BRAIN INJURY professional

The official publication of the North American Brain Injury Society

vol. 11 issue 3

Special Issue on Brain Injury Litigation

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editor in chief's message

Debra Braunling-McMorrow, Ph.D.

Our readers include teachers, clinicians, care managers, administrators, and researchers, who may at some point in their careers become involved in litigation for a person who has sustained a brain injury. Some of our readers have served as fact witnesses as a result of providing services to a person in litigation and others are experienced expert witnesses. Others may be early in their career and have yet to experience this unique yet often grueling opportunity. The intent of this edition is to address key topics and controversial issues in brain injury litigation and provide articles of interest to all of the above.

Many who have searched the web and googled legal issues in brain and spinal cord injury likely have come across the website that Bruce Stern, Esq. started in July 2014, the *Traumatic Brain Injury Law Blog*. This blog serves as a premier source of information on brain and spinal cord injury law. Mr. Stern is well known in the field of brain injury law and has been honored by his inclusion in Woodward/White's *The Best Lawyers in America* from 2003-2015. Clearly he is an excellent editor for this special edition.

While some of the topics in this issue remain controversial, our goal is to not shy away from the difficult questions, and represent different sides of the issues. Currently an area of great controversy is the use of Diffuse Tensor Imaging (DTI) in diagnosing BI, in particular those with mild brain injury.

In her article on the Use of Diffusion Tensor Imaging to Assist in the Diagnosis of Traumatic Brain Injury, Dorothy Clay Sims, Esq. and Manley Kilgore, M.D. cite clinical research and case law in support of the use of DTI in the diagnosis of mild TBI as a counterpoint to a previously published article in the Brain Injury Professional.

As we are all trying to track and predict the impact of the Affordable Health Care Act on the delivery of healthcare for persons with brain injury, Dr Jacobs provides a different angle, that of the Life care planner. His article addresses the issue of obligation of payment for the potential life-long medical needs of a person with brain injury and the likely resulting change in practice for the life care planner in the future.

Joseph T. Crouse, Ph.D. and Anthony M. Gamboa, Ph.D., M.B.A discuss the economics and issues of underemployment and estimates on reduced wages or work life expectancy for someone with mild TBI.

Contributors Brandon A. Woodard, Esq., Gregory A. Kendall, Esq., Kyle S. Dayton, B.S., and Doug Rennie, Esq discuss the pitfalls of oversimplifying a diagnosis of headache and the importance of differential diagnosis in this frequently cited symptom by plaintiff's with brain injury.

In addition, the article by Kenneth Kolpan, Esq. on what you can expect on the stand as an expert witness, serves as a straightforward primer. She/he/they also define a fact witness and an expert witness and help the expert to understand their role in litigation.

NABIS appreciates the time and expertise of Bruce Stern, Esq. and contributors to this edition as we continue to provide an overview of current issues in the field of brain injury.

Finally, I want to remind all of our readers that the North American Brain Injury Conference is moving to the spring starting 2015. Please save the dates of April 29 to May 2, 2015 for pre-conference and conference at the Westin Riverwalk Hotel in San Antonio. Conference Chairperson Dr. Jonathan Silver has assembled a stellar compliment of presenters. This year's conference will also include a clinical rounds format with panels of experts to help tackle complex clinical issues.

In addition, Bruce Stern is the Chair for the Medical Legal conference which will occur in coordination with the NABIS clinical conference.

Please check the NABIS website at www.nabis.org for more details.

about the editor in chief

Dr. Debra Braunling-McMorrow is the President and CEO of Learning Services. She serves on the board of the North American Brain Injury Society. She has served as a chair of the American Academy for the Certification of Brain Injury Specialists (AACBIS), board of executive directors of Brain Injury Association of America, and several national committees, editorial boards, and peer review panels. She is published author and lecturer in the field of brain injury rehabilitation for over 30 years.

PHOTO BY HERMAN PRIVETTE

SCARLETT LAW GROUP

Scarlett Law Group is a premier California personal injury law firm that in two decades has become one of the state's go-to practices for large-scale personal injury and wrongful death cases, particularly those involving traumatic brain injuries.

With his experienced team of attorneys and support staff, founder Randall Scarlett has built a highly selective plaintiffs' firm that is dedicated to improving the quality of life of its injured clients. "I live to assist people who have sustained traumatic brain injury or other catastrophic harms," Scarlett says. "There is simply no greater calling than being able to work in a field where you can help people obtain the treatment they so desperately need."

To that end, Scarlett and his firm strive to achieve maximum recovery for their clients, while also providing them with the best medical experts available. "As a firm, we ensure that our clients receive both the litigation support they need and the cutting-edge medical treatments that can help them regain independence," Scarlett notes.

Scarlett's record-setting verdicts for clients with traumatic brain injuries include $10.6 million for a 31-year-old man, $49 million for a 23-year-old man, $26 million for a 7-year-old, and $22.8 million for a 52-year-old woman. In addition, his firm regularly obtains eight-figure verdicts for clients who have endured spinal cord injuries, automobile accidents, big rig trucking accidents, birth injuries, and wrongful death.

Most recently, Scarlett secured an $18.6 million consolidated case jury verdict in February 2014 on behalf of the family of a woman who died as a result of the negligence of a trucking company and the dangerous condition of a roadway in Monterey, Calif. The jury awarded $9.4 million to Scarlett's clients, which ranks as one of the highest wrongful death verdicts rendered in recent years in the Monterey County Superior Court.

"Having successfully tried and resolved cases for decades, we're prepared and willing to take cases to trial when offers of settlement are inadequate, and I think that's ultimately what sets us apart from many other personal jury law firms," observes Scarlett, who is a Diplomate of the American Board of Professional Liability Attorneys.

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guest editors' message

Bruce H. Stern, Esq.

Since a traumatic brain injury requires a traumatic event by definition, many of those who sustain a traumatic brain injury end up in litigation. As a consequence, not only are the survivor of the traumatic brain injury and his/her family drawn into the litigation process but rehabilitation professionals as well.

In this issue of *Brain Injury Professional* various authors were invited to submit papers of medical-legal interest. For those of us who are attorneys representing people with traumatic brain injuries, the vast majority of our authored papers and presentations in the past have been directed to other attorneys who represent people with traumatic brain injury. Since the majority of readers of the *Brain Injury Professional* are not attorneys but rehabilitation professionals, it is important to include papers that would be of interest not just to attorneys, but to rehabilitation professionals as well.

As readers of the *Brain Injury Professional* and those who attended the North American Brain Injury Society (NABIS) conference in September 2013, there has been a heated debate surrounding the use and admissibility of diffusion tensor imaging in TBI litigated court cases. In the Fall 2013 issue of BIP, (Vol. 10, Issue 3), Hal S. Wortzel, M.D. authored a paper entitled "Historical Perspective on Advanced Neuroimaging in Clinics and Courts."

As a counterpoint to Dr. Wortzel's paper and his presentation at the 2013 NABIS Conference, I invited Dorothy Clay-Sims, Esq., author of the text "Exposing Defensive Defense Doctors" to provide a legal analysis of the use and admissibility of diffusion tensor imaging in our courts. Ms. Sims demonstrates that DTI has been found both in the medical research and literature of those doing the research and the courts to be a reliable and scientifically valid diagnostic test to objectively diagnose brain injury when used in conjunction with a patient's history, and clinical examination.

A hot topic in the field life care planning and economics is what affect the Affordable Care Act (Obama care) will have on the ability of plaintiffs' attorneys to introduce the cost of life care plans. The argument being, now that everyone must be enrolled in the ACA, that all future medical costs should be covered; eliminating the need for defendants to pay for needed future medical care. Harvey Jacobs, Ph.D., a behavioral psychologist and certified life care planner addresses this topic in his paper entitled "Life Care Planning and Acquired Brain Injury: Determining the Needs and Costs of the Dawn of the Patient Protection Affordable Care Act."

Speaking of economics, Anthony M. Gamboa, Ph.D., MBA and Joseph T. Crose discuss the economic consequences of mild traumatic brain injury disability. Utilizing data taken from the U.S. Census Bureau's American Community Survey (ACS), Dr. Gamboa demonstrates that people even with a mild traumatic brain injury will, on average, even when working year round full-time earn less money than their counterparts without disability and that they will experience lower levels of labor market participation and employment, which, when considered in the aggregate, produce lower levels of work life expectancy then those without a disability. The effect of these two factors combined to produce "a probable reduction of lifetime expected earnings for persons with a mild cognitive disability."

Those involved in representing TBI survivors, frequently hear their clients complain of headaches following a traumatic event such as a car crash. Brandon A. Woodward and his colleagues from Montgomery, Rennie and Jonson discuss the pitfalls of an oversimplified diagnosis of headaches. As defense attorneys these authors present a unique perspective of this common TBI symptom.

Brain injury rehabilitation professionals will often get drawn into civil litigation whether they like it or not, either as a treating doctor or as an expert witness. Frank Toral, Esq. makes the case that the team approach with both attorneys and medical providers are necessary to provide both medical and legal care for the TBI survivor involved in litigation. Finally, Kenneth Kolpan, Esq. outlines what a rehabilitation professional can expect when he/she becomes an expert in brain injury litigation. So as not to succumb to the pitfalls and traps that can occur when a brain injury professional agrees to become an expert witness, Mr. Kolpan lays out the necessary steps that one must take to not only avoid problems but to insure success as an expert witness.

While the compilation of articles for this issue of the *Brain Injury Professional* is diverse, it is hoped it will prove to interest the wide and diverse readership of BIP.

about the guest editor

Bruce H. Stern is a Shareholder and member of the Accident & Personal Injury Group, where he concentrates his practice in the area of traumatic brain and spinal cord injuries and wrongful death. Mr. Stern is certified as a Certified Civil Trial Attorney by both the New Jersey Supreme Court and the National Board of Trial Advocacy. Mr. Stern is also a fellow of the International Academy of Trial Lawyers and is a fellow in the International Society of Barristers. Mr. Stern is published author and lecturer on Traumatic Brain Injury Litigation.

