resulted in PVL, and he could not opine, to a reasonable degree of medical certainty, that Lugo's PVL had been caused by the mother's seizure.

When asked whether the positions taken in the Burns article were "generally accepted in the scientific community," Dr. Pavlakis responded by asserting that Lugo was not like the patients in the Burns article, who had "a lot of other issues going on," and had not experienced a short episode of hypoglycemia lasting even 1½ hours. Like Dr. Jahre, Dr. Pavlakis testified that the Burns article had not been entirely successful in selecting a group of patients suffering purely from hypoglycemia, but he opined that the authors had done a good job of setting up their study and that he was not sure

if a better study was possible.

Dr. Pavlakis testified that the medical literature discussed at the hearing, when considered in the aggregate, did not demonstrate that a child like Lugo who had a glucose level of 3 mg/dL for 1 hour and 21 minutes would develop PVL as a result, since none of the patients discussed in the literature had experienced a relatively short period of hypoglycemia before being discharged from the hospital without further problems. Therefore, according to Dr. Pavlakis, the theory of causation offered by the plaintiffs' experts was not scientifically accepted.

A running theme throughout the *Frye* hearing was whether the experts considered the medical literature they had reviewed to be "authoritative." Although both Dr. Katz and Dr. Peyster testified that they did not consider any of the literature they had discussed to be "authoritative," Dr. Katz testified that the Volpe textbook and the articles he had addressed were the sources he would consult for the current science in the areas discussed at the hearing. Dr. Peyster testified that he did not consider *any* medical literature, including his own book, to be "authoritative" because that term implied that everything in the article or study was correct and was not subject to any further changes. Dr. Peyster's reluctance to apply this label to medical literature was echoed by the defendant's expert Dr. Jahre, who agreed that this term was not used frequently to describe medical literature and that doctors relied upon articles not considered to be "authoritative" to assess the state of the science.

The Order and the Judgment Dismissing the Complaint

In an order entered December 15, 2009, the Supreme Court granted that branch of the defendant's motion which was for summary judgment dismissing the complaint after concluding that the plaintiffs' expert testimony regarding causation was inadmissible. In the order, the Supreme Court framed the issues to be resolved as: (1) whether the scientific community generally accepts that a short episode of hypoglycemia can cause PVL such as that shown on Lugo's MRI; and (2) whether the plaintiffs' experts could reasonably opine that Lugo's episode of hypoglycemia actually caused his injury. With respect to the first issue, the Supreme Court concluded that the plaintiffs had failed to demonstrate that it is generally accepted that hypoglycemia can cause PVL "as suffered by [Lugo]." In arriving at this determination, the Court highlighted the testimony of the defendant's experts that the patients studied in the Burns article could have suffered from hypoxic ischemic encephalopathy, and noted that the Volpe textbook stated that the topography of injuries associated with PVL differed "somewhat" from that observed with hypoxic ischemic injury. In addition, the Supreme Court concluded that Dr. Peyster's inability to label any of the medical literature he had

reviewed as authoritative ran "counter" to a conclusion that the findings set forth therein were generally accepted in the scientific community.

With respect to the second issue, the Supreme Court asserted that "even if it were generally accepted that a hypoglycemic episode could cause [PVL], [the] plaintiff[s'] evidence fails to demonstrate a factual issue as to whether the hypoglycemic episode suffered by [Lugo] caused his brain injury." Addressing the factors Dr. Katz cited in support of his conclusion that Lugo's episode of hypoglycemia caused his injury, the Supreme Court concluded that, based on the testimony of the plaintiffs' experts, although Lugo's MRI did not exclude hypoglycemia as the cause of his injury, it also did not rule out other possible causes, such as hypoxia or ischemia. In addition, the Supreme Court concluded that nothing in the plaintiffs' evidence "address[ed]" Dr. Pavlakis's testimony that hypoxia and/or ischemia are the predominant causes of PVL. The Supreme Court noted that none of the articles relied upon by the plaintiffs' experts addressed an episode of hypoglycemia lasting 1 hour and 21 minutes, like that suffered by Lugo, and that Dr. Katz had conceded that the question of what duration and severity of blood glucose levels caused neurologic injury in humans is unclear. The Supreme Court acknowledged that, according to the Volpe textbook, the presence of seizures is a major indicator that an episode of hypoglycemia will result in neurological damage, but it rejected the assertion of the plaintiff's expert Dr. Trifiletti, set forth in his affirmation, that Lugo's post-birth tremors were consistent with subtle seizures as defined in the Volpe textbook, and that the seizures or tremors constituted evidence that the hypoglycemia caused neurological damage.

Addressing Dr. Katz's testimony that it was generally accepted that susceptibility to brain injury at a certain blood sugar level varies from individual to individual, the Supreme Court determined that Dr. Katz had provided "no indication" that Lugo was particularly susceptible to suffering such an injury from hypoglycemia. Additionally, the Supreme Court reasoned that although Dr. Katz testified that hypoglycemia is a toxic state that requires treatment regardless of the duration or blood sugar level, that testimony was inadequate to demonstrate causation in this matter. Finally, in response to Dr. Katz's testimony that there were no other possible causes of Lugo's injury, the Supreme Court noted Dr. Katz's concession that there were other possible causes of PVL, and that it was possible for Lugo to have been born with normal Apgar scores if the injury occurred in utero.

Based on the foregoing analysis, the Supreme Court concluded that the plaintiffs' experts had failed to demonstrate a foundation for their opinion that Lugo's episode of hypoglycemia caused his injury "in light of the evidence that perinatal ischemia or hypoxia is the overwhelming cause of [PVL]."

> "At best, even if [the] plaintiff[s'] experts have raised the possibility that hypoglycemia caused his injury, their testimony fails to sufficiently rule out other more likely possible causes, such as perinatal ischemia or hypoxia. It cannot be said, therefore, that [Lugo's] injury was, more likely than not, caused by the episode of hypoglycemia."

Thus, the Supreme Court reasoned that a jury verdict in favor of the plaintiffs would be "nothing more than speculation and guesswork," and the defendant was entitled to summary judgment dismissing the complaint because the plaintiffs had failed to raise a triable issue of fact regarding causation.

In a judgment entered February 1, 2010, upon the foregoing order, the Supreme Court dismissed the complaint. For the reasons that follow, we reverse the judgment.

Discussion

The *Frye* Test

In determining the admissibility of expert testimony, New York follows the rule of *Frye v United States* (293 F 1013) "that expert testimony based on scientific principles or procedures is admissible but only after a principle or procedure has 'gained general acceptance' in its specified field" (*People v Wesley,* 83 NY2d 417, 422, quoting *Frye v United States,* 293 F at 1014; *see People v Wernick,* 89 NY2d 111, 115; *Lipschitz v Stein,* 65 AD3d 573, 575; *Nonnon v City of New York,* 32 AD3d 91, 101, *affd on other grounds* 9 NY3d 825; *Zito v Zabarsky,* 28 AD3d 42, 44; *see also Giordano v Market Am., Inc.,* 15 NY3d 590, 601). In *Frye,* the United States Court of Appeals for the District of Columbia Circuit concluded that expert testimony as to the results of a "systolic blood pressure deception test" was inadmissible because the test had not yet gained general acceptance and scientific recognition among physiological and psychological authorities (*Frye v United States,* 293 F at 1014). In so concluding, the *Frye* court articulated the following holding concerning expert opinion testimony based upon deductive reasoning:

> "Just when a scientific principle or discovery crosses the line between the experimental and demonstrable stages is difficult to define. Somewhere in this twilight zone the evidential force of the principle must be recognized, and while courts will go a long way in admitting expert testimony deduced from a well-recognized scientific principle or discovery, the thing from which the deduction is made must be sufficiently established to have gained general acceptance in the particular field in which it belongs" (*id*.).

In accordance with this holding, a *Frye* inquiry is directed at the basis for the expert's

opinion and does not examine whether the expert's conclusion is sound. "*Frye* is not concerned with the reliability of a certain expert's conclusions, but instead with 'whether the experts' deductions are based on principles that are sufficiently established to have gained general acceptance as reliable'" (*Nonnon v City of New York,* 32 AD3d at 103, quoting *Marsh v Smyth,* 12 AD3d 307, 308; *see Lipschitz v Stein,* 65 AD3d at 576; *Alston v Sunharbor Manor, LLC,* 48 AD3d 600, 602; *DieJoia v Gacioch,* 42 AD3d 977, 979; *see also Ellis v Eng,* 70 AD3d 887, 892). Put another way, "[t]he court's job is not to decide who is right and who is wrong, but rather to decide whether or not there is sufficient scientific support for the expert's theory" (*Gallegos v Elite Model Mgt. Corp.,* 195 Misc 2d 223, 225). "'[G]eneral acceptance does not necessarily mean that a majority of the scientists involved subscribe to the conclusion. Rather it means that those espousing the theory or opinion have followed generally accepted scientific principles and methodology in evaluating clinical data to reach their conclusions'" (*Zito v Zabarsky,* 28 AD3d at 44, quoting *Beck v Warner-Lambert Co.,* 2002 NY Slip Op 40431[U], *6-7).

Thus, the limited purpose of the *Frye* test is to ascertain whether the expert's conclusion is based upon accepted scientific principles, rather than simply the expert's own unsupported beliefs (*see DieJoia v Gacioch,* 42 AD3d at 980; *Zito v Zabarsky,* 28 AD3d at 46; *see also Rowe v Fisher,* 82 AD3d 490, 491). As Justice Catterson of the Appellate Division, First Department, stated in his concurrence in *Styles v General Motors Corp.* (20 AD3d 338), "[t]he *Frye* 'general acceptance' test is intended to protect[ ] juries from being misled by expert opinions that may be couched in formidable scientific terminology but that are based on fanciful theories" (*id.* at 342 [internal quotation marks omitted]). Similarly, as stated by Justice Saxe of the Appellate Division, First Department, in his concurrence in *Marsh v Smyth* (12 AD3d 307), "[t]he appropriate question for the court at . . . a [*Frye*] hearing is the somewhat limited question of whether the proffered expert opinion properly relates existing data, studies or literature to the plaintiff's situation, or whether, instead, it is 'connected to existing data only by the ipse dixit of the expert'" (*id.* at 312, quoting *General Elec. Co. v Joiner,* 522 US 136, 146).

Since 1923, when *Frye* was decided, New York courts have applied the *Frye* test to the results of scientific testing or measurement procedures (*see e.g. People v Angelo,* 88 NY2d 217 [polygraph test results]; *People v Wesley,* 83 NY2d 417 [DNA profiling evidence]; *People v Middleton,* 54 NY2d 42 [bite mark identification procedure]; *People v Magri,* 3 NY2d 562 [use of radar device to measure speed]; *Styles v General Motors Corp.,* 20 AD3d 338 [procedure combining two separate automobile roof-stress tests]). In addition, the *Frye* test has been applied to assess the

reliability of psychological or physiological theories or syndromes (*see e.g. People v LeGrand,* 8 NY3d 449 [expert testimony on the reliability of eyewitness identifications]; *People v Wernick,* 89 NY2d 111 [neonaticide syndrome]; *People v Taylor,* 75 NY2d 277 [rape trauma syndrome]; *Oppenheim v United Charities of N.Y.,* 266 AD2d 116 [multiple chemical sensitivity syndrome]).

New York courts have also applied the *Frye* test to assess the reliability of an expert's theory of causation in a particular case. For this category of expert opinion testimony, "it is not necessary 'that the underlying support for the theory of causation consist of cases or studies considering circumstances exactly parallel to those under consideration in the litigation. It is sufficient if a synthesis of various studies or cases reasonably permits the conclusion reached by the plaintiff's expert'" (*Zito v Zabarsky,* 28 AD3d at 44, quoting *Marsh v Smyth,* 12 AD3d at 312-313 [Saxe, J., concurring]; *see DieJoia v Gacioch,* 42 AD3d at 979). "The fact that there [is] no textual authority directly on point to support the [expert's] opinion is relevant only to the weight to be given the testimony, but does not preclude its admissibility" (*Zito v Zabarsky,* 28 AD3d at 46; *see DieJoia v Gacioch,* 42 AD3d at 979).

Accordingly, this Court has affirmed the preclusion of expert testimony as to causation in circumstances where there was a complete absence of any literature or studies supporting the particular causation theory espoused by the expert. For example, in *Cumberbatch v Blanchette* (35 AD3d 341), the plaintiff's expert could cite to no relevant scientific data or studies to support his causation theory that fetal distress resulting from the compression of the infant plaintiff's head due to labor contractions, augmented by Pitocin, resulted in ischemia, which, in turn, resulted in an infarction, and he could cite to no instance when this type of injury had previously occurred in that manner (*id.* at 342). Thus, this Court concluded that the opinion of the plaintiff's expert was scientifically unreliable (*id.* at 342-343). Similarly, in *Lewin v County of Suffolk* (18 AD3d 621), the plaintiffs' experts conceded that no scientific organization or national board has expressly recognized a causal relationship between in utero exposure to the pesticide Malathion and birth defects, and the peer-reviewed scientific articles and textbooks relied upon by the plaintiffs' experts did not establish the existence of such a relationship (*id.* at 622). Under those circumstances, this Court concluded that the methodology employed by the plaintiffs' experts in correlating such exposure to birth defects was "fundamentally speculative" and that the Supreme Court had properly precluded the plaintiffs' experts from testifying (*id.*). And in *Hooks v Court St. Med., P.C.* (15 AD3d 544), the plaintiff's expert could not cite to any relevant scientific data or studies showing a causal link between the misuse of an electric muscle-stimulating unit and glossopharyngeal neuralgia to support his theory

that the improper placement of electrodes of an electrical muscle-stimulating unit on the anterior neck of a patient can cause permanent nerve damage, and he could cite to no instance when that type of injury had previously occurred in that manner (*id.* at 545). Accordingly, this Court determined that the expert's opinion was scientifically unreliable (*id.*).

Standing in sharp contrast are cases in which the expert's opinion satisfied the *Frye* test because it was deduced from generally accepted scientific principles and supported by existing data or literature, although the expert could not point to a case or study involving circumstances exactly parallel to those at issue in the litigation to support his or her theory of causation. For instance, in *DieJoia v Gacioch* (42 AD3d 977), the Appellate Division, Fourth Department, concluded that the Supreme Court had applied the *Frye* test too restrictively in precluding the plaintiff's experts from testifying that a cardiac catheterization in the plaintiff's groin was the cause of the plaintiff's aortic thrombosis, which led to an acute spinal cord infarct and paralysis (*id.* at 977-978). Although the experts did not produce medical literature documenting a prior case study in which cardiac catheterization through the groin was the cause of aortic thrombosis that led to an acute spinal cord infarct and paralysis or linking a cardiac catheterization in the groin to these injuries, the conclusions of the plaintiff's experts were nonetheless deemed admissible under *Frye* because they were based on accepted scientific principles involving medicine and the vascular system and were not based solely upon the experts' own unsupported beliefs (*id.* at 979-980). Similarly, in *Zito v Zabarsky* (28 AD3d 42), the opinion testimony of the plaintiff's expert that there was a causal connection between an allegedly excessive dose of Zocor, a cholesterol-lowering drug, and the onset of polymyositis, was precluded by the Supreme Court, which concluded that the *Frye* test could not be satisfied without medical literature expressly reporting a connection between an excessive dose of Zocor and the onset of the disease (*id.* at 44-45). This Court concluded that the Supreme Court's application of the *Frye* test was "overly restrictive" because the plaintiff's experts had supported their theory of a causal nexus between an excessive dose of Zocor and polymyositis with generally accepted scientific principles and existing data, including a case study documenting a patient who had been diagnosed with polymyositis after being prescribed a generic form of Zocor at a dosage different than that prescribed to the plaintiff (*id.* at 45). This Court held that the theory of causation of the plaintiff's experts "was based upon more than theoretical speculation, or a scientific 'hunch,'" and that the lack of textual authority directly on point pertained to the weight to be given to the experts' testimony, but did not preclude its admissibility (*id.* at 46).

Here, too, the plaintiffs demonstrated that their experts' theory of causation was based

upon generally accepted scientific principles, as was their burden (*see Del Maestro v Grecco,* 16 AD3d 364), and in concluding that this opinion testimony was inadmissible, the Supreme Court applied the Frye test too restrictively. At the *Frye* hearing, the plaintiffs' expert Dr. Katz explained that his conclusion that an episode of hypoglycemia lasting 81 minutes at a level of 3 mg/dL could cause neurologic damage of the type sustained by Lugo, i.e., PVL, was based on several generally accepted scientific principles: namely, that hypoglycemia causes brain injury, that certain infants are more susceptible than others to neurologic injury, and that hypoglycemia is a toxic and dangerous state with no safe level. The defendant's experts did not dispute the general acceptance of the foregoing scientific principles. To the contrary, the defendant's expert Dr. Pavlakis confirmed that it was generally accepted that hypoglycemia can cause brain damage, that the scientific community does not recognize any level or duration of hypoglycemia considered safe and incapable of causing brain damage, and that individual susceptibility to toxic states varies among newborns.