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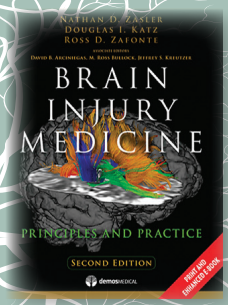


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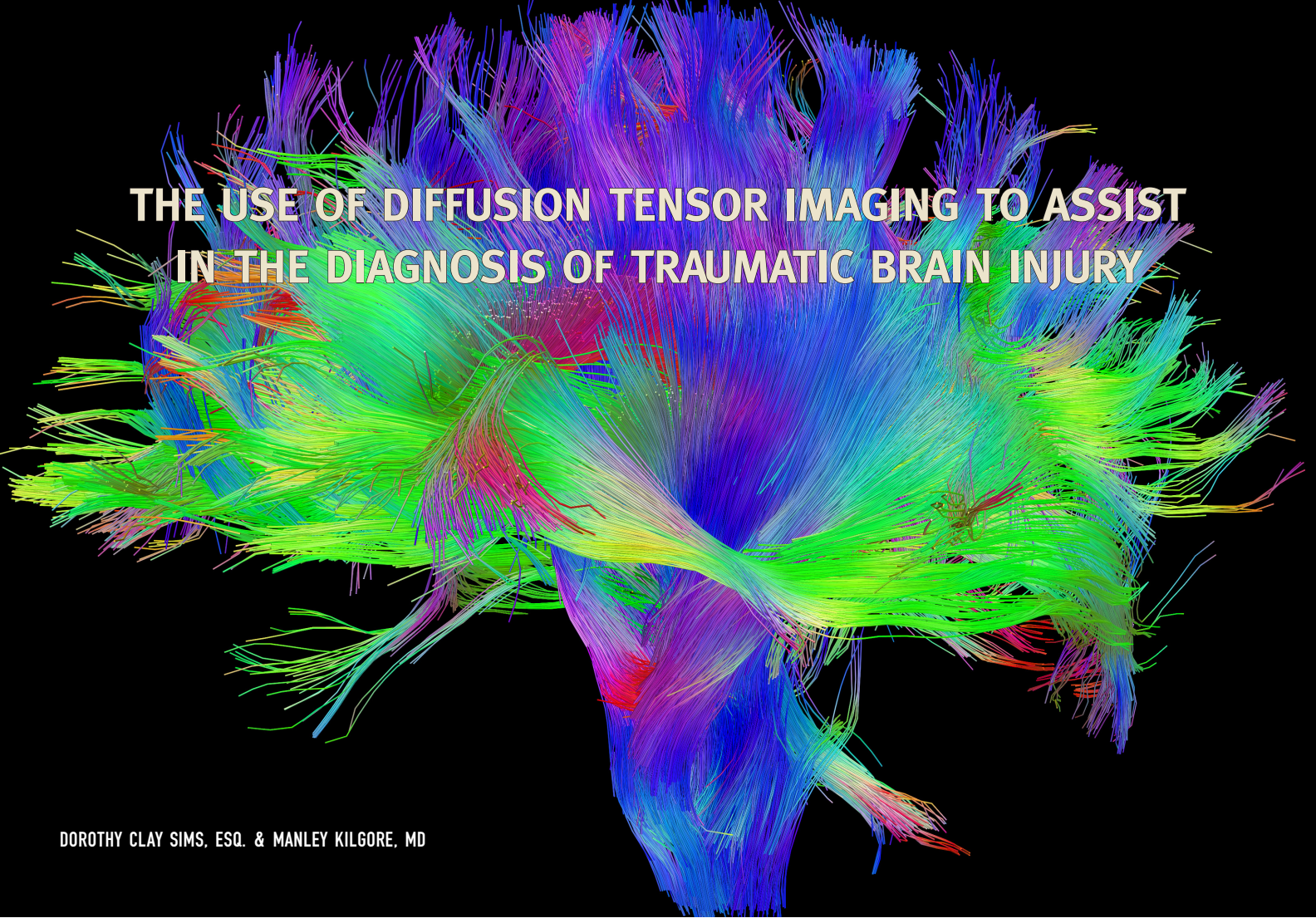

THE USE OF DIFFUSION TENSOR IMAGING TO ASSIST IN THE DIAGNOSIS OF TRAUMATIC BRAIN INJURY

DOROTHY CLAY SIMS, ESQ. & MANLEY KILGORE, MD

Prior to Diffusion Tensor Imaging (DTI), doctors faced with providing objective proof to assist in the diagnosis of mild to moderate brain injury had limited resources. A traditional MRI or CT scan does not reveal fiber tract damage due to diffusion abnormalities. In fact, an individual with a perfectly normal MRI or CT scan could even be in a coma. DTI as part of MRI has proven to be beneficial in assisting the practitioner in diagnosing TBI.

DTI provides useful information about the integrity of the white matter tracts in the brain. If the brain is injured due to trauma, then the speed or efficiency of the white matter tracts can be reduced.

"Diffusion Tensor Imaging measures the displacement of water molecules on the micron scale and yields information about white matter fibers…"[1] Fourteen years ago an article revealed "Diffusion Tensor Imaging is a cutting edge imaging technique that provides quantitative information with which to visualize and study connectivity and continuity of neural pathways in the central and peripheral nervous systems *in vivo*"[2] In fact, DTI has become one of the most popular MRI techniques in brain research, as well as in clinical practice.[3]

The literature

Surgeons have been using DTI to guide them in surgical procedures for years.[4] DTI is used in surgical planning to identify fiber tracts such that these areas can be avoided, if possible, during surgery.

One of the benefits of DTI is that the results cannot be controlled by the patient. DTI results cannot be malingered. Furthermore, contrary to the claims of some, using DTI on TBI populations is not new or novel. Over a decade ago DTI was suggested as a method of showing "successful correlation with outcome and predictor variables."[5]

Articles critical of DTI and TBI: 2011

In spite of many articles and sound research supporting using DTI in assisting in the TBI diagnosis, several articles have been published recently calling the procedure into question.

In December, 2011 Wortzel et al authored a paper, suggesting DTI was inappropriate in a mild TBI case."[6] The manner in which the research was conducted is fundamentally suspect and omits significant relevant research. For example, several studies discussing the utility of DTI and mild and moderate TBI were not considered for inclusion. Only articles with "DTI" and "Mild TBI" or "MTBI" in the title were included. Several sound articles have been published regarding DTI and mild TBI, but these articles did not have both DTI and Mild TBI in the title. Ignoring sound articles on point due solely to the name of the article is a dangerous precedence.

Several other articles supporting using DTI in TBI cases were also absent including many published just the year before.[7] Although the article claims to consider (on page 514) that *all* studies related to mild TBI with mTBI and DTI

in the title, this is incorrect.

The article entitled "Diffusion Tensor Imaging of Mild Traumatic Brain Injury" was not included. A number of articles published in 2011 are equally supportive of the use of DTI in TBI cases were also absent from the Wortzel article.[8]

One of the criticisms of DTI and TBI in the Wortzel article provides "...alterations in white matter integrity are not specific to TBI..."[9] However, this issue applies to all issues involving testing and causation. Herniated discs are not specific to car crashes however, an abnormal MRI revealing a herniated disc is unquestionable relevant to a jury's determination as to whether there is evidence that the disc is abnormal. As with any injury, causation can only be concluded with additional information surrounding the injury including onset, location and duration of symptoms.

The same year the Wortzel article was published, the *New England Journal of Medicine* published an article which looked at 63 military personnel who had been diagnosed with mild uncomplicated TBI and concluded "abnormalities revealed on DTI were consistent with traumatic axonal injury in many of the subjects with traumatic brain injury."[10] The article indicated the research was conducted "The use of reduced anisotropy on DTI as a marker of traumatic axonal injury has been directly validated by means of comparison with immunohistochemical indicators of axonal injury in an animal model of traumatic brain injury, even when the findings on conventional MRI are normal."[11]

This was an excellent study because "None of the subjects in either group had other conditions that are known to or could reasonably be expected to affect DTI signal characteristics."

The authors noted that "Because DTI can be performed relatively quickly on the MRI scanners at U.S. military facilities and civilian hospitals, DTI based assessments may be useful in diagnosis, triage, and treatment planning in clinical practice."[12] The article revealed that "DTI findings in US military personnel support the hypothesis that blast related mild traumatic brain injury can involve axon injury."[13] The article noted, "The use of reduced anisotropy on DTI as a marker of traumatic axonal injury has been directly validated by means of comparison with immunohistochemical indicators of axonal injury in an animal model of traumatic brain injury, even when the findings on conventional MRI are normal."[14]

The Wortzel article also indicates "no standards exist surrounding the technical performance of DTI for reporting of its findings" (page 11). This is no longer of concern. The following year, the ASFNR published guidelines for "*Clinical Applications of Diffusion Tensor Imaging*",[15] which included guidelines for data acquisition, post processing and reporting of the data.

The statement on page 11 that "the state of the science suggest that in most instances DTI's evidentiary appropriateness for mTBI litigation will be poor" is incorrect in light of articles discussed in this analysis. Several publications published before and after the 2011 date of the Wortzel article prove the hypothesis incorrect. In articles published in 2011, the same year suggest that DTI may be a predictive marker for poor outcome for mild-moderate TBI.[16] Additional research that year revealed "Fractional anisotropy reductions in the splenium and FWM in the acute stage of mild to moderate TBI may be a useful prognostic factor for long-term cognitive dysfunction."[17]

In July, 2011, research revealed "Our review of the current literature supports the conclusion that DTI is particularly sensitive to changes in the microstructure of frontal white matter, thus providing a valuable biomarker of the severity of traumatic injury and prognostic indicator of recovery of function."[18]

The statement in the Wortzel, et al article suggesting admission of DTI evidence in mTBI is seldom appropriate, flies in the face of orders from multiple judges who have ruled, after Daubert/Frye hearings involving multiple experts on both sides, that ...it much is appropriate as ruled upon in over 20 cases. The multiple orders, discussed below, were entered after defendants have had full opportunity to present experts, articles and lengthy arguments supporting the exclusion of DTI... and they still lost. To author an article discussing the admissibility of such evidence and avoid discussing court's rulings is of limited utility to the reader.

The statement in the article compelling the DTI expert to offer "an exhaustive differential diagnosis for any abnormal DTI finding…"[19] is expensive and unnecessary if many of the potential differential diagnoses are unwarranted in the particular case.

The Wortzel et al article states "the application of DTI to mTBI litigation is proceeding despite a paucity of critical analyses of the available data on which its use in this context is predicated."[20] This is incorrect in light of previously mentioned publications found in respected medical journals. A smattering of such articles is discussed in Table 2 in the Yungbauer & Bowman article and lists some 27 articles[21] with quotes support for using DTI in TBI cases.

The article implies using DTI in assisting in the diagnosis of TBI is experimental and "relatively new."[22] However, as far back as 2002 an article revealed "DTI parameters also show distinct changes in response to brain injury."[23] Dr. Randall Benson, MD, an expert in DTI interpretation, in an affidavit stated, "DTI is an FDA approved, peer reviewed and approved commercially marketed and widely available MRI method which has been in clinical for many years"[24] In fact, the affidavit which is now 4 years old, reveals the first publication on DTI occurred some 20 years ago.[25]

DTI has been used since 1994 and is FDA-approved with clinical guidelines issued by the clinical radiologists governing body. In a recent article entitled, "A Decade of DTI in Traumatic Brain Injury: 10 years and 100 Articles Later", the *American Journal of NeuroRadiology* (2013) reported that "A unifying theme can be deduced from this large body of research: DTI is an extremely useful and robust tool for the detection of TBI-related brain abnormalities." There is also no debate that DTI is an excellent method for imaging white matter. A number of medical doctors, including the author of this article, use DTI to assist in diagnosing TBI cases including mild.[26]

The claim that the relevance of DTI and issues involving function in mTBI cases is "largely still matters of speculation" is wrong. This statement ignores research and articles and affidavits from practitioners in the field who are experts in DTI and, instead, relies upon a limited and bias sampling of articles. The authors discuss that other causes can exist

responsible for alteration of white matter. While this may be true, what is absent from the article is a discussion on exactly the quantification of such abnormality. There is no discussion regarding the reduced FA found in a TBI patient vs a patient suffering from schizophrenia.

For example, if, as in the Zawaski case, the expert determined the plaintiff had findings three standard deviations below the norm, that is a very significant finding.[27] The author determined the odds of randomly falling 3 full standard deviations below the norm by chance is .l5 out of 100. Missing from the Wortzel et all article is data showing such a profound decrease in FA exists in psychiatric conditions similar to those suffering TBI both in amount of decrease and location in the brain.

The article also states on page 4 there was variability at times after injury when the studies were performed. However, research shows DTI is valuable in TBI *regardless* of *when* the imaging was obtained.[28]

2013

In September of 2013, "A Historical Perspective on Advanced Neuroimaging in Clinics and Courts" was published in the *Brain Injury Professional* authored by Wortzel et al. The article is misleading. It fails to admit that in almost *all* cases (over 90%) in which DTI is challenged, the courts after being presented with testimony, motions and multiple articles, have permitted the results of the DTI to go to the jury as discussed below.

The article focuses on the use of brain scans implying that they have been misused and therefore should not make their way to a jury. However, using that same logic even X-rays could not be admissible due to the possibility that doctors could misuse the science.

Wortzel's own statement that healthy skepticism regarding "the ability of these latest modalities to differentiate between various neuropsychiatric conditions" is appropriate. However, this skepticism is not limited to neuroradiology. In psychiatry using a "draw a clock" test which asks the patient to simply draw a clock appears less reliable to diagnose brain damage than a brain scan actually quantifying the integrity of the fiber tracts. Many in the field of psychology or psychology may administer a cognitive screening test with no standardized administration or scoring manual. Using all of the arguments the Wortzel publication, no psychiatrist such as Dr. Wortzel himself, could get the results of such measures in evidence.

In 2013 an article was published after a meeting in Emory entitled "Guidelines for the Ethical Use of Neuroimages in Medical Testimony: Report of a multidisciplinary Consensus Conference"[29] hereafter called the Emory article. This publication appears to have a decided defense bias, lacking in a balanced assessment of the science and resulting in recommendations that are unworkable. It purports to summarize the conference and resulting recommendations but leaves out those in attendance who supported DTI and TBI and implies, instead, there was a "Consensus." There was *no* "Consensus."

In a publication by one of the participants, who notes "Contrary to the impression of Wortzel (2013), who recently wrote that DTI was not ready for use in the courtroom in individual personal-injury cases, the conference group was unable to reach a consensus on any standards or criteria for admissibility or exclusion of any specific neuroimaging modality, including but not limited to DTI, in the courtroom at any general session or at any breakout or small-group session..."[30]

"The group after exhaustive discussions did not reach any "Consensus" on any standards or criteria for admissibility or exclusion of any specific neuroimaging modality including DTI."[31] Even more glaring was the absence of many good studies supporting its use discussed later in this article. The author indicated "the conferees did NOT reach any consensus on the statements quoted by Dr. Wortzel from the report"[32]

In spite of several requests, the lead author of the Emory paper[33] has failed to respond to questions about how the team was selected (and the foremost experts in the field of DTI and TBI absent from the committee.

In a subsequent publication, while the proposed standards were discussed, neither the above referenced issues nor many articles supporting using DTI were discussed.[34]

Evidence of a defense bias exists in the article which includes the suggestion that "false *positives* rates should be known."[35] What about false *negatives*? For the patient, a false negative is equally if not more important than a false positive.

The Emory article recommendations for the doctors are vague and unrealistic. The article suggests that "Experts should specify known deviations from standard practice" (page 4) How much is known? Known by *whom*? Who's standard practice? Radiology? Neuroradiology? Psychiatry?

The Emory paper suggests that "experts should be willing to submit their testimony to peer review." This suggestion is completely unworkable in the forensic arena. Whom would be considered the peers? Only those who have experience interpreting DTI in TBI populations? If not, why not? Why not require *all* medical experts to submit testimony to peer review vs just those involving use of DTI to *support* a TBI diagnosis, (a decidedly defense bias) At who's expense? What if the deposition is sealed, is not ordered, or involves a minor? What are the peers to do with the multiple depositions after they are received?

The Emory paper indicates raw images and raw data should be provided for replication if requested." What if that raw data is subject to HIPAA protection? The patients who made up the norms may not have signed releases and the release of the raw data may violate HIPAA. Even if names are redacted some of the material can be used to generate 3D images of the patient's head/face such that even with the name redacted the individual can be recognized.

As to the paper's suggestion "expert should have substantial knowledge and experience in the area in which they are testifying" one must question whether an psychiatrist, untrained in DTI, can testify regarding DTI since a psychiatrist is not a trained in interpreting brain scans. Even trained radiologists may have no experience in the science behind the DTI including data acquisition and analysis and no experience on applying such information to TBI populations. This statement would seem to exclude those individuals from testifying but the authors doubts that was the intent of the article since several who authored or are cited are not actual experts in the field of interpreting DTI on TBI patients.

2014

In a June 2014 an article entitled "The Potential for Medicolegal Abuse: Diffusion Tensor Imaging in Traumatic Brain Injury" was published. The authors, Wortzel, Tsiouris and Filliple denounced the use of DTI in TBI cases. Their paper has been referred to in a subsequent publication as "misleading and often entirely unsubstantiated..."[36]

The subsequent article indicates that Wortzel et al publication cites an article (Volmar et al 2010 which was "completely misconstrued"[37] the authors, one of whom having actual experience in interpreting DTI data on TBI patients, point out that the Wortzel article "entirely misrepresented the substance of an unpublished abstract to suit the author's bias."[38] Wortzel's publication was found to have resulted in "glaring omission" and "gross misrepresentation" "exaggerating data" and be "blatantly misleading"[39]

The authors further point out that Wortzel et al seem to be arguing that because the abnormality can't be "seen" without quantification then it is not reliable. The logic applied to other areas of medicine would have disastrous consequences. Using this logic, if blood work analyzed for leukemia requiring quantification of white blood cells (abnormally high level of white blood cells indicating leukemia) should be ignored because the blood itself *looked* fine, ie red.

The argument that DTI is not reliable because of method variance "...completely misses the point of a very large literature, which speaks with essentially one voice: low fractional anisotrophy (FA is characteristic of TBI patients, *despite significant variability across studies.*"[40]

The Wortzel article is also criticized for "…exaggerating the typical number of simultaneous comparisons by at least 50%..."[41]

Relevant and significant literature by experts in the field appears to have been ignored in both the Emory paper and subsequent articles critical of DTI and TBI. An article dealing with 10 years of publications on DTI and TBI was notably absent from the Emory paper and the 2014 Wortzel et al article.

The Emory paper was published in august of 2013. Just seven months earlier, in that same journal, an article by Hulkower in the *ANJ* entitled "A Decade of DTI in Traumatic Brain Injury: 10 Years and 100 Articles Later" revealed that after reviewing 100 articles meeting the inclusion criteria going back l0 years, the authors conclude "… the "Consensus" is that DTI differentiates patients with TBI and controls, regardless of the severity and timeframe following injury."[42] Therefore while there is a consensus on DTI, the consensus is such that it is valuable in TBI cases, not the reverse. The Emory paper and 2014 Wortzel et al publication both leave out important publications on DTI and TBI and, most notably, the Hulkower article, the only article to go back l0 years and review l00 articles on DTI as used in TBI cases which conclude DTI is useful in the diagnosis of TBI. In fact, the U.S. Defense Centers of Excellence published clinical recommendations in 2013 and suggested using DTI as an optional sequence in mild TBI Cases under the category "Minimal requirements of an mTBI exam."[43]

In an article published in 2014, 27 articles are referenced with quotes discussing benefits of DTI in a TBI case.[44] Since that publication there have been additional publications supporting using DTI in TBI cases. [45]

Courts have denied multiple motions seeking to exclude DTI as evidence supporting TBI. In Table I of an article entitled "Daubert, Frye and DTI: Hijacking the Right to Trial by Jury," a number of court decisions are referenced which support inclusion of DTI since as far back as 2006. Since that date an additional judges have denied challenges to DTI resulting in 24 denials challenging the science.[46]

Conclusion

Suggesting that doctors ignore DTI's in TBI cases can cause tragic under or lack of treatment of a very real medical condition, a patient believing themselves to have mental illness vs legitimate organic pathology which can be treated with medication, withholding medications for TBI and provide unnecessary medications for psychiatric conditions the patients do not have.