In addition, the plaintiffs' expert Dr. Peyster explained that PVL was simply a term that refers to damage to the deep white brain matter next to the ventricles which appears as an abnormality on an MRI brain scan, and the evidence presented at the *Frye* hearing established general acceptance of the scientific principle that hypoglycemia can cause PVL. Both Drs. Katz and Peyster testified that their opinion that hypoglycemia can cause PVL was supported by the Volpe textbook, which discusses neuropathic studies indicating that hypoglycemia is a precedent of PVL. Dr. Katz characterized the Volpe textbook as a "well written outline" of certain neonatal neurologic principles, although he acknowledged that not everyone agreed with all of its conclusions, and Dr. Peyster characterized the Volpe textbook as the best text he knew of on the topic of pediatric neurology. These assessments of the Volpe textbook were not challenged by the defendant's experts. In addition, Dr. Jahre's testimony that hypoglycemia can cause brain damage in the form of white matter damage against the ventricles provided further evidence of the acceptance of the general principle that hypoglycemia can cause PVL. Although the defendant's expert Dr. Pavlakis opined that PVL is almost always caused by a decrease of blood flow or oxygen to a baby between 28 and 40 weeks of age, he cited to no medical literature or case studies to support this specific assertion, and even he acknowledged that hypoglycemia can cause brain abnormalities discernable on an MRI film.

Concededly, the plaintiffs' experts failed to produce a case or study reporting an occurrence of PVL in circumstances exactly parallel to those at issue here—i.e., after a single episode of neonatal hypoglycemia at a level of 3 mg/dL lasting 81 minutes, or any literature expressly supporting their theory that such an episode of hypoglycemia could result in PVL. Nevertheless, the

plaintiffs demonstrated that their theory of causation was reasonably permitted by a synthesis of the medical literature discussed at the hearing (*see DieJoia v Gacioch,* 42 AD3d at 979; *Zito v Zabarsky,* 28 AD3d at 44; *Marsh v Smyth,* 12 AD3d at 312-313). Although the Burns article was not designed to test the relationship between the severity or duration of hypoglycemia and neurodevelopmental outcomes, it limited its study to patients who had experienced neonatal hypoglycemia and excluded those who had suffered from other conditions, such as hypoxic ischemia, and it determined that 94% of the subjects studied, 63% of whom had only experienced one episode of hypoglycemia, had evidence of white matter abnormalities on their MRI brain scans. Although the Kinnala article had excluded infants who had experienced only one episode of hypoglycemia prior to six hours of age, it also documented a patient who had experienced an episode of hypoglycemia at seven hours of age which lasted two hours at a minimum glucose level of 32 mg/dL, a level "dramatically" higher than Lugo's glucose level of 3 mg/dL during his episode of hypoglycemia. That patient had shown evidence of neurologic injury on an MRI, although that abnormality had subsequently resolved. Finally, the Alkalay article, which reviewed the Kinnala article and 15 others, concluded that plasma glucose levels of less than 25 mg/dL of several hours' duration—again, a level far higher than that experienced by Lugo—may increase the relative risk for adverse neurologic outcome.

To be sure, none of the foregoing articles, read in isolation, provides conclusive support for the theory of causation espoused by the plaintiffs' experts. However, when considered in the aggregate for the limited purpose of applying the *Frye* test, and against the backdrop of the undisputed generally accepted principles concerning hypoglycemia set forth at the hearing, those articles establish that this theory was properly based upon far more than theoretical speculation or a scientific "hunch" (*see Zito v Zabarsky,* 28 AD3d at 46). Synthesized, the materials produced by the plaintiffs' experts at the *Frye* hearing provided an objective basis for their opinion that a period of severe hypoglycemia of relatively short duration can cause neurologic injury reflected as PVL on a MRI brain scan. The absence of medical literature directly on point with the circumstances at bar pertains to the weight to be given to this opinion testimony, but does not preclude its admissibility (*see DieJoia v Gacioch,* 42 AD3d at 979; *Zito v Zabarsky,* 28 AD3d at 46).

In concluding that the opinion testimony of the plaintiffs' experts did not satisfy the *Frye* test, the Supreme Court emphasized the fact that those experts were unable to characterize the literature upon which they relied as "authoritative." Seemingly, the Supreme Court ascribed significance to the experts' willingness to apply this label while disregarding the hearing testimony that the term "authoritative" is not generally applied to medical literature and that the materials

discussed at the hearing represented the current science with regard to brain injuries resulting from neonatal hypoglycemia.

We agree with Justice Saxe that when the *Frye* test is applied to a theory of causation, "the court's concern must be limited to making sure that within the scientific field in question, there is a substantive, demonstrable, objective basis for the expert's conclusion," and that "[t]he focus of the inquiry in such an instance should not be upon how widespread the theory's acceptance is, but should instead consider whether a reasonable quantum of legitimate support exists in the literature for the expert's views" (*Marsh v Smyth,* 12 AD3d at 312). In this case, the plaintiffs' experts amply demonstrated the existence of such a basis for their theory of causation, and in precluding their opinion testimony, the Supreme Court applied the *Frye* test in an overly restrictive manner. Both the plaintiffs' experts and the defendant's experts agree that an episode of severe glucose deprivation in a newborn can cause neurologic damage; the principal dispute between them, which was emphasized by the testimony at the *Frye* hearing, is over how long such an episode must last before neurologic damage results. This factual disagreement should not have been resolved as a matter of law by the Supreme Court in the course of its *Frye* inquiry.

The purpose of the *Frye* test is not to preclude expert opinion testimony based upon reasonable extrapolations from conceded legitimate empirical data. It would be as unreasonable to preclude a 45-year smoker from seeking recovery if the only available empirical data addressed 50-year smokers as it was to preclude the instant plaintiffs' experts from testifying, based on their reasonable extrapolations from existing legitimate empirical data, that Lugo's severe episode of neonatal hypoglycemia caused his brain injuries.

Foundation

In addition, we disagree with the Supreme Court's conclusion that the theory of causation espoused by the plaintiffs' experts lacked an adequate foundation for admissibility. "The *Frye* inquiry is separate and distinct from the admissibility question applied to all evidence--whether there is a proper foundation--to determine whether the accepted methods were appropriately employed in a particular case" (*Parker v Mobil Oil Corp.,* 7 NY3d 434, 447; *see People v Wesley,* 83 NY2d at 428-429; *Jackson v Nutmeg Tech., Inc.,* 43 AD3d 599, 601). "The focus moves from the general reliability concerns of *Frye* to the specific reliability of the procedures followed to generate the evidence proffered and whether they establish a foundation for the reception of the evidence at trial" (*People v Wesley,* 83 NY2d at 429). "The foundation . . . should not include a

determination of the court that such evidence is true. That function should be left to the jury" (*id.* at 425).

Here, the level (3 mg/dL) and duration (81 minutes) of Lugo's hypoglycemia episode were precisely quantified by the plaintiffs' experts at the *Frye* hearing (*cf. Parker v Mobil Oil Corp.,* 7 NY3d at 449-450), and the Supreme Court did not conclude that these measurements were unreliable. In addition, the plaintiffs' experts made specific reference to the contents of numerous articles documenting brain MRI abnormalities in patients who had experienced hypoglycemia to support their opinion that there was a causal connection between Lugo's episode of hypoglycemia and the brain abnormalities later observed on his MRI film (*see Jackson v Nutmeg Tech., Inc.,* 43 AD3d at 602). Under these circumstances, we conclude that the Supreme Court improvidently exercised its discretion in concluding that the plaintiffs' experts failed to proffer sufficient foundational evidence to support the admissibility of their testimony at trial.

The Supreme Court's conclusion that the opinion of the plaintiffs' experts lacked an adequate foundation rested largely on its findings that the evidence presented at the *Frye* hearing established that perinatal ischemia or hypoxia is the overwhelming cause of PVL and that the testimony of the plaintiffs' experts did not eliminate other "more likely possible causes" of Lugo's PVL. In relying upon such reasoning, the Supreme Court, in effect, rendered an assessment as to the ultimate merit of the opinion testimony of the plaintiffs' experts (*see People v Wesley,* 83 NY2d at 425). Clearly, numerous factual disagreements between the parties' experts were highlighted at the *Frye* hearing, including, but not limited to, the specific appearance of Lugo's brain MRI abnormalities and their cause. However, these factual disagreements go to the weight to be accorded to the testimony of the plaintiffs' experts by the trier of fact, and not the admissibility of such testimony (*see Jackson v Nutmeg Tech., Inc.,* 43 AD3d at 602).

Summary Judgment

Finally, in light of our determination that the theory of causation espoused by the plaintiffs' experts is admissible at trial, we conclude that the Supreme Court improperly granted that branch of the defendant's motion which was for summary judgment dismissing the complaint. Briefly, although the defendant's expert submissions established, prima facie, that Lugo's brain damage was not caused by his episode of neonatal hypoglycemia, the plaintiffs, in opposition, raised a triable issue of fact on this point through the submission of admissible expert opinion evidence (*see generally Alvarez v Prospect Hosp.,* 68 NY2d 320, 324; *Zuckerman v City of New York,* 49 NY2d 557, 562).

Thus, under the particular circumstances of this case, the Supreme Court should have denied that branch of the defendant's motion which was for summary judgment dismissing the complaint.

The appeal from the intermediate order must be dismissed because the right of direct appeal therefrom terminated with the entry of judgment in the action (*see Matter of Aho,* 39 NY2d 241, 248). The issues raised on the appeal from the order are brought up for review and have been considered on the appeal from the judgment (*see* CPLR 5501[a][1]).

Accordingly, the judgment is reversed, on the law, that branch of the defendant's motion which was for summary judgment dismissing the complaint is denied, and the order is modified accordingly.

RIVERA, J.P., FLORIO and LOTT, JJ., concur.

ORDERED that the appeal from the order is dismissed; and it is further,

ORDERED that the judgment is reversed, on the law, that branch of the defendant's motion which was for summary judgment dismissing the complaint is denied, and the order is modified accordingly; and it is further,

ORDERED that one bill of costs is awarded to the appellants.

ENTER:

Matthew G. Kiernan
Clerk of the Court

Document 11

Topic Outline:
David M. Mahalick, Ph.D, ABPN

OUTLINE

Understanding Traumatic Brain Injury Cases

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Cases That Are Typically Seen by Neuropsychologists:

- Liability/Head Injury.
- Worker's Comp.
- Toxic Exposure: lead, chromium, organic solvents.
- Medical Malpractice: neurosurgical, neurological, etc.
- Criminal: diminished capacity.

Neuropsychology:

Typically defined as being the study of brain-behavior relationships.

The Role of Neuropsychology:

Provide an objective examination of cognitive, psychological, and physical functions.
Providing litigation support:

- Understanding pertinent aspects of the medical record.
- Consultation relevant to cross examination of other experts.

Objective NP Tests:

A Comprehensive Neuropsychological will typically take approximately 5-8hrs, and includes tasks assessing:

- Behavioral/psychological functioning
- Malingering/Motivation/Effort
- Sensorium
- Attention/Concentration
- Motor functions
- Language functions
- Memory
  - Verbal.
  - Visual
  - Immediate.

- STM.
- LTM.

- Visuospatial processing
- Intellectual functions

Diagnostic Criteria for TBI:

- Positive Loss of Consciousness (i.e., LOC)
- If no LOC must be positive alteration of Mental Status (MS)
- Other clinical feartures:
  - Retrograde Amnesia
  - Anterograde Amnesia
  - Post-traumatic Amnesia (PTA)
- HI secondary to whiplash with neg. LOC & neg. altered MS- HIGHLY QUESTIONABLE

Retrograde Amnesia (RA):

- The inability to recall events immediately preceding the injury.
- Usually measured in seconds, however, in more severe cases may be hours, months and sometimes years.
- RA is predictable and is not selective.
- Very important with Children.

Anterograde Amnesia:

- The period of time wherein there is no recall for events subsequent to the injury.
- May last seconds, hours, months, etc .
- When patchy recall evolves PTA comes into effect.

Post-traumatic Amnesia (PTA):

- The patient's inability to appreciate his/her moment to moment psychological. environment in a consistent and continuous fashion.
- Duration of PTA is the gold standard for evaluating the severity of neurotrauma and its post-acute neurobehavioral sequealae.
- State of being groggy/dazed/confused

Classification of Head Injury:

- Mild- PTA less than 24 hours
- Moderate- PTA 24 hours to 1 week
- Severe- PTA greater than 1 week

Emergence From Coma:

- Restlessness
- Agitation/Combativeness
- Irritability
- Confusion/Disorientation
- Distractibility
- Children recovery rapidly or perish

Course of Neurobehavioral Recovery:

- Most recovery will take place within the first 12 months
- Significant recover continues between 12-24 months
- Spontaneous recovery terminates at about 3 years.

Initial NP Testing Records:

- Deficits should be most severe following acute phase of injury.
- Serial (f/u) examination in real HI cases will demonstrate improvement vs. deterioration (n.b., atypical).
- Deterioration may result from some secondary underlying condition such as Chronic SDH, seizures, etc.

Malingering:

The intentional production of false or grossly exaggerated physical or psychological symptoms motivated by external incentives. Children generally do not malinger.

Malingering v. Non-malingering:

- Very rarely is there florid malingering.
- There is usually a conscious and/or unconscious effort on behalf of the patient to present in an unfavorable light for primary gain or secondary gain.
- There is usually inter-test inconsistency.
- There is usually intra-test inconsistency.

Rey 15 Item Test:

- Severe TBI cases perform as low as 9/15
- Psychiatric cases perform ~12/15
- Below cutoff suggests an attempt to present in an unfavorable light.

Signs of Malingering/Lack of Effort on Memory Tests:

- Recognition Recall Trials will be much more impaired than spontaneous recall trials.
- Memory scores will evidence sharp declines and/or inconsistency between testings.
- Impaired Attention scores in the presence of intact memory scores.

Signs of Malingering/Lack of Effort on Motor Tests:

- Fine motor speed will be severely impaired on tests of pure motor speed.
- Less obvious tests of fine motor speed will be unimpaired.
- High levels of variability between testings.

Forced Choice Exams:

Trial I- 5" delay
Trial II- 10" delay
Trial III- 15" delay

- No significant difficulty between trials
- Normals performed the same on all 3 trials
- Malingerers perform progressively worse.

Important Records Proximal to the Head Injury:

- Police Report.
- EMT/Paramedic report (? LOC or disorientation).
- Emergency Room Record.
- Nursing notes.
- GCS.
- Progress notes.
- Consultant reports (Neurology, Neuropsychology, Speech).
- Social Work notes.
- Discharge directives.

Important Sources of Information for TBI Cases:

- Medical records relating to the HI.
- Records relating to past and present treatment.
- Previous Neuropsychologicals.
- Premorbid records.
- Clinical Interview material.
- All objective Neuropsychological test evidence.

Important Premorbid Records:

- Academic Transcripts.
- CST Evaluations
- Achievement Testing (SAT's, CAT's)
- Job performance.
- Family Practice Records.
- Pediatric/well-baby records.
- Testings from any previous injuries.

Clinical Interview Material:

- Ptx's account of the accident in detail.
- Acute complaints
- PMHx.
- Social/family History
- Educational History.
- Employment History.
- Military History.
- History of arrests.
- Current complaints.

Document 12

Ruppel v. Kucanin

Not Reported in F.Supp.2d, 2011 WL 2470621 (N.D.Ind.), 85 Fed. R. Evid. Serv. 859
(Cite as: 2011 WL 2470621 (N.D.Ind.))

United States District Court,
N.D. Indiana,
South Bend Division.
Dale RUPPEL, Shelley Ruppel, Plaintiffs,
v.
Dragan KUCANIN, Fedex Ground Package System, Inc., Defendants.

No. 3:08 CV 591.
June 20, 2011.

Robert J. Ehrenberg, Barry R. Conybeare, Conybeare Law Office PC, Saint Joseph, MI, for Plaintiffs.

Christopher J. Spataro, Carl A. Greci, Baker & Daniels, South Bend, IN, for Defendants.

OPINION AND ORDER

JAMES T. MOODY, District Judge.