It is a dangerous precedence to suggest members of the health care profession, whether in litigation or not, avoid considering evidence of abnormal DTI findings on the brains of persons who have undergone trauma. This is especially true when considering far less robust measures are used to rule out TBI such as simple psychological tests which have much less scientific validity than quantified fiber tract directionality. When comparing the articles critical of the use of DTI in TBI cases, "the overwhelming consensus of a substantial body of scientific inquiry supports DTI for detecting pathology in mTBI patients."[47]

Finally, it appears dangerous to rely on a publication denouncing DTI in TBI cases when such publication is "misleading", "exaggerating" and "completely misconstrued."[48]

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Medicortex Finland is Developing Therapeutic Drugs and Diagnostic Tools for Traumatic Brain Injury

MediCortex is currently seeking investors and has launched a crowd funding in order to develop therapeutic drugs for Traumatic Brain Injury, TBI, and to identify biomarkers to reliably evaluate the extent and severity of brain injury.

MediCortex Finland, a start-up pharmaceutical company focused on the treatment of neurodegenerative conditions, is developing therapeutic drugs which will limit the long-term effects of brain injury, including the types of severe brain trauma that veterans have received in combat. Another mission for the company is to identify biomarkers and a test to reliably establish the severity and extent of a brain injury.

Numerous studies have found evidence that even one minor concussion can lead to long-term neurodegeneration. The symptoms of TBI which occur as a result of repeated head trauma include sleep disturbance, problems with concentration, ringing in the ears, nausea, or seizures. When left untreated, these symptoms can develop into more severe neurodegenerative conditions, including Alzheimer's and Parkinson's.

Moreover, no reliable diagnostic tool exists for evaluating the extent and severity of brain injury. Medicortex is working towards the identification of brain injury biomarkers and their incorporation into a quick and accurate diagnostic kit that can be used by all healthcare professionals with ease. The ideal kit will not only diagnose the presence of brain injury, it will also quantify its severity and indicate the precise treatment needed. In addition, the kit could become a key component of efficacy testing in all future clinical trials on TBI.

About MediCortex

MediCortex was founded by Dr. Adrian Harel in 2014 in Turku, Finland, and operates as a privately owned company. Dr. Harel has a track record in leadership of early-stage drug discovery companies and business management. MediCortex Finland, currently in the proof-of-concept stage, is seeking an investment to support synthesis and initial in-vitro tissue culture studies for assessing the biological activity and lack of toxicity of its pipeline compounds. The company has launched a crowd funding campaign accessible at http://privatequity.biz/stock/medicortex-finland-oy/

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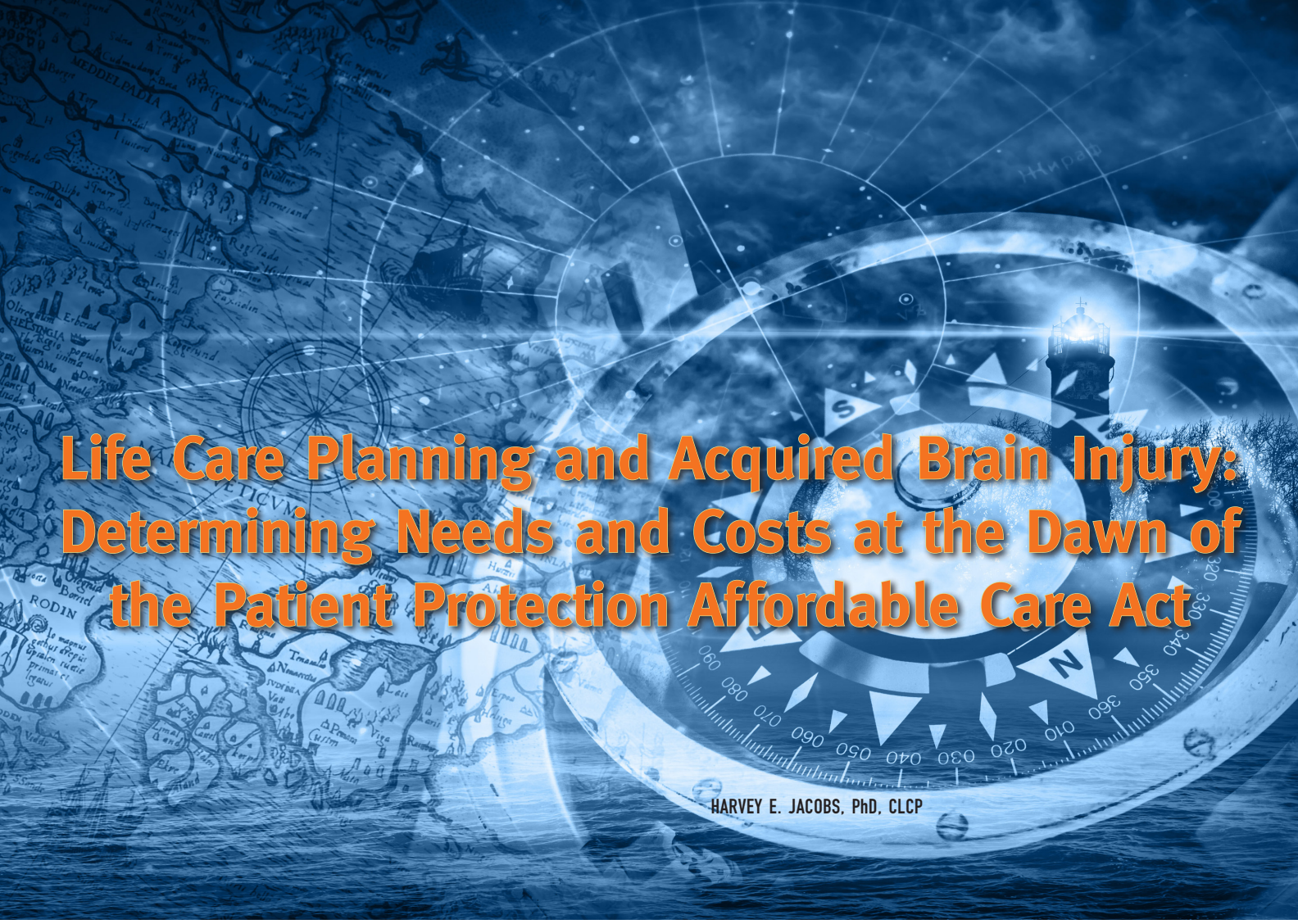

Life Care Planning and Acquired Brain Injury: Determining Needs and Costs at the Dawn of the Patient Protection Affordable Care Act

HARVEY E. JACOBS, PhD, CLCP

Life care plans involve synthesis of diverse and sometimes divergent information into a documented plan representing dynamically integrated needs and associated costs. From early roots in the 1970's with origins in the experimental analysis of behavior, developmental psychology and case management, life care planning has evolved into a well-established field that is both clinically and forensically recognized (Weed, 2010, Weed and Berens, 2012). The philosophies, foundations and methodologies of life care planning have been well reviewed in a broad array of publications (Deutsch, Allison and Reid, 2003; Riddick-Grisham and Deming 2011; Weed and Berens, 2010). Key elements include: 1) a consistent methodology to effectively analyze evaluee needs; 2) needs driven recommendations that are articulated to the specific individual and have a basis in the known medical and rehabilitation outcome research literature; and 3) strong medical, rehabilitation, case management and psychological foundations (Deutsch 1995; 2013).

Needs and Costs

Needs driven recommendations are crucial to each life care plan. It is essential to understand that needs and costs are different. Needs reflect the treatment, services, equipment and other supports required to remove or moderate handicapping conditions associated with an index event for an individual. This may involve a catastrophic injury, chronic medical condition or other complex episode that resulted in the individual's loss of functional capacity compared to pre-morbid abilities. Costs involve the resources required to implement the necessary interventions and supports.

It is important for a life care plan to assess all relevant needs of the evaluee without bias to costs. Evaluating a case within a pre-defined cost parameter, say a given sum of money, likely deflects from identifying all salient needs. For example, an evaluation that stops once a dollar threshold is crossed has no assurance that the most salient or profound needs have been identified. Additionally, an emphasis on costs over needs can obscure non-dollar resources that may be available. After the life care plan is complete, if needs subsequently exceed resources, available resources can then be appropriated to prioritized needs.

Valuation

Costs are obviously important and as appropriate, life care plans involve monetization of identified remedies. A key consideration is what "costs" entail. Best practices for identifying costs in the field of life care planning include verifiable data from appropriately referenced and reliable sources, identified costs that are geographically specific when appropriate and available, non-discounted/market rate prices, and more than one cost estimate when appropriate (Preston and Johnson, 2012). These practices are congruent with International Academy of Life Care Planners (IALCP) Standards of Practice

requiring transparency in the life care planning process, consistent methods to determine available costs, and accurate and timely cost information that can be easily utilized by the evaluee (IALCP, 2009).

Life care plans historically represent locally sourced usual and customary charges, sometimes referred to as non-discounted prices. Contractual or other discount rates, when they occur, vary widely across providers and over time. They are not considered a predictable source for determining future costs. For example, a negotiated discount available to one group, such as a large insurance company with millions of subscribers may not be available to a small subscriber pool, or an individual. Moreover, because of the proprietary nature of such information, they are also not readily accessible or verifiable by independent parties, further adding to the speculative nature of such data (Leung v. Verdugo Hills Hospital, 2013).

Two relatively recent cases in California have opened discussion on the concept of market pricing. In Howell v. Hamilton Meats & Provisions, Inc. (2011), the court ruled that the plaintiff could not recover damages for past medical bills greater than the amount the medical providers had accepted as payment in full, even if usual and customary charges were higher. The California court noted that this "does not violate the collateral source doctrine; rather it embodies the well-established principle that a plaintiff is entitled to recover an amount that would make her whole, but not over compensate her …" It is important to note that collateral source rules vary by state. This ruling also does not directly affect life care plans, which are based on prospective rather than retrospective needs and services.

Subsequently, Corenbaum v. Lampkin (2013) moved into the province of determining future costs, noting, " … we conclude that any expert who testifies on remand with respect to the reasonable value of the future medical services that Corenbaum and Carter are reasonably likely to require may not rely on the full amounts billed for plaintiffs' past medical expenses." What constitutes the reasonable value of future medical services has become a key controversy in California courts.

Different California courts and jurisdictions have provided widely different rules and qualifications, not only on the sourcing of such costs, but whether or not the sources can be revealed to juries. This can affect a jury's deliberations when trying to determine equitable compensation in the face of divergent pricing. Additionally, it is not clear that what a provider has accepted in one case or at one point in time as payment in full represents what he or she customarily accepts as full payment. This is often the case in MediCal, Medicaid and even Medicare reimbursements. Here a provider may accept a limited number of such patients into their practice at a loss, balancing them with others who are at least able to pay for the actual costs of services. Other providers may opt out of any insurance reimbursement or only provide "concierge" service at substantially higher out of pocket expenses. The complexity of a patient's case and needs may also have to be considered; i.e., more specialized cases that require more attention and professional training/knowledge can cost more per visit to treat and incur greater reimbursement demands. Reasonable access may be another consideration. The ultimate determination of "reasonableness" in California may require a state supreme court ruling (Holakiewicz, 2014).

The Patient Protection Affordable Care Act

Implementation of the Patient Protection Affordable Care Act (PPACA) has also raised questions pertaining to future settlements in personal injury and other medical-legal cases. Congdon-Hohman and Matheson (2013) have posited that a number of currently identified expenditures in life care plans would be covered by "the 'guarantee issue' and individual mandate 'requirements'" of the PPACA. They postulated that this could potentially cap many health expenditures at a personal maximum of $6,250 per year and transform the role of a life care planner into determining what expenses are covered by PPACA and what expenses are beyond its coverage.

The PPACA is presently viewed by most parties as too new and too vulnerable to be considered a stable source of funding (Auerbach, Heaton and Brantley, 2014; Halsne v. Avera Health, 2014; Vasquez-Sierra v. Hennepin Faculty Assocs., 2012). The base of subscribers is still expanding, rules and regulations are still developing and strong political divisions remain regarding the future scope, viability and even the existence of this program. Should the PPACA remain in its present format and be fully deployed by 2016, Auerbach et. al. (2014) estimates a relatively small impact on costs.

Of additional consideration, PPACA mandated services and levels of medical treatment cover only a portion of assistance that many people who experience disability following acquired brain injury (ABI) require. As needed, services such as extended allied health therapies (e.g., occupational therapy, physical therapy, speech/language pathology, psychology), case management, residential treatment, home care, community support staff and especially, "prosthetic brain" services (Voogt, 2006) are not included, only partially covered, or require frequent reviews that can affect service continuity. The by now familiar catastrophic, bronze, silver, gold and platinum policy levels cap costs of PPACA plans, but do not assure the consistency of provided services. Thus, the dichotomous decision making postulated by Congdon-Hohman and Matheson (2013) may not be so simple. Unlike Medicare, which is centrally administered, each insurance company within local markets is individually directed within general PPACA guidelines.

Hence, different insurance companies' formularies may cover different medications or have different criteria for generic vs. brand medications. Treatment panels vary, are reportedly more limited than most non-PPACA coverage (Pear, 2013) and may change in composition, thus requiring more frequent shifts in providers with associated impairments in continuity of care. Providers on panels may or may not have specific experience serving individuals with ABI; out of over 8,000 physiatrists in the United States, only a small percentage specialize in ABI. Specialists and special services such as surgeries may be difficult to access, in some cases requiring jumping through administrative hoops. This may not only delay or deny the specific treatment, but may impair overall treatment if other services are waiting on a specific resolution from this intervention. Coordination between services providers, as required for treatment efficacy, may be difficult to assure. Individuals switching between insurance policies across years, whether by choice or exigency as insurance companies come and go in the market place may also affect treatment continuity and efficacy. One could compare all insurance plans within a given policy level in a specific geographical market

for available services, formulary/panel relevance to the evaluee's needs, treatment path approval processes and costs. Still, findings would only represent a current year's costs and not the "predictive future." Relevance, continuity and accessibility of identified services may be equally important to "cost."

The ultimate trajectory of the PPACA is also likely to affect collateral source rules and determination of compensation, though this is typically beyond the role of a life care plan. These rules state that a tortfeasor-defendant cannot mitigate the damages he owes to a plaintiff by introducing evidence of collateral source payments from third parties, such as insurance coverage. Rationales for this rule have included that the defendant should not benefit from an injured party's foresight to arrange for insurance, as a means of deterring others from injuring future plaintiffs, to assure restoration of the injured party, and to encourage the purchase of health insurance, especially at a time when having health insurance was considered rare (Levin, 2013).

Collateral source rules vary widely across states relative to differences in recoverable compensation compared to actual medical payments. It is postulated that additional changes could occur if almost all people in the United States ultimately have health insurance coverage (Levin, 2013; Levinson, 2011). However, the ultimate path of such changes currently remains speculative. For example, how will package of health care benefits and services evolve over time and what is the likelihood of coverage and cost stability and predictability? How effectively will proposed Medical Reimbursement Data Centers reflect market rates for medical services, articulate geographic differences for those rates, and incorporate measures for qualitative analysis and specialty services? Will these data centers also accurately represent market rates for medical services not covered by insurance, or by providers/services/supplies outside of insurance reimbursement? What rights to judicial relief become available to willfully uninsured individuals? Do future injury associated health care needs become automatically covered by health insurance policies given the repudiation of pre-existing clauses, thus distributing the costs to all subscribers in the overall insurance pool, or remain the liability of the tortfeasor to make the plaintiff whole? What rights to subrogation will insurance companies and other "first response funders" retain? These may be new considerations for lawyers involved in acquired brain injury cases.

Summary and Recommendations

The life care plan's strength is based on its medical, rehabilitation, case management and psychological foundations. Its integrity is dependent on the consistency of its methodological approach and its durability rests on integrative components that represent a specific evaluee's overall needs and life quality. Health care services represent one component of a life care plan. Other equally important considerations include habitation; transportation; personal adaptive supports; productive activity patterns including but not limited to vocational, educational and leisure/recreational pursuits; community integration; social capital and personal validation.

Impending changes in health care service delivery and reimbursement may promulgate changes regarding future assessments of associated costs and valuation. However, at this early phase of implementation, coupled with a lack of clinical, legal and financial experience, there is uncertainty regarding the future direction and tenure of these changes. This yields greater speculation than certainty compared to existing financial models. It is important to keep abreast of these developments, per a life care plan's responsibility to provide well-established, accurate, predictive and timely information.

Ultimately, it is most important to recognize that a life care plan is much more than an actuarial exercise or an accounting of health care needs. It involves comprehensive assessment by a qualified rehabilitation professional, thorough representation with support and foundation of an evaluee's current and future needs relative to an index event, and a prospective process to ameliorate/moderate associated handicapping conditions.

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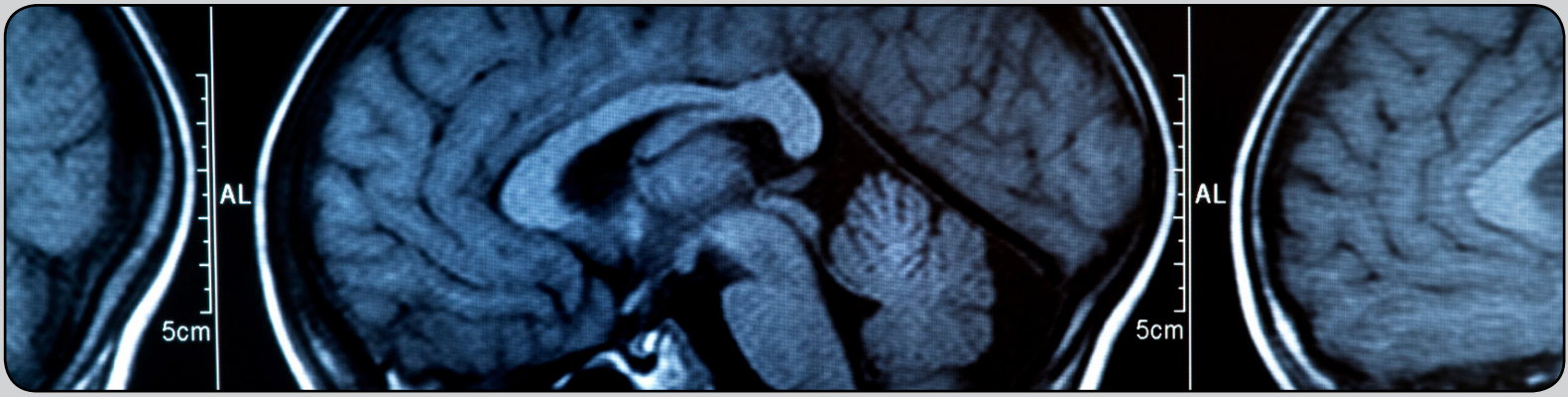

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THE ECONOMICS OF MILD TRAUMATIC BRAIN INJURY DISABILITY

JOSEPH T. CROUSE, PhD & ANTHONY M. GAMBOA, PhD, MBA

When wrongful traumatic brain injury (TBI) is recognized and causality is established between the injury and the diminution of cognitive functions, litigation often results. Measurable damages in such cases include loss of earning capacity and monies needed for future health and medical care. The purpose of this article is to examine the data and process for assessing the loss of earning capacity for individuals with mild traumatic brain injury. The majority of these cases require only a modest assessment of future medical costs when compared to severe traumatic brain injury.

Two facts exist for persons who sustain a mild traumatic brain injury and report problems with concentrating, remembering, or making decisions. The first is that on average, when such persons work year-round, full-time, they earn less than counterparts without disability. Second, they experience lower levels of labor market participation and employment, which when considered in the aggregate, produce lower levels of worklife expectancy than those without a disability. These two facts combine to produce a probable reduction of lifetime expected earnings for persons with a mild cognitive disability.