***1** Defendant Dragan Kucanin ("Kucanin") a driver for defendant FedEx Ground Package System, Inc. ("FedEx") drove his semi-tractor trailer rig into a semi-tractor trailer rig driven by plaintiff Dale Ruppel ("Ruppel") when Ruppel was stopped in a construction zone. The accident between Ruppel and Kucanin occurred on Interstate 80/94 East in Calumet Township, Lake County, Indiana, on January 8, 2008. Both vehicles were damaged in the collision. (Pls.' Exh. 2, DE # 57–2.) Ruppel and his wife Shelley Ruppel (collectively "the Ruppels") sued FedEx and Kucanin for damages that he allegedly sustained as a result of the accident. (DE # 1.) Defendants have admitted that Kucanin was negligent in operating his semi-tractor trailer rig causing the crash with Ruppel's semi-tractor trailer rig. (Responses to Plaintiffs' Requests to Admit to Dragan Kucanin and FedEx Ground Package system, Inc., Pls.' Exh. 1, DE # 57–1 at 1.) They also admit that Ruppel has no comparative negligence. (*Id.*) Defendants have moved to exclude Ruppel's evidence related to an alleged diffuse axonal brain injury under FEDERAL RULE OF EVIDENCE 702 and for summary judgment on Ruppel's claim for a diffuse axonal injury. (DE54–56.) As explained below, both motions will be denied.

Defendants argue that two pieces of Ruppel's proposed evidence should be excluded under FEDERAL RULE OF EVIDENCE 702. First, they argue that Dr. Christine Pareigis ("Dr.Pareigis") is unqualified to diagnose a diffuse axonal injury because she is not qualified to diagnose an injury. (DE # 56 at 13.) Second, they argue that Dr. Randall Benson's ("Dr.Benson") opinion as to Ruppel's condition of a diffuse axonal injury and its causation is unreliable under RULE 702 because it is based on two controversial methods: diffusion tensor imaging ("DTI") and fractional anisotrophy ("FA") quantification from that imaging and because the wording of his opinion is not sufficiently certain. (*Id.* at 15.) Defendants argue that once this evidence is excluded, Ruppel will have no evidence as to his diagnosis of diffuse axonal injury or to its causation, and therefore, summary judgment should be granted against Ruppel on his claim related to diffuse axonal injury. The court will begin with an analysis of whether the contested evidence should be excluded under *Daubert.*

I. MOTION TO EXCLUDE EVIDENCE

To be admissible, expert testimony must satisfy the conditions of FEDERAL RULE OF EVIDENCE 702 and *Daubert v. Merrell Dow Pharmaceuticals, Inc.*, 509 U.S. 579, 113 S.Ct. 2786, 125 L.Ed.2d 469 (1993). *United States v. Parra,* 402 F.3d 752, 758 (2005). RULE 702 provides:

If scientific, technical, or other specialized

> knowledge will assist the trier of fact to understand the evidence or to determine a fact in issue, a witness qualified as an expert by knowledge, skill, experience, training, or education, may testify thereto in the form of an opinion or otherwise, if (1) the testimony is based upon sufficient facts or data, (2) the testimony is the product of reliable principles and methods, and (3) the witness has applied the principles and methods reliably to the facts of the case.

***2** Under *Daubert*, the court must be satisfied, first, that the expert can testify based on *valid* scientific, technical or specialized knowledge, *i.e.*, whether the expert's testimony is reliable, and second, whether that testimony will be of assistance to the trier of fact. 509 U.S. at 592; *United States v. Welch*, 368 F.3d 970, 973 (7th Cir.2004); *Ammons v. Aramark Uniform Services, Inc.*, 368 F.3d 809, 816 (7th Cir.2004). The reliability issue requires the court to determine whether the expert is qualified in the relevant field and used a reliable methodology to arrive at his or her conclusions. *Zelinski v. Columbia 300, Inc.*, 335 F.3d 633, 640 (7th Cir.2003); *Smith v. Ford Motor Co.*, 215 F.3d 713, 718 (7th Cir.2000).

A. Dr. Pareigis's qualifications

FEDERAL RULE OF EVIDENCE 702 provides that a witness qualified as an expert "by knowledge, skill, experience, training, or education, may testify thereto in the form of an opinion or otherwise." Defendants are correct that under RULE 702, a witness may only offer an expert opinion on an area within his or her field of specialized knowledge. (DE # 56 at 15 (citing *Jones v. Elec. Co.*, 188 F.3d 709, 723 (7th Cir.1999)).) To determine if a witness is an expert, the court must compare the area in which the witness has superior skill, knowledge, education, or expertise to the area of her proposed testimony. *Jones*, 188 F.3d at 723.

The parties contest whether Dr. Pareigis can testify as to Ruppel's diagnosis of diffuse axonal injury. Defendants argue that Dr. Pareigis cannot testify as to Ruppel's diagnosis because she is an expert in rehabilitation, not diagnosis. (DE # 56 at 16.) Defendants also submit proposed testimony from their witness, neurologist Dr. John Talbott, that physiatrists normally do not make a diagnosis of diffuse axonal injury in a "neurology field." (John Talbott Dep. 37, Defs.' Exh. R, DE # 56–18.) In response, the Ruppels assert that Dr. Pareigis is "board certified in physical medicine and rehabilitation and is qualified by knowledge, skill, experience, training and education to testify in the form of opinion as to a diagnosis of closed head injury with diffuse axonal damage and the probable cause thereof." (DE # 57 at 4.)

Dr. Pareigis is board certified in physical medicine and rehabilitation, a practice speciality which she stated "includes the evaluation, diagnosis, and treatment of brain injury." (Dr. Christine Pareigis Aff., Pls.' Exh. 4, DE # 57–4 ¶ 5.) She is now the Medical Director of Rehabilitation at the Lakefront Medical Center in St. Joseph, Michigan. (*Id.* ¶ 2.) In that position, which she has held for 21 years, she regularly diagnoses, evaluates, and treats brain injury. (*Id.*) She also maintains a private practice in St. Joseph, Michigan where she regularly evaluates, diagnoses, and treats brain injury. (*Id.* ¶ 4.) Dr. Pareigis stated that she sees an average of ten new cases a year involving injuries like Ruppel's for a total of about two hundred cases over the course of her career. (Dr. Christine Pareigis Dep. 48, Defs.' Exh. D., DE # 56–4.)

***3** She previously served as the Medical Director of Rehabilitation at New Medico / Visitors Hospital in Buchanan, Michigan. (Pareigis Aff. ¶ 3.) This institution is a head injury clinic, affiliated with a national program, that evaluates, diagnoses, and treats head injury patients. (*Id.*) As the Medical Director, 90% to 100% of Dr. Pareigis's practice involved the evaluation, diagnosis, and treatment of closed head injury. (*Id.*)

First, defendants appear to argue that Dr. Pareigis

cannot testify as to Ruppel's diagnosis of diffuse axonal injury because her diagnosis was based in part on the results of DTI and she received help from a radiologist in deciding to run that scan. (Christine Pareigis Dep. 23.) They also take issue with that fact that she used the abbreviations SWY/DTI explaining that she needed to do so because they were radiology terms. (*Id.*) Dr. Pareigis testified that she ordered the magnetic resonance imaging ("MRI") with SWY/DTI because she felt that it would give her "more evidence regarding axonal diffuse injuries." (Pareigis Dep. 23.) At the time of the deposition, she had not received the results of the DTI scan and she did not expect it to change the course of treatment, but she thought it might help her to understand Ruppel's injury a little better. (*Id.*)

Dr. Pareigis's testimony that she consulted with a radiologist in deciding to order the MRI does not disqualify her as an expert because she can base her conclusion on the opinions of others as long as they are the type of materials reasonably relied upon by experts in her field. *United States v. Gardner*, 211 F.3d 1049, 1054 (7th Cir.2000). RULE 703, the corollary to RULE 702, is instructive on this matter. RULE 703 states that an expert can rely on facts and data not admissible into evidence as long as the facts and data are "of a type reasonably relied upon by experts in the particular field in forming opinions or inferences upon the subject." The Advisory Committee notes to the 1972 amendments to RULE 703 state that "a physician in his own practice bases his diagnosis on information from numerous sources and of considerable variety including statements by patients and relatives, reports and opinions from nurses, technicians and other doctors, hospital records and X-rays." Accordingly, the FEDERAL RULES OF EVIDENCE account for the reality that doctors, like Dr. Pareigis, rely on the opinions of other doctors in reaching their diagnoses.

Further, Dr. Pareigis did not rely on the DTI scan alone in making her diagnosis. In fact, she stated that she thought the DTI scan would help her learn more about the injury but that it probably would not change her course of treatment. So her testimony is not unreliable because she consulted with another doctor in deciding the course of treatment for her patient. Instead, evidence that Dr. Pareigis consulted a radiologist to order the MRI would go to the weight that the jury may give her testimony.

***4** Apart from her reliance on the DTI scan, defendants argue that Dr. Pareigis is not qualified to testify at all as to Ruppel's diffuse of axonal brain injury diagnosis because making a diagnosis is outside of her expertise. In making this argument defendants cite to two cases, *Jones* and *Cunningham v. Masterwear, Inc.* In both, the court determined that qualified experts cannot testify on subjects that are outside of their field of expertise. In *Jones*, the United States Court of Appeals for the Seventh Circuit found that the witness, a doctor in metallurgy, the study of metals, was not qualified to testify as to how manganese affects the human body and is processed by the lungs. 188 F.3d at 723. In his testimony, the witness admitted that toxicology and how the body absorbs certain substances was outside of his expertise. *Id.* Similarly in *Cunningham*, the court held that witness medical doctors could not testify as to whether a hazardous chemical caused the plaintiffs' illnesses because the witnesses did not have any training in epidemiology or toxicology. No. 1:04–cv–1616, 2007 WL 1164832, at *10 (S.D.Ind. Apr.15, 2007).

In this case, Dr. Pareigis stated that the diagnosis of brain injuries is firmly within her area of expertise. The Seventh Circuit has noted that while "extensive academic and practical expertise" may be sufficient to qualify a witness as an expert, RULE 702 "specifically contemplates the admission of testimony by experts whose knowledge is based on experience." *Smith*, 215 F.3d at 718 (internal quotations and citations omitted). As described above, in her affidavit [FN1] Dr. Pareigis stated that she has over thirty years of experience in diagnosing brain injuries. This is the type of "exten-

sive hands-on experience over a meaningful period of time" that qualifies someone as an expert under RULE 702. *Jones*, 188 F.3d at 724. Thus the evidence before the court shows that Dr. Pareigis is qualified to testify as to Ruppel's diagnosis of a diffuse axonal brain injury.[FN2]

FN1. Defendants argue that Dr. Pareigis's affidavit cannot be used to show her qualifications when her qualifications were not established through her deposition. It is true that an "affidavit cannot be used to create a genuine issue of material fact where the affidavit differs from the prior deposition testimony to the point that it is ble." *Patterson v. Chicago Ass'n for Retarded Citizens*, 150 F.3d 719, 720 (7th Cir.1998). However, when "deposition testimony is ambiguous or incomplete ... the witness may legitimately clarify or expand upon that testimony by way of an affidavit." *Shepherd v. Slater Steels Corp.*, 168 F.3d 998, 1007 (7th Cir.1999). Dr. Pareigis's affidavit does not contradict her deposition testimony. Rather, the deposition testimony did not cover her qualifications and experience related to brain injury diagnosis.

FN2. Defendants do not argue that Dr. Pareigis was not qualified to testify as to causation. Accordingly, plaintiffs have not produced much evidence that she is qualified to testify as to causation. However, medical doctors do testify as to the issue of specific causation. *See e.g.*, *Cunningham*, 2007 WL 1164832, at *10–11 (citing Mary Sue Henifin, Howard M. Kipen & Susan R. Poulter, *Reference Guide on Medical Testimony* 444–45, in REFERENCE MANUAL ON SCIENTIFIC EVIDENCE (2nd ed.2000)). Further, in her deposition, Dr. Pareigis testified that she had seen "a great number of people" who suffered brain injury after motor vehicle accidents. (Christine Pareigis Dep. 47.) Thus her deposition testimony indicated that she does have experience in determining the specific causes of brain injury for her patients. Accordingly, at this time, the court will not exclude Dr. Pareigis's testimony as to the cause of diffuse axonal injury.

B. Dr. Benson's testimony

1. Dr. Benson's reliance on DTI

Defendants assert that Dr. Benson's expert testimony on diffuse axonal injury is unreliable under *Daubert* and RULE 702 because he relies on DTI which defendants argue is an unreliable technology that has not gained acceptance and because his reliance on FA quantification based on DTI comparisons is not the most accurate way to diagnose diffuse axonal brain injuries.

To begin, the court will give a brief overview of diffuse axonal brain injury, closed head injury, DTI, and how Dr. Benson used DTI to diagnose diffuse axonal injury in Ruppel. According to Dr. Benson, brain injury is classified as either focal or diffuse. (Dr. Randall Benson Aff., Pls.' Exh. 7, DE # 58–1 at ¶ 5.) A focal injury is a localized injury, such as that caused by a stroke, a direct blow to the head, or a aneurysm, and is typically a contusion on the surface of the brain, visible by conventional scanning. (*Id* .) On the other hand, a diffuse axonal injury involves scattered damage to the brain substance, particularly the white matter that is comprised of axon fibers. (*Id.*) A closed head (non-penetrating) brain injury, the most common type of traumatic brain injury, can include focal injury, diffuse injury, or both. (*Id.*) A brain injury can include only evidence of diffuse axonal injury. when it is a result of "relatively little direct impact to the skull such as during a motor vehicular collision with a restrained passenger and little or no impact to the head."

(*Id* .)

***5** According to Dr. Benson:

> Diffuse axonal injury is the hallmark pathology in closed head injury and is not visible on conventional MRI imaging in milder cases. Diffuse axonal injury results from acceleration or deceleration of the head (skull) which causes deformations (stretch and strain) of the brain substance leading to shear injury of white matter fibers.

(*Id.*) A traditional MRI shows the structure of the brain and the majority of people with mild brain injury will have a normal MRI even if they have significant impairment. (*Id.* ¶ 6.) DTI is a more sensitive, three-dimensional type of MRI that examines the microstructure of the white matter in the brain. (*Id.* ¶¶ 7–8.) DTI can show reduction in fractional anisotrophy ("FA") meaning that the white matter in the brain has been damaged. (*Id.* ¶ 12.) Because the reduction in FA caused by a milder traumatic brain injury ("TBI") cannot be seen by looking at a single scan standing alone, a TBI patient's imaging is evaluated for damage by comparing it to images of non-TBI control group's brains. (*Id.* ¶ 13.)

First, defendants cannot exclude Dr. Benson's opinion simply because DTI is not the most reliable way to diagnose a brain injury. They argue, and Dr. Benson testified, that the only definite way to identify a diffuse axonal brain injury is by autopsy. Barring that, they argue, as their expert Dr. Valerie Drnovsek ("Dr.Drnovsek") explains, that reduced FA may be detected through analysis with fiber-tracking algorithms. (DE # 56 at 10.) As defendants acknowledge, it is not reasonable to expect that Ruppel would have to submit to an autopsy in order to provide proof of his injuries. Contrary to defendants' contentions, expert opinions may be admitted even if they are not stated with absolute certainty. Indeed, in *Daubert* the Court stated, "[o]f course, it would be unreasonable to conclude that the subject of scientific testimony must be 'known' to a certainty; arguably, there are no certainties in science." *Daubert*, 509 U.S. at 590.

It is also unnecessary for Dr. Benson to have used fiber-tracking algorithms. The court's focus is on whether Dr. Benson's opinion is based on a reliable method, not on a method that defendants deem to be most reliable. *See e.g.*, *Cunningham*, 2007 WL 1164832, at *3 (stating "as long as [plaintiffs' proposed witness] used a reliable method to come up with his conclusions, it is not a problem that he did not use the method that Defendants claim is 'useful' "); *cf. Cooper v. Carl A. Nelson & Co.*, 211 F.3d 1008, 1020 (7th Cir.2000) (stating "[o]ur case law has recognized that experts in various fields may rely properly on a wide variety of sources and may employ a similarly wide choice of methodologies in developing an expert opinion.").

Further, Dr. Drnovsek identified fiber tracking algorithms analysis as a way to address certain deficiencies with FA quantitative analysis. (Dr. Drnovsek Report 4, Defs.' Exh. H, DE # 56–8.) In his affidavit, Dr. Benson stated that is not necessary. But Dr. Benson contends that this is not necessary because the problems addressed by this method are presented by scans that look at gray matter, not those that look only at white matter such as the ones he employs. (Dr. Benson Aff. ¶ 34.) The difference in opinion between the two experts is something that can be addressed at trial and does not make Dr. Benson's method so unreliable that his opinion need be excluded.

***6** As will be discussed, DTI and FA quantification based on comparative scans appear to be reliable methods for Dr. Benson to arrive at his expert opinion of both Ruppel's diagnosis of diffuse axonal injury and the cause of that injury. A district court has great latitude in determining not only how to measure the reliability of the proposed expert testimony but also whether the testimony is, in fact, reliable. *United States v. Pansier*, 576 F.3d 726, 737 (7th Cir.2009).