Many surveys demonstrate the effect of cognitive disability on earnings and employment. However, few offer a sample sufficiently large to quantify this impact by multiple levels of age, education, gender, and disability status. Two robust sources of data specific to both earnings and employment levels that also provide large sample sizes are the American Community Survey (ACS) and the Annual Social and Economic Supplement (ASEC) of the Current Population Survey (CPS), sometimes referred to as the March Supplement to the CPS. Both surveys allow classification of employment and earnings by age, gender, education, and disability versus non-disability status. The ASEC focuses on work disability, while the ACS examines earnings and employment from the functional perspective of mobility, cognition, vision, hearing, and physical disability.

The U.S. Census Bureau's American Community Survey (ACS), the largest annual survey in the United States, provides a wealth of statistics on a variety of characteristics for the nation. The ACS has been conducted since 2000. Since 2005, its annual sample size has been over 3 million persons per year, with annual response rates between 97 percent and 98 percent. In 2010 the ACS replaced the long form of the decennial census that contained detailed information about the U.S. population using a 5% sample of the population. As such, the Census Bureau recognizes the ACS as the preferred source for examining small geographic areas and finely detailed categories (e.g. disability). The survey collects data from participants by asking a series of disability-related questions.

Numerous researchers have utilized ACS data for a wide variety of purposes. The information provided by ACS concerning individuals with disabilities is considered the "gold standard" by most researchers in examining the earnings and employment levels for persons with a disability. The Disability Statistics Rehabilitation Research and Training Center for Economic Research on Employment Policy for Persons with Disabilities publishes an annual disability compendium of disability data from the ACS (Houtenville and Ruiz 2012). Gamboa, et al. (2006) and Gamboa & Gibson (2008) use data from the ACS to discuss the effects of mild traumatic brain injury on both earnings and employment. Gamboa (2006) used the same data to define key issues in assessing economic damages in cases of acquired brain injury.

It must be stressed that by its very nature statistical data always have limitations. Many times, the limitations of statistical data can be improved upon by collecting still more data. For example, the methods by which individuals are classified as being disabled or

nondisabled and degree or type of disability could be investigated from the standpoint of inter-rater reliability, which measures the consistency of the individuals doing the judging or categorizing of persons with a disability. Likewise, a longitudinal study following a group of individuals over a lifetime of work could provide a goldmine of useful data. However, the factors limiting such data-collection projects are always time and costs. It would take upwards of 40 years to complete the longitudinal study contemplated in this paragraph.

In the meantime, the ACS dataset is the largest and best available for measuring earnings and employment levels for persons without and with a disability. A qualified expert must understand the nature of the data and exercise clinical judgment specific to the individual being evaluated. It is the combination of understanding the data and judgment that can best aid the trier of fact. It is generally accepted that rational decision-making requires the use of both probability statistics and professional judgment (Rubin 2003).

Utilization of ACS data follows a rational approach to decision making where the expert combines the rich set of available statistics with judgment. While no survey research is perfect, the ACS is excellent in terms of allowing for probabilistic decision making with regards to earnings and employment levels for disabled individuals.

Prior to 2008, the ACS defined cognitive disability based on the question: "Because of a physical, mental, or emotional condition lasting 6 months or more, does this person have any difficulty in doing any of the following activities: learning, remembering, or concentrating?". A cognitive disability is considered severe when problems with self-care or going outside the home are also reported.

The U.S. Census Bureau adopted a new set of six disability questions beginning with the 2008 ACS. From 2008 to present, the ACS defines cognitive disability based on the question: "Because of a physical, mental, or emotional condition, does this person have serious difficulty concentrating, remembering, or making decisions?" Although the ACS has employed slightly different definitions of cognitive impairment, the earnings and employment rates as we will see are consistent between the two definitions of cognitive disability.

The data collected by the ACS using these two definitions of cognitive disability provide an excellent estimate of earnings and employment levels for persons sustaining a traumatic brain injury. Because employment levels, when considered in combination with a probability of life, form the building blocks of a worklife expectancy, it is recognized that such persons experience a reduction in probable worklife.

Data from the ACS is congruent with assessments of professionals who work with mild traumatic brain injury clients in a vocational setting. Such individuals will often obtain but have difficulty retaining employment. In addition, the data reveals that persons with cognitive disability, on average, exit the labor market or retire earlier than those with no disability.

Table 1 displays the earnings for males and females without disability and with cognitive disability. While earnings data exists for numerous levels of educational attainment, for illustrative purposes, earnings are presented only for male and female high school and baccalaureate degree graduates.

Although the most recent definition of cognitive disability differs slightly from the older definition, an inspection of Table 1

TABLE 1 Earnings for Persons without disability and with Cognitive Disability

	No Disability 2005-2007	Cognitive Disability 2005-2007	No Disability 2008-2011	Cognitive Disability 2008-2011
Male Earnings				
HS	$47,521	$40,471	$47,835	$39,154
BA	$89,219	$66,644	$89,235	$66,544
Female Earnings				
HS	$33,854	$29,963	$34,773	$30,108
BA	$60,922	$48,316	$61,057	$48,291

reveals that for individuals with cognitive disability earnings are fairly consistent albeit lower under the newer definition of cognitive disability ('08-'11). This is likely the result of the recent recession that caused individuals with a disability to fair worse than their non-disabled counterparts in the unfavorable economic climate. In addition, the re-wording of the new definition of cognitive disability which does not ask about issues in "learning" but instead asks about "making decisions" likely contributed to the difference.

TABLE 2 PE Rates for Persons without Disability and with Cognitive Disability

	No Disability 2005-2007	Cognitive Disability 2005-2007	No Disability 2008-2011	Cognitive Disability 2008-2011
Male PE Earnings				
HS	85.30%	56.40%	81.20%	45.70%
BA	89.50%	78.80%	88.40%	68.90%
Female PE Earnings				
HS	65.20%	40.70%	64.80%	39.10%
BA	82.70%	76.20%	83.70%	73.30%

Table 2 defines the levels of participation and employment (PE rates) for male and female high school and baccalaureate degree graduates using the slightly different definitions of cognitive disability. A participation rate is comprised of persons who are employed, either part-time or full-time, and those who are unemployed, but seeking employment. Worklife expectancy is based on two separate probabilities. These include the probability of life and the probability of employment which form a joint probability of being alive and employed. When the separate joint probabilities by age, gender, education level, and no disability versus cognitive disability are summed, a worklife expectancy is produced.

TABLE 3 Worklife Expectancies for Persons without Disability and with Cognitive Disability

	No Disability 2005-2007	Cognitive Disability 2005-2007	No Disability 2008-2011	Cognitive Disability 2008-2011
Male Worklife Earnings				
HS	33.8 yrs.	20.3 yrs.	32.2 yrs.	16.0 yrs.
BA	36.6 yrs.	26.4 yrs.	35.8 yrs.	21.8 yrs.
Female Worklife Earnings				
HS	28.3 yrs.	17.8 yrs.	27.9 yrs.	14.3 yrs.
BA	31.4 yrs.	23.7 yrs.	31.6 yrs.	22.0 yrs.

Table 3 examines the worklife expectancy values for 25 year old male and female high school and baccalaureate degree graduates without disability and with a cognitive disability.

As an example, a 25 year-old male high school graduate with a mild traumatic brain injury is referred for a loss of earning

capacity analysis. It is generally accepted that the individual retains the capacity to perform a variety of occupations. While he is employable, it is questionable as to whether or not he will retain employment. Utilizing the 2008-2011 ACS data, year-round and full-time employed males with a high school diploma who are not disabled earn at an average rate of $47,835 over the adult work years. Those year-round, full-time employed males with a high school diploma identified as having problems concentrating, remembering, and making decisions earn at an average rate of $39,154 per year. Worklife expectancies specific to no disability and cognitive disability are reported at 32.3 and 16.0 years, respectively. When consideration is given to fringe benefits at a national average rate of 27.5%, the lifetime loss of expected earnings is about $1.17 million.

Following the previous example but utilizing the 2005-2007 ACS data with the older definition of cognitive disability, year-round and full-time employed males with a high school diploma who are not disabled earn at an average rate of $47,251 over the adult work years. Those year-round, full-time employed males with a high school diploma identified as having problems learning, remembering, and concentrating earn at an average rate of $40,471 per year. Worklife expectancies specific to no disability and cognitive disability are reported at 33.8 and 20.3 years, respectively. When consideration is given to fringe benefits at a national average rate of 27.5%, the lifetime loss of expected earnings is about $1.0 million.

Thus, both ACS definitions of cognitive disability produce fairly consistent estimates of the lifetime loss of expected earnings: $1.0 million under the older definition and $1.17 million under the current definition.

Consider the case of Melinda, an18-year old female high school graduate that sustains a mild traumatic brain injury as a result of an automobile collision. Melinda's pre-injury school records reveal significantly above average levels of intelligence and achievement in areas of reading, mathematics, and reasoning ability. In addition, her pre-injury coursework consisted primarily of advanced placement classes with primarily A's. A neuropsychological evaluation conducted post-injury reveals an average to slightly above average level of intelligence in combination with deficits in the areas of processing speed, attention span, and sustained attention. Melinda has been accepted to numerous universities for the upcoming school year and the neuropsychological report in combination with a neurological report recommend a variety of accommodations while attending college. These include note takers and increased time for the completion of tests in a location that is free from distraction.

Utilizing the most recent ACS data, her pre-injury earning capacity is reasonably represented by the average earnings for non-disabled individuals with a baccalaureate degree that work year-round, full-time, $78,395. Her post-injury earning capacity is that of an individual with a cognitive disability that possesses a baccalaureate degree and works year-round, full-time, $59,506. Since Melinda is young and does not have a demonstrable employment history, we present two analyses beginning at age 22 when her education may reasonably be completed.

In the first, it is assumed that Melinda will have an employment pattern consistent with that of a statistically average female with a baccalaureate degree without and with a non-severe cognitive disability. Her pre-injury and post-injury worklife expectancies are 34.2 and 24.2 years, respectively.

In the second scenario, it is assumed that Melinda will have an employment pattern consistent with that of a statistically average male with a baccalaureate degree without and with a non-severe cognitive disability. Her pre-injury and post-injury worklife expectancies are 40.1 and 24.8 years, respectively.

When consideration is given to fringe benefits at a national average rate of 27.5% and assuming a pure offset in terms of present value, the lifetime loss of expected earnings is about $1.6 million under the first scenario and about $2.1 million under the second. An age-earnings cycle is utilized in most analyses, but we present data utilizing statistical averages for simplicity in this article.