The Seventh Circuit has advised that "[t]o determine reliability, the court should consider the proposed expert's full range of experience and training, as well as the methodology used to arrive [at] a particular conclusion." *Id.* Defendants do not take issue with Dr. Benson's qualifications; they focus instead on the reliability of the methods he employed.

The Supreme Court, in *Daubert*, laid out four general criteria for determining the validity of an expert's methodology: (1) whether the theory has been or can be tested or falsified; (2) whether the theory or technique has been subject to peer review and publication; (3) whether there are known or potential rates of error with regard to specific techniques; and (4) whether the theory or approach has general acceptance. *Daubert*, 509 U.S. at 593–94. As "these factors do not establish a definitive checklist" for determining the reliability of expert testimony, the Seventh Circuit has described the *Daubert* test as a "non-exhaustive list of guideposts." *Trustees of Chi. Painters and Decorators Pension v. Royal Int'l Drywall & Decorating Inc.*, 493 F.3d 782, 787 (7th Cir.2007); *Am. Honda Motor Co., Inc. v. Allen*, 600 F.3d 813, 817 (7th Cir.2010). Further, the Seventh Circuit has employed other benchmarks which appear in the 2000 Advisory Committee's Notes to RULE 702 to gauge expert reliability, including whether the testimony relates to "matters growing naturally and directly out of research they have conducted independent of the litigation, or whether they have developed their opinions expressly for purposes of testifying"; "[w]hether the expert has adequately accounted for obvious alternative explanations"; and "[w]hether the expert is being as careful as he would be in his regular professional work outside his paid litigation consulting." *Id.* (alterations in *Allen*).

In this case, defendants argue that the DTI and FA quantification used by Dr. Benson are unreliable because 1) DTI is not generally accepted; 2) DTI cannot be tested 3) Dr. Benson has not considered alternative explanations for the comparatively decreased FA quantification found in the images; 4) Dr. Benson did not use proper methods and controls in his use of this imaging, especially considering that FA decreases with age; 5) Dr. Benson did not use the same level of intellectual rigor that is used by a regular expert in his field. (DE # 56 at 14.)

In response, the Ruppels argue that DTI is generally accepted in the relevant scientific community; DTI has been subjected to peer review and publication; DTI and FA quantification have low error rates; DTI and FA quantification was not developed for litigation; and DTI has been admitted by other courts. (DE # 57 at 20–23.) They also argue that defendants' experts lack the knowledge and qualifications to challenge the scientific reliability of DTI testing. (*Id.* at 25.) The court will now discuss the relevant factors in turn.

a. General acceptance of DTI

***7** The evidence shows that while DTI is a relatively new technology it is gaining general acceptance as a method for detecting TBI. First, as explained in further detail below, there have been numerous validation studies, published in peer reviewed journals, on the use of DTI to detect diffuse axonal injuries. (Dr. Benson Aff. ¶ 14.) Second, DTI is regularly used as a diagnostic tool at the Detroit Medical Center and at other locations throughout the country. (*Id.* ¶ 15.) Third, Dr. Benson, Dr. Pareigis, and Dr. Bradley Sewick, a neuropsychologist, all determined that DTI would be helpful in diagnosing Ruppel. (Dr. Bradley Sewick Aff. ¶ 10.) Fourth, the United States Army Telemedicine and Advanced Technology Research Command ("TATRC") sponsored a "Diffusion MRI TBI Roadmap Development Workshop" at which it was acknowledged: "DTI has detected abnormalities associated with brain trauma at several single centers." (Benson Aff. ¶ 4.) It was also stated that "the workshop seeks to identify and remove barriers to rapid translation of advanced diffusion MRI technology for TBI ... in order to expedite getting the benefits of diffusion MRI to reach those who need it most, espe-

cially injured soldiers and veterans." (*Id.*)

Fifth, in 2001, the Food and Drug Administration ("FDA") approved the product "Diffusion Tensor Imaging Option for MRI" for marketing as a Class II Special Control device. (Pl.'s Exh. 8, DE # 57–8.) Ruppel, citing to 21 U.S.C. § 360c(a)(3)(A), states that the FDA tested the software for safety and effectiveness before granting marketing permission. (DE # 57 at 21.) The letter from the FDA does not say this specifically. However, 21 U.S.C. § 360c(a)(3)(A) provides that approved Special Control devices are determined to be effective:

> on the basis of well-controlled investigations, including 1 or more clinical investigations where appropriate, by experts qualified by training and experience to evaluate the effectiveness of the device, from which investigations it can fairly and responsibly be concluded by qualified experts that the device will have the effect it purports or is represented to have under the conditions of use prescribed, recommended, or suggested in the labeling of the device.

So although the FDA letter itself does not address the effectiveness of DTI, but its approval for marketing by the FDA indicates that its effectiveness was determined pursuant to 21 U.S.C. § 360c(a)(3)(A). In fact, other courts that have found DTI to be a reliable method have noted that it is "FDA approved, peer reviewed and approved, and a commercially marketed modality which has been in clinical use for the evaluation of suspected head traumas including mild traumatic brain injury." *Hammar v. Sentinel Ins. Co., Ltd.*, No. 08–019984 at *2 (Fla.Cir.Ct.2010).

Sixth, Ruppel has pointed to several decisions in which trial court judges admitted DTI into evidence. *See e.g., Hammar*, No. 08–019984 at *2 (allowing DTI evidence to be admitted under the *Frye* standard); *Whilden v. Cline*, No. 08–cv–4210 (Col.Ct.Dist. May 10, 2010) (allowing an expert witness to rely on DTI evidence when testifying as to the diagnosis of mild TBI and its possible causation from an automobile accident as long as the expert's opinion was not based solely on DTI).

***8** On the other side, defendants' argument that DTI is not generally accepted is based primarily upon testimony that Dr. Benson provided in his deposition. (DE # 56 at 13 (citing Dr. Randall Benson Dep. 13, Defs.' Exh. F, DE # 56–6).) Defendants point to this portion of Dr. Benson's deposition:

> Q: I think at the beginning of your question you said some insurance companies would cover [DTI] and some wouldn't. Take your average hundred mild TBI patients, all things being equal, approximately how many of them after one or two regular MRIs showing no abnormalities would be able to get this more advanced MRI?
>
> A: I think very few, and the reason is that this technique that we're hoping will become a standard operating technique, it is clearly not something that is far enough along. I mean in terms of the commercialization of it, that insurance companies routinely will cover.
>
> Now having said that, we add these sequences onto standard sequences, and insurance companies do pay for it. But if a patient has already had one or two negative MRIs, I think its going to be, it is going to be very very difficult, you know, to convince the insurance company, which is why we're doing this work obviously.

(Dr. Benson Dep. 13–14.) This testimony focuses mostly on insurance companies' acceptance of DTI. Surely insurance companies' willingness to pay for a test is not dispositive of its reliability. Further, Dr. Benson also testified that some insurance companies would pay for DTI after an MRI showing no abnor-

mality and some would not because "that is just kind of a state of where we're at with insurance these days." (*Id.* at 12.) He did not say that insurance companies do not find DTI helpful, but only that they are reluctant to pay for it after a regular MRI shows no problems.

As shown above, DTI has been accepted within the medical community. It is regularly used at some hospitals even though it is not the regular standard of care at the average hospital. (*Id.* at 24.) Importantly, as discussed below, there are many articles published in peer-reviewed publications that cover the effectiveness of DTI in detecting mild TBI. All of the factors shown above weigh towards a finding that while DTI is a relatively new and developing technology, it is well on its way to gaining general acceptance in the scientific community as a tool for identifying mild TBI. Thus, the evidence shows that DTI and analysis of white matter in DTI images are generally accepted methods for determining mild TBI.

b. Peer review and publication

As of early 2010, there were 3,472 papers on DTI published in peer review journals. (Dr. Benson Aff. ¶ 17.) Eighty-three of these articles involved DTI in relation to TBI. (*Id.*) Of these 83 papers, a control group was used for the statistical analysis of 35 of them. (*Id.*) In the case that defendants rely upon to show the DTI has not been accepted by the courts, the trial judge determined that DTI could not be admitted to show mild traumatic brain injury in large part because the party moving to admit DTI evidence had not pointed to any articles showing that DTI was used for that purpose. *Bowles v. Pennington*, No. 06–cv–11030, at *3–4 (Col.Ct.Dist. Aug. 14, 2009). As just explained, that problem does not exist here because the Ruppels have pointed to many articles that discuss how DTI is effective in detecting mild brain injury. In fact, Dr. Benson's affidavit includes quotes from fourteen peer-reviewed articles that discuss how DTI can help detect TBI. (Dr. Benson Aff. ¶ 18.) Eleven of these excerpts specifically address the effectiveness of DTI in detecting mild TBI ("mTBI"). (*Id.*) Here is an example:

> ***9** Detection of ultrastructural damage by using DT imaging is a major advance in diagnostic imaging. Several studies have supported the capability of FA to help identify white matter abnormalities in patients with traumatic brain injury including mTBI. As confirmed by our findings, abnormal FA is detected even in the absence of other imaging abnormalities.

Michael Lipton, *Diffusion–Tensor Imaging Implicates Prefrontal Axonal Injury in Executive Function Impairment Following Very Mild Traumatic brain Injury*, RADIOLOGY, Sept. 2009, Vol. 252: No. 3. (Dr. Benson Aff. ¶ 18.f.) Another article stated, "Our study shows that DTI can be used to detect differences between patients with cognitive impairment after mild TBI and controls." Calvin Lo, *Diffusion Tensor Imaging Abnormalities in Patients with Mild Traumatic Brain Injury and Neurocognitive Impairment*, COMPUT ASSIST TOMOGR, March/April 2009, Vol. 33, No. 2. (Dr. Benson Aff. ¶ 18.i.) Thus, there are peer-reviewed articles on the effectiveness of DTI and FA quantification based on comparative DTI scans for detecting diffuse axonal brain injury. Accordingly, the concern that drove the judge's decision in *Bowles* does not exist here.

c. Ability of DTI and FA quantification to be tested and their error rate

As to the ability to test DTI and the FA quantification based on it and their reliability, defendants' main arguments are that decreased FA in DTI scans cannot be challenged in an objective sense and cannot be replicated.[FN3] (DE # 56 at 13.) However, the Ruppels have presented evidence that the DTI scan and resulting FA quantification analysis can be tested and replicated and that the error rate is not higher than other methods commonly relied upon such as MRIs. (Dr. Benson Aff. ¶¶ 34–36.) According to Dr. Benson, DTI has "good test retest reliability." (Dr. Benson Dep. 15.) He stated that DTI scans have shown high

reproducibility. (Dr. Benson Aff. ¶ 34.) Dr. Benson explained the numerous steps he took to minimize the error rates in his DTI analysis and he stated: "Statistically speaking, the clusters of abnormal voxels found in areas of Dale Ruppel's brain were there by chance is next to impossible." (Dr. Benson Aff. ¶ ¶ 29–32.) He also stated that the quantitative analysis of FA is reproducible. (*Id.* ¶ 34.)

> FN3. Dr. Drnovesk also concludes that Dr. Benson's study of Ruppel is flawed because the DTI scan was performed 27 months after the accident at issue and that decrease in FA caused by mild TBI is not detectable after three months from the date of the cause of an injury. (Dr. Drnovesk Report 5.) Defendants do not appear to address this conclusion in their motion or reply. Still, the court notes that Dr. Drnovesk's conclusion does not operate to block Dr. Benson's testimony on DTI and FA quantification from coming in all together. Rather it is an argument that defendants can raise at trial as to the weight that the fact-finder should afford to Dr. Benson's opinion.

As explained above, Ruppel has produced evidence that Dr. Benson's methods can be tested and that the error rate is not higher than that of other commonly used methods. While defendants' expert Dr. Drnovsek disagrees with Dr. Benson (Dr. Drnovsek Report 3), she does not have as much experience in this area as Dr. Benson. Dr. Benson is a behavioral neurologist who has been involved in research using advanced MRI methods for eighteen years. (Dr. Benson Aff. ¶ 4.) He has focused his research on TBI imaging for the past five years and has published a paper on how DTI scans of FA correlate with TBI severity. (*Id.*) On the other hand, Dr. Drnovsek, a neuroradiologist, does not do diffusion tensor imaging and before becoming involved in this case her only experience with DTI was a basic familiarity with the literature about DTI and attendance at conferences that "elaborate[d] on [DTI] application in different pathologies, including traumatic brain injury." (Dr. Valerie Drnovsek Dep. 16–17, Pl.'s Exh. 15, DE # 57–15.) She has not done any personal research into DTI. (*Id.* at 17.) Her criticism of Dr. Benson's methods was based on her reading of two articles on the subject. (*Id.* at 42.)

***10** In *Wagoner v. Schlumberger Tech. Corp.*, a proposed expert witness, a neuroradiologist, had never reviewed a DTI scan before analyzing one for the trial and had only read one article on DTI. No. 07–CV–244, 2008 U.S. Dist. LEXIS 118764, at *2, 2008 WL 5120750 (D. Wyo. June 20, 2008). The trial judge found that the witness did not have any special expertise on DTI and excluded any testimony from the expert about his opinion on the DTI scans. *Id.* Here, the Ruppels have not moved to exclude Dr. Drnovsek's testimony. However, Dr. Drnovsek, like the expert in *Wagoner*, has not been shown to have special expertise in DTI and Dr. Benson has been shown to have this expertise. Therefore, the court will not exclude Dr. Benson's testimony based on conflicting testimony from Dr. Drnovsek as to DTI's error rate, testability, and replicablity. This disagreement can be explored at trial.

d. Alternative explanations for the decreased white matter in the DTI images

Defendants argue that Dr. Benson should not be able to testify as to his determination that the DTI image indicated that Ruppel had diffuse axonal brain injury because it showed that Ruppel's white matter had decreased in comparison to scans done of control patients because Dr. Benson did not consider alternative explanations, primarily aging, for the decreased white matter. However, this argument is not supported by the evidence. Dr. Benson testified that while Ruppel was 46 at the time of his DTI scan and the mean age of the control group was the 32, the analysis was corrected to account for age. (Dr. Benson Dep. 65.) He also stated that the age effect on FA is well-known and easily accounted for. (Dr. Benson Aff. ¶ 28.) He stated that he normalized the results to

account for the effect of age. (Dr. Benson Dep. 36.) The Ruppels have also submitted a chart that shows the amount of FA in Ruppel's scan as compared to a group of 50 controls many of whom are his age or older. (DE # 58–1 at 18.) The effect of aging is certainly an issue that can be probed at trial, but it is not a basis for excluding Dr. Benson's opinion.

Defendants, pointing to Dr. Drnovsek's report, also argue that Dr. Benson did not account for alternative explanations such as the variations in FA in structures abutting the basal ganglia and thalamic nuclei. (Dr. Drnovsek Report 4.) However, Dr. Benson contends that these problems are presented by scans that look at gray matter, not those that look only at white matter such as the ones he employs. The difference in opinion between the two experts is something that can be addressed at trial and does not make Dr. Benson's method unreliable.

Further, defendants point to Dr. Benson's testimony that other diseases can affect FA quantification. (Dr. Benson Dep. 67–69.) However, Dr. Benson explains that many of these diseases are rare, and that some of the more common ones, such as stroke and MS, would also come up on a regular MRI scan if they would come up on a DTI scan. (*Id.* at 69.) Defendants also raise the issue that Ruppel's DTI scan could have been affected by the medications he was on. (Dr. Drnovsek Report 3.) This is an issue they can address during cross-examination.

***11** Defendants also point to Dr. Benson's testimony that "So obviously you're going to have variance, okay, with any type of measurement, there is error, there's a number of different sources, some physiologic, some machine, right, and in this case, age is a factor as well." (Dr. Benson Dep. 35.) Defendants present their argument that Dr. Benson attributed this error just to FA quantification, but it appears that he thinks these errors can accompany any type of measurement. He stated: "I am going to always let's say err[ ] on the side of respecting the lack of absolute certainty that we have in our field. I mean it is the nature of medicine, not just science." Dr. Benson also corrected his results for motion during the scan. (*Id.* at 68.) In any case, Dr. Benson's deposition and affidavit testimony show that he was aware of possible alternative explanations of Ruppel's decreased white matter and that both the method and Dr. Benson's application of the method accounted for these possibilities. His conclusion took into account alternative explanations for his results and that the only way to diagnose diffuse axonal injury with complete certainty is autopsy. (*Id.* at 66.) Therefore, the possibility of alternative explanations does not bar Dr. Benson's testimony; rather it goes toward the weight to be given to his opinion. *See e.g.*, *Cooper v. Carl A. Nelson & Co.*, 211 F.3d 1008, 1021 (7th Cir.2000).

b. Nature of Dr. Benson's opinion and how careful he was in reaching it

In this case, it appears that Dr. Benson's opinion grew naturally and directly out of the research that he has conducted independently of the litigation and he has been as careful as he would be in his regular professional work outside his paid litigation consulting. First, the evidence shows that DTI and FA quantification is a regular focus of Dr. Benson's work and research. He has focused on TBI imaging for five years at the MR Research Center at Detroit Medical Center. (Dr. Benson Aff. ¶ 4.) He is also an investigator on a fifteen-year project entitled "Utility of MRI Techniques in Prediction of TBI Outcome" funded through a grant by the National Institute on Disability and Rehabilitation Research. (*Id.* ¶ 2.) In 2007, he published an article entitled *Global White Matter Analysis of Diffusion Tensor Images of Injury Severity in Traumatic Brain Injury* in the JOURNAL OF NEUROTRAUMA . (*Id.* ¶ 3.) In 2010, he testified before the United States House Judiciary about how DTI and other advanced imaging methods would improve the diagnosis and management of concussions in sports. (*Id.* ¶ 2.) Thus, the evidence shows that Dr. Benson regularly researches about and uses DTI and FA quantification to detect TBI. This is not a

method or area of research that he has adopted just for litigation. It appears that as the Ruppels' retained expert, he only applied his methods to Ruppel and reached his opinion because of his involvement in this litigation. However, because the methods he employed grew out of and is consistent with his regular work, Dr. Benson's opinion as to Ruppel appears reliable.

***12** Second, without pointing to any evidence, defendants accuse Dr. Benson of not using "the same level of intellectual vigor that characterizes the practice of an expert in the regular field." However, Dr. Benson's expert report, deposition, and affidavit do not show that he was not careful in reaching his conclusion or that he lacked intellectual vigor. Thus, there is no evidence to show that his opinion should not be admitted on this basis. Defendants can use cross-examination and their own witnesses's testimony to raise at trial the issue of the level of intellectual vigor that Dr. Benson employed.

Overall it is important to note that DTI is just one component of Dr. Benson's diagnosis of diffuse axonal injury for Ruppel. In *Whilden*, a Colorado state trial court found that an expert could base his opinion on DTI as long as he also considered the patient's history. No. 08–cv–4210 at 4 (allowing an expert witness to rely on DTI evidence when testifying as to the diagnosis of mTBI and its possible causation from an automobile accident as long as the expert's opinion was not based solely on DTI). Here, Dr. Benson's opinion was based on four components: the patient's history, the neurologic examination of the patient, the patient's neuropsychological results, and the patient's brain imaging including DTI. (Dr. Benson Dep. 69.) Dr. Benson's clinical assessment was based on medically accepted neurological and mental status examination techniques. (Dr. Benson Aff. ¶ 8.) In his affidavit, Dr. Benson stated:

> While DTI itself cannot diagnose the cause of white matter damage, the history of the motor vehicle accident as described by Dale Ruppel and medical records reviewed provide a solid basis to conclude that the damage shown on diffusion tensor imaging using fractional anisotrophy was caused by the motor vehicle collision of January 8, 2008.

(*Id.* ¶ 33.) Thus, like the expert in *Whilden*, Dr. Benson did not use DTI alone to diagnose diffuse axonal injury. In sum, DTI and comparative FA quantification based on DTI images are reliable methods and Dr. Benson's opinion will not be excluded under RULE 702 and *Daubert.*

2. Wording of Dr. Benson's opinion

Defendants argue that Dr. Benson's opinion is invalid because he says that the evidence "suggests" that Ruppel has a diffuse axonal brain injury and that it was caused by the accident. (DE # 56 at 10–11.) It seems that this argument goes to whether Dr. Benson's testimony is relevant and whether it would assist the trier of fact. Defendants argument appears to be that Ruppel can only present evidence of his injury if he has evidence that shows with one hundred percent certainty that he has a diffuse axonal brain injury. This is not the case. *Daubert*, 509 U.S. at 590; *United States v. Cyphers*, 553 F.2d 1064, 1072–73 (7th Cir.1977) (stating that there is no requirement that "an expert's opinion testimony must be expressed in terms of a reasonable scientific certainty in order to be admissible" and that the Seventh Circuit "adheres to the rule that an expert's lack of absolute certainty goes to the weight of his testimony, not to its admissibility"). The Seventh Circuit has stated, "we do not require utter certainty in medical opinions, nor would we expect dogmatic diagnoses from a careful scientist." *Amax Coal Co. v. Beasley*, 957 F.2d 324, 328 (7th Cir.1992).

***13** Indeed, courts regularly admit opinion evidence that falls short of a certain conclusion. *See e.g.*, *Coachmen Indus., Inc. v. Kemlite*, 3:06–cv–160, 2008 WL 4858385, at *8 (N.D.Ind. Nov.10, 2008) (admitting an expert's testimony that "specific changes made

to the MA resin values were 'most likely' responsible for the distortions"); *Hardiman v. Davita Inc.*, No. 2:05–cv–262, 2007 WL 1395568, at *6 (N.D.Ind. May 10, 2007) (finding that an expert's opinion that there was a 95% probability of causation was relevant and admissible); *Troutner v. Marten Trans., Ltd.*, No. 2:05–cv–40, 2006 WL 3523542, at *4 (N.D.Ind. Dec.5, 2006) (admitting an expert's testimony when the conclusion in his expert report was that inadequate maintenance was "the most likely root cause of the failure and injury to" the plaintiff). Further, an expert may meet *Daubert's* relevancy requirement by offering a "hypothetical explanation of the possible or probable causes of an event [that] would aid the jury in its deliberations." *Smith*, 215 F.3d at 719.

In the summary of findings section of his report, Dr. Benson stated that DTI revealed a low FA in the white matter regions of Ruppel's brain "suggesting axonal injury from trauma." (Dr. Randall Benson, "Report of Findings of TBI Research Protocal," Defs.' Exh. I, DE # 56–9.) However, Dr. Benson did not only use the word "suggest" in providing his opinion. He also stated:

> The absence of focal injury (contusion) and the presence of bilaterally symmetric axonal injury to deep white matter structures suggests that the mechanism of injury was acceleration/deceleration rather than direct impact to the skull. His history of motor vehicle accident is consistent with the findings on his MRI study.

(*Id.*) Thus this excerpt of his report, by stating that axonal injury to the white matter of Ruppel's brain was present, more definitively stated Ruppel's injury. Also, in his report Dr. Benson wrote that Ruppel "appears to have suffered a close head injury as a result of being rear-ended." (*Id.*)

Further, in his deposition, Dr. Benson explained that while he used the word "suggest" in his report, at the time he "really felt strongly that all the evidence pointed to diffuse axonal injury ." (Dr. Benson Dep. 67.) Dr. Benson's "certainty is an issue for the jury and does not affect admissibility." *Stutzman v. CRST, Inc.*, 997 F.2d 291, 296 (7th Cir.1993). Thus under federal evidentiary rules, Dr. Benson's opinion may be admitted under RULE 702. Importantly, Dr. Benson's language in presenting his opinion does not render it inadmissible when it is based on reliable methods. The Seventh Circuit has concluded that "the Federal Rules do not contain any threshold level of certainty requirement. As long as a medical expert's qualifications are proper and the expert relies on appropriate types of information under RULE 703, the district court does not abuse its discretion by admitting the medical expert's testimony." *Id.* Dr. Benson's testimony is not speculation because, as determined above, he used scientifically reliable methods to reach his conclusion.

***14** In sum, defendants' motion to exclude Dr. Benson's opinion as to diffuse axonal injury will be denied. Defendants' primary arguments for exclusion of Dr. Benson's testimony were his reliance on DTI to reach his result and his use of the word "suggest" for his diagnosis. As discussed above, DTI is a reliable method especially when used in conjunction with the other medically accepted methods relied upon by Dr. Benson. Beyond these two issues, defendants have not questioned Dr. Benson's qualifications to testify as to Ruppel's diagnosis and its causation and he appears qualified to do so. (*See* Dr. Benson Aff. ¶ 19; Dr. Benson Curriculum Vitae, DE # 58–1.) Dr. Benson may testify as to Dr. Ruppel's diagnosis of diffuse axonal injury and as to its causation.

II. SUMMARY JUDGMENT

Summary judgment should be granted "if the movant shows that there is no genuine dispute as to any material fact and the movant is entitled to a judgment as a matter of law." FED. R. CIV. P. 56(a). The party seeking summary judgment "bears the initial responsibility of informing the district court of the basis for its motion, and identifying" those materials

listed in RULE 56(c) which "demonstrate the absence of a genuine issue of material fact." *Celotex Corp. v. Catrett,* 477 U.S. 317, 323, 106 S.Ct. 2548, 91 L.Ed.2d 265 (1986).

Once the moving party has met its burden, the nonmovant may not rest upon mere allegations. Instead, "[t]o successfully oppose a motion for summary judgment, the nonmoving party must come forward with specific facts demonstrating that there is a genuine issue for trial." *Trask–Morton v. Motel 6 Operating L.P.,* 534 F.3d 672, 677 (7th Cir.2008). "It is not the duty of the court to scour the record in search of evidence to defeat a motion for summary judgment; rather, the nonmoving party bears the responsibility of identifying the evidence upon which he relies." *Harney v. Speedway SuperAmerica, LLC,* 526 F.3d 1099, 1104 (7th Cir.2008). Furthermore, when evaluating a motion for summary judgment, the court views the record and makes all reasonable inferences in a light most favorable to the nonmovant. *Popovits,* 185 F.3d at 731. If the non-moving party cannot establish an essential element of its claim, RULE 56(a) requires entry of summary judgment for that claim. *Massey v. Johnson,* 457 F.3d 711, 716 (7th Cir.2006) (citing *Celotex,* 477 U.S. at 322–23).

Defendants' summary judgment argument is that because all evidence of Ruppel's diagnosis of diffuse axonal injury and its causation are excluded under *Daubert* or for failure to comply with FEDERAL RULE OF CIVIL PROCEDURE 26(a)(2), he has no evidence to survive a motion for summary judgment.

The court will now address defendants' arguments related to FEDERAL RULE OF CIVIL PROCEDURE 26(a)(2). In their response to defendants' motion for summary judgment, the Ruppels presented affidavits of four physicians, Dr. Robert Ward, Dr. Bradley Sewick, Dr. Patrick Casey, and Dr. Pareigis, who treated Ruppel. (Pls.' Exhs. 3, 5, 6, DE57–3, 57–5, 57–6.) In reply, defendants argue that the first three physicians' proposed testimony, as set forth in their affidavits, extends beyond what the plaintiffs had outlined in their reports and summaries pursuant to FEDERAL RULE OF CIVIL PROCEDURE 26(a)(2). Defendants, citing to *Doe v. Johnson,* 52 F.3d 1448, 1464 (7th Cir.1995), appear to be arguing that these doctors' testimony should be limited to the statements made in their medical records because anything beyond that was not disclosed under RULE 26 and should be excluded under RULE 37.

***15** RULE 26.2 of the LOCAL RULES OF THE UNITED STATES DISTRICT COURT FOR THE NORTHERN DISTRICT OF INDIANA provides that if a party seeks relief under RULE 37, copies of the portions of the disclosures in dispute "shall be filed with the court contemporaneously with any motion filed under" that RULE. Defendants did not file a copy of plaintiffs' RULE 26 disclosures with their response. While this may not have been required since they did not move under RULE 37 separately, it certainly would have assisted the court in evaluating their argument. Instead defendants argue that Dr. Ward's, Dr. Casey's, and Dr. Sewick's testimony is inconsistent with the statements made in their medical records. In a sur-reply, plaintiffs contend that Dr. Ward, Dr. Casey, and Dr. Sewick, as well as Dr. Pareigis, were "properly disclosed" in their RULE 26 disclosures and their medical charts were provided to defendants with updates sent as Ruppel's treatment continued. (DE # 62 at 2.) They state that Dr. Ward, Dr. Casey, Dr. Sewick, and Dr. Pareigis are all treating physicians and none of them were retained or specially employed for this litigation. (*Id.*)

First, it appears that these witnesses were only required to give statements under RULE 26(a)(2)(C) and not expert reports under RULE 26(a)(2)(B). RULE 26(a)(2)(B) states that the disclosure of expert testimony must be accompanied by a written report when the witness is "one retained or specially employed in the case or one whose duties as the party's employee regularly involve giving expert testimony." Effective December 1, 2010, RULE 26 was amended

to add section 26(a)(2)(C). This section provides that expert witnesses who are not required to submit a report under 26(a)(2)(B) must submit a statement that provides a summary of the facts and opinions to which the witness expects to testify. The commentary to this amendment states that it will frequently apply to "physicians or other health care professionals." They also provide that under this subsection "[c]ourts must take care against requiring undue detail, keeping in mind that these witnesses have not been specially retained and may not be as responsive to counsel as those who have." Defendants do not argue that Dr. Ward, Dr. Pareigis, Dr. Sewick and Dr. Casey were not Ruppel's treating physicians, or more importantly, that they were specially retained or employed for this litigation. Thus, they were only required to comply with RULE 26(a)(2)(C). *See Coleman v. Am. Family Mut. Ins. Co.* No. 2:10–cv–167, 2011 WL 2173674, at *4 (N.D.Ind. June 2, 2011).

Second, the court has no reason to think that the proposed testimony is so inconsistent with the RULE 26(a)(2)(C) disclosures that it should be struck down under RULE 37. Defendants have not pointed to plaintiffs' RULE 26(a)(2)(C) disclosures, so the court cannot compare them to the proposed testimony and has no basis for excluding the testimony for noncompliance with RULE 26. Defendants argue that Dr. Ward, Dr. Pareigis, and Dr. Sewick cannot testify that Ruppel has diffuse axonal injury because in their medical records for Ruppel they only stated that he had closed head injury. Defendants, without pointing to any evidence from their expert medical witnesses or otherwise, assert that what the physicians have done is similar to "a doctor who makes a diagnosis of a broken bone, tenders x-rays and information relative only to a broken foot for 2 or 3 years, then later argues that the diagnosis should have covered diagnosis of a broken hand as well because they are both broken bones." (DE # 61 at 2.)

***16** In contrast, all five of plaintiffs' expert witness physicians offer testimony that a diffuse axonal injury is a type of closed head injury. (Dr. Robert C. Ward. Aff. ¶ 4, Pls.' Exh. 3, DE # 57–3; Dr. Pareigis Aff. ¶ 7; Dr. Patrick Casey Aff. ¶¶ 5, 8, Pls.' Exh. 5, DE # 57–5; Dr. Bradley Sewick Aff. ¶ 5–6, Pls.' Exh. 6, DE # 57–6; Dr. Benson Aff. ¶ 5). Dr. Sewick's explanation is representative: "A diffuse axonal brain injury is often caused by a closed head injury or traumatic brain injury. A diagnosis of closed head injury and traumatic brain injury without evidence of focal injury is suggestive of diffuse axonal injury." (Dr. Sewick Aff. ¶ 5.) Accordingly, the difference between statements of closed head injury in the medical records and a diagnosis of diffuse axonal injury may not be as stark as defendants suggest. Certainly, it does not appear to provide a basis to exclude the testimony under RULE 37. Rather, this appears to be an argument that defendants can delve into during cross examination at trial. Accordingly, these witnesses can offer testimony related to diffuse axonal injury at trial.

In evaluating whether the Ruppels have sufficient evidence as to his claim of diffuse axonal injury to allow it to survive summary judgment, the court has one remaining, and familiar, argument to address. As discussed above, defendants seem to argue that Dr. Benson's opinions as to the diagnosis and causation of diffuse axonal injury will not help Ruppel survive summary judgment because Dr. Benson uses the word "suggest." While the court has already discussed that this opinion is admissible it must now address whether, under Indiana law, which applies to the substantive law questions in this case, Dr. Benson's testimony has enough probative value that Ruppel can use it towards his burden of proof for causation.

As defendants point out, in Indiana, "[w]hen the issue of cause is not within the understanding of a lay person, testimony of an expert witness on the issue is necessary." *Daub v. Daub*, 629 N.E.2d 873, 877–78 (Ind.Ct.App.1994). To have probative value, the testimony must go beyond speculation and mere possibility. *Id.* When evaluating an expert's opinion, Indiana courts tend to look at whether the expert can tes-

tify to a reasonable degree of medical certainty, but even an opinion that something is "possible" may be admitted if presented with other evidence. *Topp v. Leffers,* 838 N.E.2d 1027, 1033 (Ind.Ct.App.2005); *Colaw v. Nicholson,* 450 N.E.2d 1023, 1030 (Ind.Ct.App.1983) ("[E]xpert medical opinion couched in terms less than that of a reasonable degree of medical certainty; such as 'possible,' 'probable,' or 'reasonably certain,' are admissible and do have probative value. However, such medical testimony standing alone, unsupported by other evidence, is not sufficient to support a verdict.") Therefore, an opinion does not need to be stated in terms of "medical certainty," but to be admitted alone, it must be more conclusive than stating a "possibility." *Longardner v. Citizens Gas & Coke Util.,* No. 49A02–511, 2006 WL 3230303, at *7 (Ind.Ct.App. Nov.8, 2006); *Hardiman,* 2007 WL 1395568, at *15.