Female worklife expectancies, at all levels of educational attainment, are less than male worklife expectancies. This exists primarily because many women exit the labor market during child rearing years, but reenter the labor market at some time after the youngest child is of school age. Some women exit the labor market during child rearing years and decide later in life to never reenter the world of work. These two factors significantly reduce average worklife expectancy for women. The worklife expectancy of Melinda is an unknown. It could be more like that of a male than a female or like that of a statistically average female. Over the last decade it has become a common practice for most experts to use both a male and female worklife expectancy on young females entering the world of work with an explanation as to why the two separate worklife expectancy values are used. The ultimate decision is then left to the Trier of Fact.

Mild traumatic brain injury leads to a loss of earning capacity when the diminution of cognitive functions is linked to the injury. When traumatic brain injury is severe, a life care plan and a vocational economic assessment are essential. Severe traumatic brain injury typically results in a lifetime of unemployment in combination with significant future costs associated with medical and health care. Were Melinda to have been 100% occupationally disabled, the present value of the lifetime loss of earning capacity would be in a range of $3.4 million to $4.0 million.

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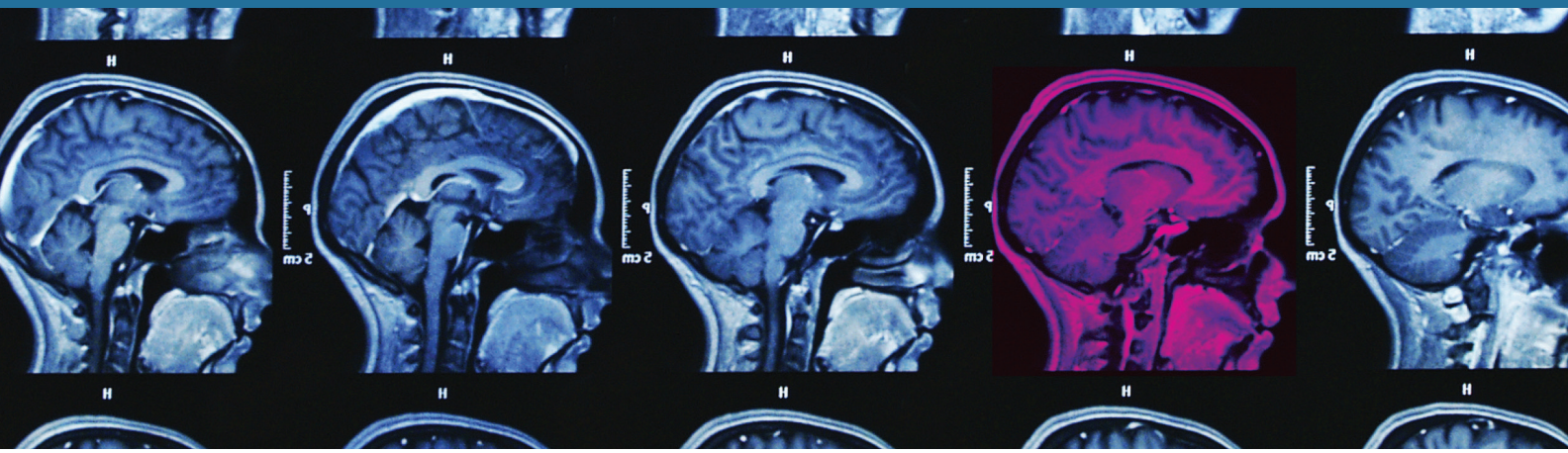

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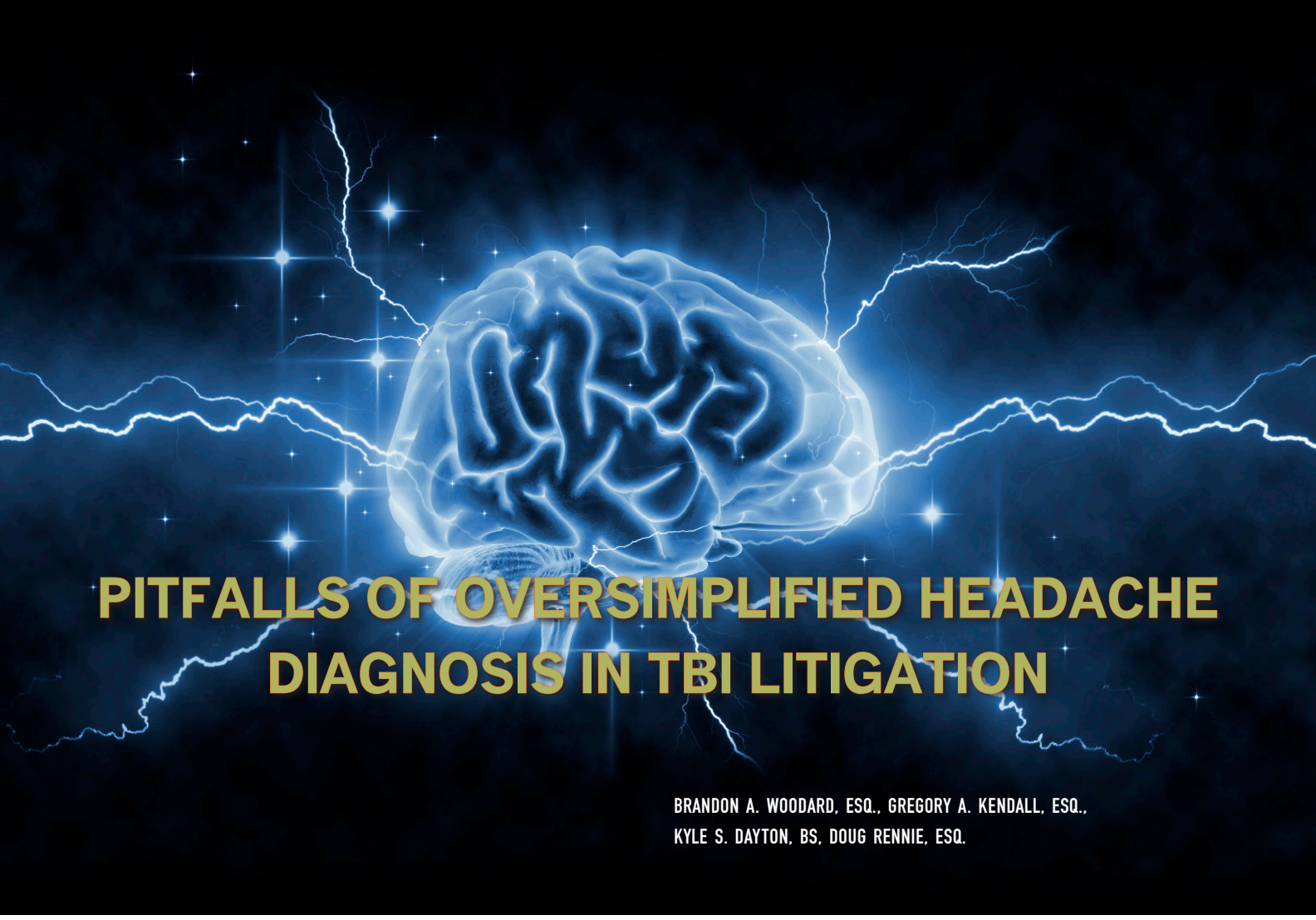

PITFALLS OF OVERSIMPLIFIED HEADACHE DIAGNOSIS IN TBI LITIGATION

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Imagine this scenario: an individual in a low-speed, rear-end collision is diagnosed with a concussion and whiplash, prescribed painkillers for her soft tissue injuries, and released later that day from the emergency department. Two months later, she complains to her family doctor of severe daily headaches. She has pre-existing hypothyroidism, untreated sleep apnea, and a toothache. Further, she stopped taking her prescribed daily painkillers a few days ago. The physician's impressions are "post-traumatic headaches" attributable to the concussion the patient suffered a two months ago.

Headaches are common: an estimated 47% of adults experience at least one per year.[1] They are also a common symptom following concussions.[2] In traumatic brain injury litigation, "post-traumatic" headaches are often cited among a plaintiff's chief symptoms.[3] In some cases, this diagnosis is based on little more than the plaintiff's report of headaches and an assumption by a treating doctor or medical expert that because headaches followed the accident, it caused them.

However, not all headaches are created equal. The International Headache Society's International Classification of Headache Disorders[4] lists hundreds of different types and subtypes of headaches, with only a few that are properly described as "post-traumatic" in origin. Accurate diagnosis of a headache attributed to trauma or to whiplash requires understanding the individual's medical and headache history and undertaking a differential diagnosis that involves consideration of the diagnostic criteria for post-traumatic headache. It also requires consideration of "other diagnoses that might better explain the headache."[5] For example, the above scenario presents at least four different potential causes of the patient's headaches recognized by the ICHD that are completely unrelated to the motor vehicle accident: hypothyroidism, toothache, sleep apnea, and medication withdrawal.[6]

In litigation involving a concussion claim, a diagnosis of "post-traumatic" headaches that does not result from the process of differential diagnosis, but rests instead on assumption, is vulnerable to exclusion. A more nuanced analysis of headaches that follow concussion can avoid potential evidentiary pitfalls in the legal context and may also promote better outcomes by helping patients and their medical providers understand the true origins of headaches.

International Classification of Headache Disorders

The International Headache Society (IHS) is an international organization dedicated to research, education, and management of headaches. IHS publishes the International Classification of Headache Disorders, a comprehensive classification of headache disorders and their diagnostic criteria. The World Health Organization recognizes this system as the official classification of headaches and has incorporated it into the International Classification of Diseases since 1992.[7] In 2013, IHS published the beta version of the International Classification of Headache Disorders—Third Edition (ICHD-3).[8] It identifies some 300 different headache disorders, each with unique defining characteristics and diagnostic criteria.

The ICHD-3 classifies and provides diagnostic criteria for post-traumatic headaches.