***17** Here, Dr. Benson's report stated that Ruppel "appears to have suffered a close head injury as a result of being rear-ended." (Dr. Benson Report.) He also stated in his deposition that although he used the word "suggests" in his report he "really felt strongly that all the evidence pointed to diffuse axonal injury." (Dr. Benson Dep. 67.) Further, his opinion was based on scientifically reliable methods. He based his opinion on Ruppel's history, his neurologic examination of Ruppel, Ruppel's neuropsychological results, and his analysis of Ruppel's brain imaging including DTI. Dr. Benson's opinion is based on more than speculation and creates an issue of material fact as to both the diagnosis and causation of diffuse axonal injury. *Hardiman,* 2007 WL 1395568, at *17.

Even if Dr. Benson's testimony can not be admitted alone, there is other evidence of Ruppel's diffuse axonal injury. Dr. Pareigis wrote in her initial evaluation of Ruppel on March 28, 2008, that her impression was that Ruppel had "[c]losed head injury with probable diffuse axonal injury." (Physicians Center of Physical Medicine's Medical Records for Dale Ruppel, Defs.' Exh. C, DE # 56–3 at 32.) Dr. Pareigis and the three other treating physicians all indicate that they would testify as to Ruppel's diffuse axonal injury and its causation. Defendants own expert, Dr. Peter Carney has diagnosed Ruppel with post-concussion syndrome which appears to be related to closed head injury. (Dr. Peter Carney Report Sections D and F2.1, Pl.'s Exh. 17,[FN4] DE # 64–1.) So the Ruppels have sufficient evidence to create a genuine factual dispute as to whether Ruppel suffered diffuse axonal injury and whether that injury was caused by the accident with Kucanin.

FN4. The Ruppels cite to and quote from this exhibit in their summary judgment response, but it was inadvertently omitted from that filing. The Ruppels have moved for leave to file this exhibit now. (DE # 64.) The report is from defendants' expert witness, so they have had access to it. Therefore, the motion is **GRANTED,** and the court had considered the parts of the report and deposition that were relied on in plaintiffs' response.

In conclusion, for the foregoing reasons defendants' motion to exclude evidence and motion for summary judgment (DE54–55) are **DENIED.**

SO ORDERED.

N.D.Ind.,2011.
Ruppel v. Kucanin
Not Reported in F.Supp.2d, 2011 WL 2470621 (N.D.Ind.), 85 Fed. R. Evid. Serv. 859

END OF DOCUMENT

Document 13

Todd v. Baker

Slip Copy, 2012 WL 1999629 (D.Mont.)
(Cite as: 2012 WL 1999629 (D.Mont.))

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Only the Westlaw citation is currently available.

United States District Court, D. Montana,
Missoula Division.
John TODD, Plaintiff,
v.
Ian BAKER; Chad Zimmerman; City of Kalispell; City of Kalispell Police Department; Kalispell Police Chief Roger Nasset; and Does 1–10, Defendants.

No. CV 10–127–M–DWM.
June 4, 2012.

Peter A. Leander, Attorney at Law, Bigfork, MT, Timothy M. Bechtold, Bechtold Law Firm, Missoula, MT, for Plaintiff.

William L. Crowley, Natasha Prinzing Jones, Thomas J. Leonard, Boone Karlberg, Missoula, MT, for Defendants.

ORDER

DONALD W. MOLLOY, District Judge.

***1** On November 13, 2007, Plaintiff John Todd was tased by Officer Baker during a chase. The taser incapacitated him and he fell to the sidewalk, striking his head. He now raises constitutional and tort claims against the City of Kalispell, the Kalispell Police Department, and Police Chief Roger Nasset (collectively "the City"), as well as the officers involved in the incident, Ian Baker and Chad Zimmerman ("the Individual Defendants").

Defendants' four motions in limine are before the Court. The City seeks to limit the testimony of Plaintiff's expert witness Margot Luckman. (Doc. 36.) The Individual Defendants seek to exclude or limit the testimony of Plaintiff's expert witness Dr. Gregory Hipskind (doc. 38) and the testimony of Plaintiff's liability expert, D.P. Van Blaricom (doc. 40). They also seek to exclude evidence regarding prior bad acts, whether Todd in fact possessed marijuana, and insurance and indemnification. (Doc. 42.) Though the Individual Defendants have been dismissed from this action, their arguments are pertinent to the City's defense and are thus addressed below. The various motions are granted in part and denied in part as set forth below.

ANALYSIS

The Court has wide discretion when determining motions in limine. *Trichtler v. Co. of Lake*, 358 F.3d 1150, 1155 (9th Cir.2004). Irrelevant evidence is inadmissible, but relevant evidence is generally admissible. Fed.R.Evid. 402.

Rule 702 of the Federal Rules of Evidence governs the admissibility of expert testimony. It provides:

> If scientific, technical, or other specialized knowledge will assist the trier of fact to understand the evidence or to determine a fact in issue, a witness qualified as an expert by knowledge, skill, experience, training, or education, may testify thereto in the form of an opinion or otherwise, if (1) the testimony is based upon sufficient facts or data, (2) the testimony is the produce of reliable principles and methods, and (3) the witness has applied the principles and methods reliably to the facts of the case.

Fed.R.Evid. 702. The trial court acts as the "gatekeeper" in making this determination. Fed.R.Evid. 104(a). It considers whether the underlying methodology has been tested, whether it has been subjected to publication and peer review, whether the technique is standardized or regulated, its known or potential rate of error, and whether it is generally accepted in the scientific community. *Daubert v. Merrell Dow Pharmaceuticals, Inc.*, 509 U.S. 579, 592–94 (1993). The party seeking to admit an expert's testimony does not have to prove that the testimony is scientifically correct, but must show by a preponderance of the evidence that it is reliable and helpful to the trier of fact. *Id.* at 592 n. 10. "Vigorous cross-examination, presentation of contrary evidence, and careful instruction on the burden of proof are the traditional and appropriate means of attacking shaky but admissible evidence." *Id.* at 596.

A. Plaintiff's Expert Witness Margot Luckman

***2** The City has moved to exclude certain evi-

dence, testimony, or opinions that may be offered by expert witness Margot Luckman, a certified rehabilitation counsel and licensed professional counsel, concerning Todd's injury and its effects. Specifically, the City contends Luckman may not testify that: 1) Todd has a traumatic brain injury; 2) Todd will require household maintenance assistance; 3) Todd should enroll in the Bridges program; and 4) Todd will not continue to improve from any injuries he suffered or a patient with a traumatic brain injury is done improving three years after the date of injury. (Doc. 37 at 2.)

The parties appear to agree on all the issues presented, though the motion was opposed. Todd concedes in his response brief that Luckman is not qualified to diagnose traumatic brain injury. (Doc. 46 at 2–3.) He also concedes that because she relied on Dr. Rosen's opinions, her opinions must conform to his updated opinions as expressed in his deposition. (*Id.* at 3.) Finally, he concedes that she must defer in this case to Dr. Rosen's opinions regarding the likelihood that Todd's condition will improve or decline. (*Id* . at 4.) However, Todd emphasizes that Luckman is entitled to rely on the diagnoses of other health care providers as the basis for her own opinions, and that she may testify as to the basis of her opinions. (*Id.* at 1.) The City agrees. (Doc. 52 at 2.)

Accordingly, the City's motion (doc. 36) is granted. Luckman may testify as to the basis of her opinions, but she may not opine whether Todd actually suffered a traumatic brain injury, and she must defer to the updated opinions of the medical providers upon whom she relied in forming her own opinions.

B. Plaintiff's Expert Witness Gregory Hipskind, M.D.

The Individual Defendants move to exclude the testimony of Dr. Gregory Hipskind regarding the results of a Single Photon Emission Computed Tomography ("SPECT") scan of Todd's brain. Their motion is denied; the evidence is "shaky but admissible" and thus may be explored on cross-examination. ***Daubert***, 509 U.S. at 596.

Todd and his attorneys ordered the **SPECT** scan at issue after two of Todd's treating physicians, Dr. Rosen and Dr. Patrick Burns, declined to do so because they do not believe the scans are useful for diagnosing or treating brain injuries. The scan was conducted in Denver, Colorado, by a company called CereScan. CereScan transmitted the scans and a three-paragraph "Patient History" to Dr. Hipskind to evaluate. Dr. Hipskind concluded that there was abnormally low blood flow in the cortical and subcortical areas of Todd's brain. He further concluded that "[t]he nature, overall pattern and location of these abnormalities is most consistent with traumatic brain injury...." (Doc. 39–1 at 3.)

1. Diagnosis and causation

The Individual Defendants argue that Dr. Hipskind should not be permitted to testify that Todd has a traumatic brain injury or speculate as to the cause of Todd's abnormalities because the information he is relying on is inadequate or unreliable.

***3** At his deposition, Dr. Hipskind testified that a SPECT scan is not a standalone diagnostic tool. (Dep. Dr. S. Gregory Hipskind, 14:10–15:3 (Dec. 7, 2011), doc. 39–2.) Before rendering a diagnosis, an analyst must consider other clinical information. (*Id.*) Nor can a SPECT scan, on its own, "tell you the cause of a particular abnormality." (*Id.* at 15:16–20; 20:13–26:12). Per his usual practice, the only information Dr. Hipskind considered besides the scans was the three-paragraph "Patient History" included at the start of his report. The "Patient History" states that Todd received a traumatic brain injury when he was tased and thereafter suffered a battery of symptoms. Dr. Hipskind did not meet or communicate with Todd or review any of his medical records. He did not speak with any of Todd's medical providers, family members, friends, or co-workers, and he did not review any of the deposition transcripts, pleadings, or discovery in this case.

The "Patient History" was written by a CereScan employee in Colorado and appears to reflect the history she received directly from Todd. There is no indication she reviewed any other records or independently examined or diagnosed Todd. The history does not state when Todd had last consumed caffeine, alcohol, nicotine, marijuana, or over-the counter medications, or whether he had any mental illnesses, developmental issues, learning disorders, ADHD, depression, diseases, or infections. Nor does it mention whether he had ever experienced any other head trauma besides the tasing incident. As admitted by Dr. Hipskind, all these factors can cause abnormal

SPECT scan results.

An expert may rely on inadmissible evidence if the facts and data are the kind that experts in the field rely upon and such reliance is reasonable. Fed.R.Evid. 703. A doctor can reasonably rely on a patient's self-reports, even if the reports may be inaccurate. For example, the Seventh Circuit has held:

> Medical professionals reasonably may be expected to rely on self-reported patient histories. *See Cooper v. Carl A. Nelson & Co.*, 211 F.3d 1008, 1019–21 (7th Cir.2000). Such histories provide information upon which physicians may, and at times must, rely in their diagnostic work. Of course, it is certainly possible that self-reported histories may be inaccurate. [The expert] himself said that it was not unusual for patients to misrepresent their histories to him. In situations in which a medical expert has relied upon a patient's self-reported history and that history is found to be inaccurate, district courts usually should allow those inaccuracies in that history to be explored through cross-examination.

Walker v. Soo Line R. Co., 208 F.3d 581, 586–87 (7th Cir.2000).

Though the doctor in *Walker* reviewed more information than Dr. Hipskind, the same reasoning applies here. The accuracy and adequacy of Todd's "Patient History," and the reasonableness of relying on a third party to collect the information, can best be explored on cross-examination and through rebuttal testimony. Accordingly, Dr. Hipskind may testify as to his diagnosis of Todd's injury and its cause based on his analysis of the SPECT scans and reliance on the "Patient History." The record shows that cross-examination is most likely going to raise credibility issues and that, of course, is its primary purpose.

2. Consistency with traumatic brain injury

***4** Dr. Hipskind may also testify that Todd's SPECT scans are "most consistent with" a traumatic brain injury. The SPECT methodology as applied by Dr. Hipskind is sufficiently reliable to admit the evidence and permit Defendants' arguments to be explored on cross-examination.

a. Other possible explanations for Todd's SPECT scan results

As noted above, neither Dr. Hipskind nor the CereScan employee who took down Todd's history made much effort to account for other explanations for the alleged abnormalities in Todd's SPECT scans. There is evidence that Todd may have suffered from ADHD or another learning disorder before the November 13, 2007 incident, that he suffers from anxiety, that he has used alcohol and marijuana, and that he was taking an anti-anxiety medication, Propranolol, at the time of the SPECT scan. As admitted by Dr. Hipskind, each of these factors could cause abnormal perfusion patterns.

However, Dr. Hipskind also testified that he would expect the patterns caused by other factors to be different from a pattern caused by a traumatic brain injury. (Dep. Hipskind, 12:16–22 (using mental illness as an example); 59:4–24 (using medications and drugs as an example).) He also stated that "the areas of involvement in Mr. Todd's case are fairly classic and pretty much right out of the textbook for a traumatic pattern." (*Id.* at 47:9–18; *see also* 60:5–61:2 (describing typical pattern).) Defendants' own Exhibit F also indicates that "signature" patterns have been identified for various problems, including moderate-to-severe head trauma. (Socy. of Nuclear Med. Brain Imaging Council, *Ethical Clinical Practice of Functional Brain Imaging*, 37 J. of Nuclear Med. 1256, 1256–57, doc. 39–6.) Because different patterns can be associated with different causes, Dr. Hipskind may opine on whether the patterns he observed in Todd's scans are consistent with traumatic brain injury. Defendants can explore the reliability of that conclusion on cross-examination and the jury will resolve the issue.

b. Reliability of the database on "normal" perfusion

Defendants also challenge the reliability of the "normal" database used by Dr. Hipskind for comparison. They do not dispute Dr. Hipskind's assertions that the Segami database was compiled in the 1990s by Dr. Ismael Mena, that it consists of 68 control subjects who were screened for pre-existing mental illness, substance abuse, trauma, and infection, and that studies based on the control group have been published in peer-reviewed scientific journals. The database is categorized by age, and Todd was compared only to the approximately 20 individuals between the ages of 18 and 45. But Defendants argue that the database fails to control for variables such as sex, single-handedness, education level, socio-

economic status, and ethnic or cultural background.

While a larger control group with more data may be helpful and make comparison results less vulnerable to challenge, Defendants have not shown that the Segami database is inherently unreliable or that it results in inaccurate comparisons. Nor have they offered evidence that other variables such as sex, single-handedness, education level, socio-economic status, and ethnic or cultural background affect blood perfusion in the brain. The database has been used before, studies based on the database have been subject to peer review, and the control subjects were screened for factors that are known to cause blood perfusion abnormalities. Accordingly, the preponderance of the evidence suggests the database is adequate here.

c. The SPECT scan's "cartoon" image of blood perfusion data

***5** Defendants challenge the SPECT scan images comparing Todd to the control group on the grounds that they are not precise, they are not "pictures" of Todd's brain, and they are just a colorful "gimmick" to show the jury. That of course is argument.

A SPECT scan image comparing a patient to a control group is a visual representation of data from a patient's SPECT scan superimposed on data from the control group. (Dep. Hipskind 62:4–65:6.) The data from the control group is averaged, and software creates a derivative image of a brain that is displayed in greys. (*Id.*) Where the patient's data deviates from the control group average, it displays in bright colors. (*Id.*) Thus, these images are not pictures of any one person's brain and are not very precise. (*Id.*)

SPECT images can also be misleading. Some "data warping" may result because the computer program is unable to correctly map the patient's brain on to the "average" brain. (Rpt. of Defs.' Expert Dr. Alan Waxman, Exhibit H, doc. 39–8 at 6.) Additionally, the analyst can set the default color settings to "emphasize subtle abnormalities," as Dr. Hipskind did here, and can select the level of deviation that will display as "abnormal." (Dep. Hipskind 67:12–70:17.) Defendants' expert Dr. Waxman argues that Dr. Hipskind applies such a high threshold that "abnormalities" will be seen in most normal subjects. (Rep. Waxman, doc. 39–8 at 13.) Again, there may be room for argument to the jury, but not enough to preclude the evidence.

Though the images may simplify and even distort a complex picture, the evidence does not support their exclusion. Dr. Hipskind testified that the images serve "as secondary support to validate [that the comparison is] similar in pattern and location to what you saw on your original scanned data" and they are a "secondary way to look at the data." (Dep. Hipskind 67:12–70:17.) Like a graph or a pie chart, or any summary or compilation of information, these images make the data more comprehensible to a layperson, if less precise. They are probative of any differences in blood perfusion between Todd's brain and a typical brain and will help the jury understand Dr. Hispkind's testimony. Competent cross-examination can adequately identify the weaknesses of the images and the evidence.

d. General acceptance of SPECT scan methodology

Defendants are adamant that SPECT imaging is not generally accepted as a tool for diagnosing or treating mild head trauma. They note that the American Academy of Neurology and the Society of Nuclear Medicine consider SPECT imaging an investigational tool for the study of mild head injury, not a diagnostic or evaluative tool for the treatment of patients. They also point out that Todd's own doctors refused to order SPECT scans because they do not find them helpful in diagnosing or treating head trauma.

Regardless of whether SPECT scans are generally used in treatment settings, there is sufficient evidence to permit the jury to consider Dr. Hipskind's testimony here. SPECT scans appear least reliable when a head injury is mild; the severity of Todd's alleged injury is unclear. The study cited by Todd suggests that SPECT scans can reveal abnormalities associated with head trauma and that abnormalities are more likely to appear if a patient has received multiple or more severe injuries. (*See* Jeffrey David Lewine, et al., *Objective Documentation of Traumatic Brain Injury Subsequent to Mild Head Trauma: Multimodal Brain Imaging with MEG, SPECT, and MRI, SPECT*, 22:3 J. of Head Trauma Rehab.141, 141–42, 146, 148, doc. 54–1.) Todd's own doctors had already evaluated Todd's injury and deficits based on other information; they did not need a SPECT scan to diagnose or treat Todd. But a jury

could reasonably find that SPECT scan results are helpful to them in weighing evidence that physical anomalies are present that are consistent with head trauma. There is sufficient evidence to permit a jury to consider the evidence and determine what weight to give it.

e. Subjective interpretation of SPECT scans

***6** Defendants also insist that SPECT scans are unreliable because their interpretation is subjective. They note that Dr. Waxman reviewed the same scans as Dr. Hipskind and concluded that they are normal. They also cite a 2001 study that demonstrated significant variation in the interpretation of SPECT scans by experienced, board-certified specialists. (H.L. Stockbridge, et al., *Brain SPECT: A controlled, blinded assessment of intra-reader and inter-reader agreement*, 23 Nuclear Med. Communs. 537–44 (2002), doc. 39–7.) The variation differed by anatomical region; there was 96–98% agreement in assessing the basal ganglia and 29–81% agreement in assessing the parietal area. (*Id.* at 540.) The study also found more agreement between readers who worked closely in the same institution than between readers who worked at different institutions. (*Id.* at 542.) This finding supports Dr. Hipskind's testimony that he and a Dr. Henderson, whom he had trained, agreed more than 95% of the time in their interpretation of 500 brain scans. (Dep.Hipskind, 78:9–79:22.)

Though interpreting SPECT scans is a relatively subjective enterprise, it does not make SPECT scans inherently unreliable. The study on inter-reader agreement also noted that "[s]ignificant observer variation has been observed in many commonly used radiological, pathological, nuclear medicine, physical examination, and electrophysiologica1 tests[,]" including pulmonary angiography, cervical Papicanolau smears, and mammograms. (Stockbridge, 543, doc. 39–7.) Such evaluative tools are, nonetheless, sufficiently reliable to be admitted in court. Additionally, the study noted that the readers agreed with their own initial scoring of individual lesions in 65–96% of second readings, suggesting each reader at least demonstrates some internal consistency. (*Id.* at 540.) The weaknesses of SPECT scan interpretation may be explored on cross-examination, but the evidence is reliable enough to be admitted.

Accordingly, Defendants' motion to exclude Dr. Hipskind's testimony is denied.

C. Plaintiff's Liability Expert, D.P. Van Blaricom

The Individual Defendants also move to exclude the evidence, testimony, or opinions of Todd's liability expert, D.P. Van Blaricom. Specifically, they seek to exclude his reports, dated August 31, 2011, and amended October 6, 2011. (Doc. 40 at 2.) They also seek to exclude any testimony or evidence concerning:

> 1. Whether Plaintiff was the subject of excessive, unnecessary, and/or grossly unreasonable force through the use of a Taser;
>
> 2. Whether Zimmerman's supervision of Baker was deliberately indifferent or caused a violation of Plaintiff's federal rights;
>
> 3. Whether adequate cause existed to seize Plaintiff and whether probable cause existed to charge Plaintiff with possession of dangerous drugs;
>
> 4. Whether Police Chief Nasset ratified the tasing of Plaintiff;
>
> 5. Whether the Kalispell Police Department was aware that the use of a Taser was unwarranted and injurious;
>
> ***7** 6. Whether the Kalispell Police Department's review of the tasing incident was inadequate; and
>
> 7. Whether the Kalispell Police Department's use of force policy relating to the use of Tasers was inadequate.

(*Id.*) Finally, they seek to exclude Mr. Van Blaricom's rebuttal to the opinions and testimony of Defendants' liability expert, Police Chief Mark Muir.

Given this court's summary judgment determination issues 2, 3, 4, 5, 6, and 7 are moot. That leaves only whether the following should be excluded: Van Blaricom's reports, his opinions regarding whether the force used was excessive, and his rebuttal testimony.

1. Admissibility of expert reports

As the parties agree, Van Blaricom's expert reports are hearsay. Fed.R.Evid. 801. While experts

sometimes may rely on inadmissible evidence, Van Blaricom did not rely on his own reports in forming the opinions he expressed therein. Accordingly, they are not admissible under Rule 703 to show the basis of his opinion. Nor are the reports more probative than the testimony of Van Blaricom would be, and Todd has not shown that Van Blaricom is unavailable to testify. Fed.R.Evid. 807(a)(3). Accordingly, Van Blaricom's reports are inadmissible. What is contained in the reports may be admissible if the requirements of the Federal Rules of Evidence are met.

2. Opinions regarding whether the force used was excessive under the Montana Constitution

The officers were entitled to use some force to effectuate a Terry stop when Todd began to flee. *Graham v. Connor*, 490 U.S. 386, 396 (1989). However, there is a genuine dispute whether the amount of force employed was reasonable considering that Baker did not warn Todd he was going to tase him and the officers did not clearly identify themselves. While Van Blaricom may not testify as to issues already decided, he may offer his opinion on whether Baker's use of the taser here was reasonable.

Expertise may be based on professional studies or personal experience. *Daubert*, 509 U.S. at 152. Van Blaricom's expertise is based on a combination of the two. (*See* doc. 50–1.) He was a police officer for twenty-nine years, eleven years of which he served as the Chief of Police of Bellevue, Washington. (Doc. 41–1.) For the past twenty-five years, he has been engaged as a police practices consultant (*Id.*) and has pursued extensive continuing education in relevant matters including tasers and taser use, use of force, and police liability (doc. 50–1 at 3–4). Van Blaricom is personally familiar with making "split—second judgments-in circumstances that are tense, uncertain, and rapidly evolving—about the amount of force that is necessary in a particular situation." *Graham*, 490 U.S. 396–97. He has also trained officers on making those decisions and studied police practices and policies concerning use of force decisions.

Van Blaricom did not use a taser when he was an active police officer, did not implement policies on taser use as a police chief or City Council member, is not certified in taser use, and has attended only three seminars on tasers. However, taser use is considered an intermediate use of force and fits within an established continuum. Nothing about the use of the taser in this case would require a technical knowledge specific to the taser. Rather, the reasonableness of the use of force deployed in this particular situation is at issue. Accordingly, Van Blaricom possesses "sufficient specialized knowledge to assist the jurors in deciding" this issue. *Kumho Tire Co., Ltd. v. Carmichael*, 526 U.S. 137, 152 (1999).

3. Rebuttal to Mr. Muir's Testimony and Opinions

***8** Defendants object to paragraph 14 of Van Blaricom's amended report, in which he responds to the report of Defendants' liability expert, Police Chief Mark Muir. They contend it is an improper attack and comment on Muir's character and testimony. It is not. To the extent Muir testifies regarding the reasonableness of the use of force in this case, Todd may seek rebuttal testimony from Van Blaricom as to the same issue. Van Blaricom alludes to two use-of-force cases against the City of Missoula that were brought when Muir was Assistant Chief of Police and Chief of Police. Evidence concerning these cases is admissible as impeachment evidence under Rule 607 because it goes to Muir's credibility and potential bias. Accordingly, Defendants' motion to strike this paragraph and exclude such rebuttal testimony is denied.

D. Alleged Prior Bad Acts, Evidence Todd Was Not in Possession of Dangerous Drugs, and Liability Insurance and Indemnification

The final motion before the Court is the Individual Defendants' motion seeking to exclude evidence concerning 1) alleged prior bad acts of Baker and Zimmerman, 2) any argument Plaintiff was not in possession of dangerous drugs, and 3) liability insurance and indemnification.

The motion is granted as to the latter two arguments. A prior order held that the officers had reasonable suspicion to effectuate a Terry stop and probable cause to arrest Todd. Actual innocence or guilt is immaterial to whether the use of force was reasonable if the officers had cause to use force. Accordingly, evidence that Todd was not in possession of marijuana when he was seized is irrelevant and inadmissible. Fed.R.Evid. 402. Additionally, any evidence or improper suggestion concerning insurance or indemnification by either party is disallowed under Federal Rule of Evidence 411 and *Larez v. Holcomb*, 16 F.3d 1513, 1518–21 (9th Cir.1994).

Defendants also seek to exclude evidence regard-

ing alleged prior bad acts by the officers involved in the tasing incident. Between 2005 and 2008, the Kalispell Police Department investigated ten instances of alleged wrongdoing by Officers Baker and Zimmerman, including three use-of-force complaints. (Doc. 32 at 11.) The Department sustained one excessive force complaint against Officer Baker due to his failure to report the use of force as required. (*Id.*) Officers Baker and Zimmerman were exonerated on the other two excessive force complaints. (*Id.*) Officer Zimmerman was also given an oral warning for rudeness and Officer Baker for failure to report. The remaining complaints were not sustained. Plaintiffs' liability expert, Van Blaricom, reviewed the Departments' reports on all the complaints and determined that they were not relevant to his analysis because citizen complaints against officers are common and the evidence did not show "a series of excessive force complaints." (Dep. Van Blaricom, 94:1–16, doc. 43–1.)

At this point, Rule 404(b) would seem to exclude evidence regarding these complaints and incidents. Plaintiffs assert that "other incidents of allegations of excessive use of force[ ] and failure to report use of force accurately have at least a 'tendency' to establish the individual officers' motive, intent, [and] absence of mistake or accident." (Doc. 53 at 3 (referring to Fed.R.Evid. 404(b)(2).) But the question for the jury is whether the use of force was reasonable in this particular instance, "without regard to [the officers'] underlying intent or motivation." *Graham*, 490 U.S. at 397. The jury must only decide whether the officers' judgment was reasonable, not whether they reported the incident accurately later. Nonetheless, the Court reserves ruling on the admissibility of prior bad act evidence. The evidence may become relevant at trial, depending on the testimony that is presented.

CONCLUSION

***9** For the reasons stated above, the IT IS HEREBY ORDERED as follows:

1. The City's motion to limit the testimony of Margot Luckman (doc. 36) is GRANTED. Luckman may testify as to the basis of her opinions, but she may not opine whether Todd actually suffered a traumatic brain injury, and she must defer to the updated opinions of the medical providers upon whom she relied in forming her own opinions.

2. The Individual Defendants' motion to exclude or limit the testimony of Dr. Gregory Hipskind (doc. 38) is DENIED.

3. The Individual Defendants' motion in limine regarding liability expert D.P. Van Blaricom (doc. 40) is GRANTED in part and DENIED in part. Van Blaricom's expert report is inadmissible hearsay. However, he may offer his opinion on whether the use of force in this case was reasonable. Defendants' motion to strike ¶ 14 of his report or exclude such rebuttal testimony is also denied under Rule 607, and Defendants' remaining arguments are denied as moot.

4. The Individual Defendants' final motion in limine (doc. 42) is GRANTED as to evidence regarding insurance and indemnification and as to evidence that Todd was not in possession of marijuana. The court reserves ruling on Defendants' motion to exclude evidence concerning alleged prior bad acts by Zimmerman and Baker until the arguments can be evaluated in light of the evidence presented at trial.

D.Mont.,2012.
Todd v. Baker
Slip Copy, 2012 WL 1999629 (D.Mont.)

END OF DOCUMENT

Document 14

Curriculum Vitae:
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Mr. DeVito joined the firm in 2000 as a Trial Attorney. He began his career as a law clerk for the Superior Court of Connecticut. After his clerkship he began his litigation experience with a prominent plaintiff firm in New York City. In 1996, he joined an insurance carrier's Staff Counsel and was promoted to start a new affirmative motion unit. In 1998, he was promoted to trial attorney and handled many trial matters in Kings County for two years before joining AIG Staff Counsel where he handled personal and commercial automobile cases. He then joined the construction unit and specialized in representing a major municipal contractor. In 2006, he was promoted to Senior Trial Attorney and began working on other major accounts including a major New York City agency. Mr. DeVito has managed bad-faith litigation (2006 to 2008) for the company and also provided claims training with respect to good faith claims handling. He has also been a mediation trainer for AIG Claims Litigation Management and with two of his Staff Counsel Colleagues trained all New York City area staff attorneys in the latest mediation techniques. He continues to handle insurance defense matters and remains active with AIG's mediation program. In 2010 he was promoted to Supervising Attorney responsible for assisting the managing attorneys and leading a team of six attorneys at his office.

Education:
B.A., Adelphi University, 1990
Cum laude with Honors in Liberal Arts
J.D., Pace University School of Law, 1993

Admitted:
New York, Connecticut
U.S. District Court, Eastern and Southern Districts of New York
New Jersey and U.S. District Court, New Jersey

Practice Areas:
Construction
Automobile
General Liability /premises
Insurance Bad-faith

Document 15

Wilson v. Corestaff Services L.P.

28 Misc.3d 425, 900 N.Y.S.2d 639, 2010 N.Y. Slip Op. 20176
(Cite as: 28 Misc.3d 425, 900 N.Y.S.2d 639)

C

Supreme Court, Kings County, New York.
Cynette WILSON, Plaintiff,
v.
CORESTAFF SERVICES L.P. and Edwin Medina, Defendants.

May 14, 2010.

Background: Temporary employee asserted claim under New York City and State Human Rights Law against employment agency, alleging that she was retaliated against after she reported inappropriate action by fellow employee at work site. Cross-motions regarding exclusion of expert testimony were filed.

Holding: The Supreme Court, Kings County, Robert J. Miller, J., held that expert testimony regarding witness's submission to and results of Functional Magnetic Resonance Imaging (fMRI) test was inadmissible.

Defendants' motion granted; Plaintiffs' motion denied.

West Headnotes

[1] Evidence 157 546

157 Evidence
157XII Opinion Evidence
157XII(C) Competency of Experts
157k546 k. Determination of question of competency. Most Cited Cases

The admissibility and limits of expert testimony is primarily in the discretion of the trial court.

[2] Evidence 157 508

157 Evidence
157XII Opinion Evidence
157XII(B) Subjects of Expert Testimony
157k508 k. Matters involving scientific or other special knowledge in general. Most Cited Cases

Evidence 157 535

157 Evidence
157XII Opinion Evidence
157XII(C) Competency of Experts
157k535 k. Necessity of qualification. Most Cited Cases

Evidence 157 555.2

157 Evidence
157XII Opinion Evidence
157XII(D) Examination of Experts
157k555 Basis of Opinion
157k555.2 k. Necessity and sufficiency. Most Cited Cases

New York courts permit expert testimony if it is based on scientific principles, procedures or theory only after the principles, procedures or theories have gained general acceptance in the relevant scientific field, proffered by a qualified expert and on a topic beyond the ken of the average juror.

[3] Trial 388 140(1)

388 Trial
388VI Taking Case or Question from Jury
388VI(A) Questions of Law or of Fact in General
388k140 Credibility of Witnesses
388k140(1) k. In general. Most Cited Cases

Credibility is a matter solely for the jury.

[4] Evidence 157 506

157 Evidence
157XII Opinion Evidence
157XII(B) Subjects of Expert Testimony
157k506 k. Matters directly in issue. Most Cited Cases

28 Misc.3d 425, 900 N.Y.S.2d 639, 2010 N.Y. Slip Op. 20176
(Cite as: 28 Misc.3d 425, 900 N.Y.S.2d 639)

Unless the jurors are unable or incompetent to evaluate the evidence and draw inferences and conclusions, the opinion of an expert, which intrudes on the province of the jury, is both unnecessary and improper.

[5] Evidence 157 508

157 Evidence
157XII Opinion Evidence
157XII(B) Subjects of Expert Testimony
157k508 k. Matters involving scientific or other special knowledge in general. Most Cited Cases

Expert testimony is proper only when it would help to clarify an issue calling for professional or technical knowledge possessed by the expert and is beyond the ken of the typical juror.

[6] Evidence 157 506

157 Evidence
157XII Opinion Evidence
157XII(B) Subjects of Expert Testimony
157k506 k. Matters directly in issue. Most Cited Cases

Employee's expert opinion regarding credibility of fact witness in retaliation action against employment agency was of collateral matter, and thus expert testimony regarding witness's submission to and results of Functional Magnetic Resonance Imaging (fMRI) test was inadmissible; credibility was matter solely for jury and was clearly within ken of jury.

****640** David Zevin, Esq., for plaintiff.

Davis & Gilbert, LLP, by Jessica Golden Cortes, Esq., and Guy R. Cohen, Esq., of counsel, for defendants.

ROBERT J. MILLER, J.

***426** In this pretrial motion *in limine*, the defendants Corestaff Services L.P. and Edwin Medina (Defendants) move to preclude plaintiff's expert witness from testifying regarding plaintiff's witness Ronald Armstrong's (Armstrong) submission to and the results of a Functional Magnetic Resonance Imaging (fMRI) test.

Plaintiff Cynette Wilson (Wilson) opposes the motion and cross moves to "be allowed a ***Frye*** Hearing concerning, the results of functional Magnetic Resonance **Imaging** testing which indicate that the witness Ronald K. Armstrong is being truthful when he states that defendant Edwin Medina told him not to place plaintiff Cynette Wilson in temporary work assignments because she complained of sexual harassment". Wilson disclosed pursuant to CPLR § 3101(d) her intent to call an expert, Steven Laken, Ph.D. (Laken) President and CEO of Cephos Corporation. The intention is to use Laken as an expert to testify that Armstrong, was not lying because the fMRI could show "that to a very high probability" that Armstrong "is being truthful when he testifies".

Essentially, plaintiff seeks to utilize the fMRI test to bolster the credibility of a key witness in this case. Plaintiff Wilson asserts a claim under New York City and State Human Rights Law that she was retaliated against by the defendants after she reported an inappropriate action by a fellow employee at the work site. The defendant Corestaff is a temporary employment agency that placed Wilson at an investment banking firm (the Bank). While on assignment, an employee of the Bank faxed an offensive nude photo to the plaintiff's work station. Wilson reported the incident to both Corestaff and the Bank. Armstrong is the only witness who will testify as to an alleged retaliatory statement made by Corestaff employee Medina. As such, his credibility is a key issue in the case.

[1] The admissibility and limits of expert testimony is primarily in the discretion of the trial court. (*People v. Wiggins*, 89 N.Y.2d 872, 653 N.Y.S.2d 91, 675 N.E.2d 845 [1996]. *Frye v. United States*, 293 F. 1013 [D.C. 1923]), is the seminal case followed by New York courts in determining the admissibility of scientific evidence at trial. (*People v. Wernick*, 89 N.Y.2d 111, 651 N.Y.S.2d 392, 674 N.E.2d 322 [1996]; ****641***People v. Wesley*, 83 N.Y.2d 417, 611 N.Y.S.2d 97, 633 N.E.2d 451 [1994]).

A review of the facts in *Frye* demonstrates that attempts by parties to bolster the credibility of witnesses is a not recent development. In *Frye*, a 1923 case, a defendant in a criminal ***427** trial wanted to use an expert witness to testify to the result of a "deception test" made upon the defendant. The "deception test" measured systolic blood pressure which

allegedly is influenced by change in the emotions of the witness. The *Frye* court summarized the theory as follows:

> In other words, the theory seems to be that truth is spontaneous, and comes without conscious effort, while the utterance of a falsehood requires a conscious effort, which is reflected in the blood pressure. The rise thus produced is easily detected and distinguished from the rise produced by mere fear of the examination itself. In the former instance, the pressure rises higher than in the latter, and is more pronounced as the examination proceeds, while in the latter case, if the subject is telling the truth, the pressure registers highest at the beginning of the examination, and gradually diminishes as the examination proceeds.

The *Frye* court refused to allow the testimony of the expert as to the results of the deception test. The Court found:

> We think the systolic blood pressure deception test has not yet gained such standing and scientific recognition among physiological and psychological authorities as would justify the courts in admitting expert testimony deduced from the discovery, development, and experiments thus far made.

[2] New York courts have restated and followed the principles of *Frye* and set forth a test as to the admissibility of the expert testimony relating to scientific theory. New York courts permit expert testimony if it is based on scientific principles, procedures or theory only after the principles, procedures or theories have gained general acceptance in the relevant scientific field, proffered by a qualified expert and on a topic beyond the ken of the average juror. *People v. LeGrand*, 8 N.Y.3d 449, 835 N.Y.S.2d 523, 867 N.E.2d 374 [2007].

Apparently, there is no reported case in New York or in the rest of the country which deals with the admissibility of the results of fMRI test. The Court inquired of counsel for both parties if they were aware of any reported cases and both advised that this is a case of apparent first impression. However, long established precedent under *Frye* as well as long established principles of jurisprudence provide the Court with ample precedent and guidelines.

As the Court of Appeals noted in *People v. Williams*, 6 N.Y.2d 18, 187 N.Y.S.2d 750, 159 N.E.2d 549 [1959] where rejecting the use of an expert who was to testify as to the alleged lack of credibility of heroin addicts:

> ***428** But the expert testimony proffered here is not usual at all. It is not as to a fact in issue, as such, but as to collateral matter, viz., the credibility of a witness. Credibility is, as the cases have repeated and insisted from the dawn of the common law, a matter solely for the jury. Cases frequently turn upon what credence the jury gives to a particular witness. In a case such as this where only one witness has testified to the crime, the case stands or falls according to the jury's opinion of his credibility.
>
> * * * * * *
>
> How complex and confusing would a trial become for the jury if it were faced with conflicting expert opinions, each ****642** with scientific authority to support it, upon the collateral matter of credibility. The first question would be the credibility of the experts, and then the credibility of the witness. The battle of the experts might well be such that the jury would lose sight of the issues or, at the very least, would tend to regard the opinion of the expert as determinative of the credibility of the witness rather than to consider it only as one factor of many to be considered in concluding whether a witness is telling the truth.

[3] As the *Williams* court observed, our common law tradition provides that credibility is a matter solely for the jury. Anything that impinges on the province of the jury on issues of credibility should be treated with a great deal of skepticism.

[4][5] It is for this reason that courts have advised that the threshold question under *Frye* in passing on the admissibility of expert's testimony is whether the testimony is "within the ken of the typical juror". (*People v. Cronin*, 60 N.Y.2d 430, 470 N.Y.S.2d 110, 458 N.E.2d 351 [1983]) Expert testimony offered to bolster the credibility of a fact witness has been appropriately excluded. *(Water Wheel Inn, Inc. v. Exchange Ins. Co.*, 261 A.D.2d 535, 690 N.Y.S.2d 622 [2d Dept.1999].)Furthermore, it is well established that unless the jurors are unable or in-

competent to evaluate the evidence and draw inferences and conclusions, the opinion of an expert, which intrudes on the province of the jury, is both unnecessary and improper *(Kulak v. Nationwide Mut. Ins. Co.*, 40 N.Y.2d 140, 386 N.Y.S.2d 87, 351 N.E.2d 735 [1976].) Expert testimony is proper only when it would help to clarify an issue calling for professional or technical knowledge possessed by the expert and is beyond the ken of the typical juror. *(De Long v. County of Erie*, 60 N.Y.2d 296, 469 N.Y.S.2d 611, 457 N.E.2d 717 [1983]) The proffered ***429** fMRI test is akin to a polygraph test which has been widely rejected by New York State courts. *(People v. Shedrick*, 66 N.Y.2d 1015, 499 N.Y.S.2d 388, 489 N.E.2d 1290 [1985]; *Water Wheel Inc v. Exchange Inc.*, Co, 261 A.D.2d 535, 690 N.Y.S.2d 622 [2d Dept.1999]).

[6] Here the opinion to be offered by Laken is of a collateral matter, i.e. the credibility of a fact witness. Since credibility is a matter solely for the jury and is clearly within the ken of the jury, plaintiff has failed to meet this key prong of the *Frye* test and no other inquiry is required. However, even a cursory review of the scientific literature demonstrates that the plaintiff is unable to establish that the use of the fMRI test to determine truthfulness or deceit is accepted as reliable in the relevant scientific community. The scientific literature raises serious issues about the lack of acceptance of the fMRI test in the scientific community to show a person's past mental state or to gauge credibility.

Accordingly, defendants' motion *in limine* to exclude the testimony of the fMRI expert is granted and plaintiff's motion for a *Frye* hearing is denied.

The foregoing constitutes the decision and Order of the Court.

N.Y.Sup.,2010.
Wilson v. Corestaff Services L.P.
28 Misc.3d 425, 900 N.Y.S.2d 639, 2010 N.Y. Slip Op. 20176

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Document 16

Zawaski v. Gigs, LLC

NOTTMY

COMMONWEALTH OF MASSACHUSETTS

SUFFOLK, SS.

SUPERIOR COURT
CIVIL ACTION
NO. 2008-~~02243~~
2380

Notice Sent
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DMA
B+A pc
AMC
MPC
BMTC
(MD)

RICHARD ZAWASKI,
Plaintiff

v.

GIGS, LLC AND WENDELL LEE ZORMAN,
Defendants

MEMORANDUM AND ORDERS ON THE PARTIES' DAUBERT/LANIGAN II MOTIONS

On September 13, 2010, the Court held a Daubert/Lanigan II hearing on various motions concerning the admissibility or non-admissibility of various testing, test results and expert testimony. The parties did not request an evidentiary hearing on any of these motions but submitted all matters to the Court on affidavits, medical articles, and memoranda at a non-evidentiary hearing. The documents submitted to the Court were in a sixteen inches high pile and numbered approximately 3000 pages. The trial of this case has been assigned within the next month.

In Commonwealth v. Lanigan, 419 Mass. 15, 26 (1194), the Supreme Judicial Court adopted in part the basic reasoning of the United States Supreme Court in Daubert v. Merrell Dow, 509 U.S. 579, 593-594 (1993). In Case of Canavan, 432 Mass. 304, 310-311,

(2000), the Supreme Judicial Court held as follows:

> "Prior to our decision in Commonwealth v. Lanigan, supra, we required that in most circumstances "the community of scientists involved [must] generally accept[] the theory or process" for it to be admitted in evidence. The general acceptance test, or *Frye* test, often proved to be useful because, if there is a general acceptance of a theory or process in the relevant scientific community, the theory or process in question is likely reliable. However, we recognized that "strict adherence to the *Frye* test" could result in reliable evidence being kept from the finder of fact. *Id.* For example, a new theory or process might be "so logically reliable" that it should be admissible, even though its novelty prevents it from having attained general acceptance in the relevant scientific community.
>
> In order to account for this circumstance, we adopted in part the United States Supreme Court's reasoning in Daubert v. Merrell Dow Pharmaceuticals, Inc., 509 U.S. 579, (1993), and held that "a proponent of scientific opinion evidence may demonstrate the reliability or validity of the underlying scientific theory or process by some other means, that is, without establishing general acceptance." Commonwealth v. Lanigan, supra at 26, 641 N.e.2d 1342. ...Thus, we have concluded that a party seeking to introduce scientific evidence may lay an adequate foundation either by establishing general acceptance in the scientific community or by showing that the evidence is reliable or valid through an alternate means. Commonwealth v. Sands, 424 Mass. 184, 185-186, 675 N.E.2d 370 (1997).

Therefore in Daubert and Lanigan II, the respective courts announced a new test to govern the admissibility of expert testimony based on scientific, technical and other specialized knowledge. A party seeking to introduce scientific evidence may

lay a foundation either by showing that the underlying scientific theory is generally accepted within the relevant scientific community or by showing the theory is reliable or valid through other means. Canavan's Case, supra at 310. In the event that a party cannot prove that the underlying scientific theory is generally accepted, the proponent of scientific opinion evidence may demonstrate the reliability or validity of the underlying scientific theory or process by some other means, that is, without establishing general acceptance. Commonwealth v. Patterson, 445 Mass. 626, 640-641 (2005).

The judge must play the role of "gatekeeper" in determining whether to admit such evidence. In doing so, the judge must preliminarily assess whether that reasoning or methodology underlying the expert testimony is scientifically valid and whether that reasoning or methodology properly can be applied to the facts in the case...The Court in Daubert described several factors bearing on this assessment, namely:

1. Whether the scientific theory or technique "can be [and has been] tested";

2. Whether the theory or technique has been subjected to peer review and publication;

3. The known or potential rate of error...and the existence and maintenance of standards controlling the technique's operation; and

4. General acceptance.

In Daubert, the Court indicated that the above four factors are not meant to provide a definitive checklist or test Daubert,. supra at 592-593.

However, it must be remembered that the determination of the judge whether some expert testimony will be admitted is only a preliminary determination. When the expert evidence is presented to the jury, it is subject to the jury's determination on whether to reject it or to accept it, in whole or in part. The expert witness may be cross-examined in all the usual areas. The jury eventually will be the sole decisionmakers of the expert testimony and all other facts.

Basically, what the two parties have done here is present to the Court a pile of approximately 3000 pages (including many very technical articles) on very complicated and highly contested medical matters and ask the Court, on its own, to determine the reliability or non-reliability of various esoteric experts and theories. The parties have neither provided nor offered to provide any "live" expert testimony to support their respective positions. There are obvious partisans on each side of the issues as to whether the medical or scientific opinions should be admitted - depending on who has hired them and on which party their testimony supports.

Without having live evidence and witnesses to be examined by the parties and the Court, this Court stands in a difficult

position to make the very important decisions as to which evidence may be "junk" expert testimony and which expert testimony is or may be legitimate medical science. Such decisions could or may well be outcome determinative in this case.

Apart from the Court's order of exclusion on Motion #5 below, that is, Plaintiff's motion to exclude any reference to the 1997 AAN position paper and to exclude any testimony which relies on said position paper (which motion has been allowed), the Court has crafted the balance of the orders individually to the particular motion involved. The parties are expected of course to rely on their cross-examination of the expert witnesses to limit or discredit their testimony. The Court will prepare and file a decision later that gives the reasons for the Court's decision in this matter.

Therefore, based on this Court's review of all documents submitted by both parties, the Court makes the following orders on the subject six motions:

(1) Motion in Limine of the Defendants, GIGS, LLC and Wendell Lee Zorman to Preclude Murdo Dowds, Ph.D. from Offering Medical Opinion Testimony Concerning the Plaintiff's Alleged Acute Concussive Brain Injury, with Plaintiff's Opposition.

ORDER: The testimony of Doctor Murdo Dowds, Ph.D. depends on her experience and expertise. There is no hard and fast rule that only a physician may give medical testimony. In this day and time, science, including medical science, is advancing so

fast that different areas of expertise overlap. It will depend on the witness' expertise. From the Court's reading of her education, training and experience, and from the substance of her opinion, it appears that the expert witness is qualified to render opinions in the areas discussed in the plaintiff's opposition to this motion, and the motion is DENIED.

(2) Motion of the Defendants, GIGS, LLC and Wendell Lee Zorman, to Preclude any and all Evidence, Testimony, Reports and/or References Relating to Diffusion Tensor Imaging because DTI is Neither Reliable Nor Accepted in the General Medical Community as Required Under Daubert and Lanigan Standards, and Opposition.

ORDER: Defendant's Motion to Preclude Evidence (et cetera) relating to Diffusion Tensor Imaging is DENIED.

(3) Plaintiff's Motion for Limited Time (One Hour Each) Attorney Conducted Voir Dire and Opposition.

ORDER: ALLOWED. The Court will hold a conference to set up the ground rules.

(4) Plaintiff's Motion in Limine to Exclude the Result of the TOMM Test and Opposition.

ORDER: The Court will hold a hearing (evidentiary) out of the presence of the jury to determine whether the TOMM test's administration followed proper procedure.

(5) Plaintiff's Motion to Exclude Any Reference to the 1997 AAN Position Paper and to Exclude any Testimony Upon Which Relies on the Position Paper and Opposition.

ORDER: ALLOWED. This Court has closely reviewed all the submissions concerning this paper written some 13 years ago. It is replete with errors as pointed out in the many other articles submitted.

(6) Plaintiff's Motion to Exclude the Purported Tractor Inspection Report dated March 20, 2006 and Opposition.

ORDER: The defendants will be expected to lay a proper foundation for the introduction of said report by the person who authored said report and performed said inspection.

By the Court,

Thomas E. Connolly
Justice of the Superior Court

Date: November 4, 2010

Notice Sent
11.08.10
(md)