The ICHD-3 describes several subtypes of headaches that can properly be described as "post-traumatic": "headache attributed to traumatic injury to the head," "headache attributable to whiplash," and "headache attributed to craniotomy."[9] These headaches are classified further according to whether they are "acute" or "persistent" and whether the patient received a "mild traumatic injury to the head" or "moderate or severe traumatic injury to the head."[10]

An acute headache's clinical features must arise within seven days of the trauma, the regaining of consciousness, or the ability to sense and report pain, and must subside within three months.[11] If any features are present beyond this three-month interval, the headache is deemed "persistent."[12] Whether associated with a concussion or a more severe traumatic brain injury, these headaches typically subside within a few weeks or months, but may persist and be disabling in a minority of cases.[13]

"Delayed-onset" headaches arising more than seven days after head trauma are insufficiently validated to be diagnosed as "post-traumatic."

The appendix of the ICHD-3 contains "novel entities that have not been sufficiently validated by research conducted so far[,]" or formally accepted by the ICHD.[14] These include theoretical diagnoses for "delayed-onset" post-traumatic headache subtypes describing headaches that arise between seven and thirty days after traumatic injury to the head.[15] The ICHD-3 cautions that there is not enough evidence to justify enlarging the seven-day criterion for classifying headaches as "post-traumatic," because the seven-day requirement provides stronger evidence of a causal link with the trauma when compared to longer intervals.[16]

Are post-traumatic headaches the best fit?

For the hundreds of headache classifications identified in the ICHD-3, one criterion is consistent: the headache must be "not better accounted for by another ICHD-3 diagnosis."[17] Clinicians seeking to characterize a patient's headache as "post-traumatic" must rule out other diagnoses that may better describe causes and symptoms.

For example, tension-type headaches, as defined by the ICHD-3,18 have lifetime prevalence in the general population between 30% and 78%, according to various studies.[19] And there are headache types attributable to overuse of over-the-counter painkillers, such as ibuprofen, acetaminophen, or aspirin.[20] Thus, a patient who has recently sustained a concussion, has a mild or moderate headache that is bilateral and nonpulsating, and who takes aspirin regularly (say, as a blood thinner) may meet the criteria for three different headache diagnoses in the ICHD-3. To properly identify the patient's headaches as "post-traumatic headaches" and thereby attribute them to the concussion, it would be necessary first to consider and rule out the possibility that the patient's headache is a tension-type headache that may be unrelated to the concussion and the possibility that it is a medication-overuse headache that could respond well to changes in the patient's medication.

The diagnostic criterion that the headache is not better accounted for by another diagnosis elucidates several critical points about headache diagnosis. First, headache disorders are easily identified as a symptom, but not easily categorized.[21] Diagnosing a patient with a headache does not explain the multitude of biological mechanisms that could be causing the headache. Second, a one-size-fits-all approach to headache diagnosis that characterizes every headache that occurs after a concussion as "post-traumatic" can be inaccurate and misleading. Third, in the litigation context, those who attribute a plaintiff's headaches to a traumatic incident should be prepared to explain that attribution and why alternative diagnoses or causative factors do not apply.

Admissibility Requirements Applicable to a Post-Traumatic Headache Diagnosis

The ICHD-3 requires consideration of medical history, diagnostic criteria, and analysis of other potentially applicable diagnoses to ensure that the diagnosis rendered is the best fit. Cases discussing the requirements for a diagnosis to be admissible in court describe much the same process. An overly simplistic diagnosis of "post-traumatic" headaches without due consideration of medical history, diagnostic criteria, or alternative explanations may well be excluded if challenged. Attorneys and experts who understand the complexities of headaches following a concussion will be in a better position to avoid potential evidentiary pitfalls.

The Daubert standard requires experts to use a reliable methodology.

In all federal and most state courts, the admissibility of expert testimony is determined under the standard announced by the U.S. Supreme Court in Daubert v. Merrell Dow Pharmaceuticals, Inc.[22] The trial judge has "a gatekeeping role"[23] and subjects all expert opinion testimony[24] to an "assessment of whether the reasoning or methodology underlying the testimony is scientifically valid and of whether that reasoning or methodology properly can be applied to the facts in issue."[25] An expert may render an opinion in court only if it is "based on sufficient facts or data," only if the opinion is "the product of reliable principles and methods," and only if the expert "reliably applied the principles and methods to the facts of the case."[26]

A diagnosis is admissible if the product of a qualified expert's reliable differential diagnosis.

Testimony by a medical expert that a person has a particular condition is admissible when it is the product of a properly conducted differential diagnosis.[27] Differential diagnosis is defined as "the determination of which of two or more diseases with similar symptoms is the one from which the patient is suffering, by a systematic comparison and contrasting of the clinical findings."[28] For a differential diagnosis to be deemed reliable, courts require that the expert has "taken care to consider other hypotheses that might otherwise explain a plaintiff's condition" and that the expert be able to explain why plausible alternative diagnoses were ruled out.[29]

Accordingly, a doctor who has diagnosed post-traumatic headache should be prepared to explain how he or she arrived at that diagnosis. Unfamiliarity with relevant diagnostic criteria,

failure to consider alternative diagnoses unrelated to trauma, or inability to explain why plausible alternative explanations were ruled out could result in exclusion of the diagnosis at trial.

Reliably attributing a condition to an external cause requires considering and ruling out alternative causes.

A number of courts have recognized that the process of identifying which condition is causing a set of symptoms—differential diagnosis—is different from the process of isolating the cause of the diagnosed condition. The "science and study of the causes of diseases" is "etiology."[30] Reliably identifying an external cause of a medical condition requires undertaking a "differential etiology,"[31] "a medical process of elimination whereby the possible causes of a condition are considered and ruled out one-by-one, leaving only one cause remaining."[32]

In a 2011 decision, Hendrix v. Evenflo Co., the Eleventh Circuit excluded expert opinions that a TBI sustained in an auto accident caused a child's diagnosed Autism Spectrum Disorder because of the experts' insufficiently reliable differential etiology analyses.[33] The court explained that in identifying the cause of a diagnosis, the "expert must provide reasons for rejecting alternative hypotheses using scientific methods and procedures, and the elimination of these hypotheses must be founded on more than subjective beliefs or unsupported speculation."[34]

Many ICHD-3 classifications combine a diagnosis and a determination of etiology. Following ICHD-3 diagnostic criteria to arrive at a post-traumatic headache diagnosis, including considering diagnoses unrelated to trauma to ensure that the diagnosis given is the best fit, should satisfy the reliability requirements for both diagnosis and external causation opinions.

By contrast, an expert who concludes that headaches are caused by trauma or by trauma from a specific accident without adequately considering alternative explanations may violate Daubert's reliable methodology requirement, subjecting that opinion to exclusion. One expert's inadequate causal analysis before attributing a TBI plaintiff's headaches to a fall prompted criticism from—and exclusion of the opinion under Daubert by—a federal district court judge, who wrote, "[I]t is common knowledge that headaches can come from an almost infinite variety of sources and to select one from the hay stack without explanation is fanciful."[35]

Failure to consider relevant medical history, or over-reliance on a temporal relationship to show causation, can render medical testimony inadmissible.

To be reliable, both a diagnosis and an opinion linking a diagnosis to a particular cause require obtaining a thorough medical history.[36] Courts have excluded such opinions when the expert offering them has failed to learn or adequately consider relevant medical history. An expert's failure to consider pre-existing headaches and migraine headaches before attributing a premises liability plaintiff's post-accident headaches to the fall was one reason for exclusion of the opinion.[37]

Another frequent basis for excluding medical causation testimony is an expert's assumption that because a condition followed a specific incident, the incident must be its cause. Opinions with little basis other than "this time-dishonored fallacy should not go to a jury," a federal district court explained in Bowers v. Norfolk Southern Corp.[38] The plaintiff in Bowers, a railroad employee, sued the railroad for back and neck injuries that his expert, an orthopedic surgeon, attributed to a five-hour ride on a vibrating and inadequately padded seat. The causation opinion was excluded as unreliable because the expert "based his causation testimony on a temporal relationship, not on a scientific method" and because he failed to account for several "obvious" alternative explanations for the plaintiff's pain evident from the plaintiff's medical history.

Before concluding that a patient's headaches are secondary to a traumatic brain injury, doctors should "consider all relevant potential causes of the symptoms and then eliminate alternative causes based on a physical examination, clinical tests, and a thorough case history."[39]

Achieving Better Treatment Outcomes with More Rigorous Headache Analysis

Rather than assume that headaches following trauma are caused by it, making the effort to understand a patient's headache history and to identify the best-fitting diagnosis will not only reduce the risk of an evidentiary challenge, but has the potential to improve patient outcome. In many cases, the treatment indicated for headaches depends upon the underlying biological mechanisms. For example, a headache with its origins in soft tissue irritation in the neck may respond to treatment of the underlying soft tissue injury. As another example, a headache properly diagnosed as "medication overuse headache" under the ICHD-3 could be relieved by assessing and adjusting the patient's medication regimen. This is especially true given that headache is a common side effect of many medications prescribed for relief of common post-concussive symptoms, such as SSRI antidepressants, benzodiazepines, and opioids.

Conclusion

By using a more thoughtful, thorough analysis of a plaintiff's headache complaints, clinicians and attorneys may arrive at conclusions that are more scientifically reliable, avoid evidentiary pitfalls, and promote better outcomes.

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29. Id. at 1361–62 (quoting *Clausen v. M/V NEW CARISSA,* 339 F.3d 1049, 1057–58 (9th Cir. 2003)); *Huerta v. Bio-Scrip Pharm. Servs.*, 429 Fed. Appx. 768, 773 (10th Cir. 2011); *Ruggiero v. Warner-Lambert Co.,* 424 F.3d 249, 254 (2d Cir. 2005).
30. *Hendrix v. Evenflo Co.*, 609 F.3d 1183, 1194 n.5 (11th Cir. 2010).
31. See *Bowers*, 537 F. Supp. 2d at 1360–61.
32. Hendrix, 609 F.3d at 1195.
33. Id. at 1197–1204.
34. Id. at 1197.
35. *Salamone v. Wal-Mart Stores East, LP,* No. 10-CV-892, 2011 U.S. Dist. LEXIS 76761, at *6 (E.D. Pa. July 15, 2011).
36. See *Hardyman v. Norfolk & W. Ry. Co.,* 243 F.3d 255, 260–61 (6th Cir. 2001).
37. See, e.g., *Salamone*, 2011 U.S. Dist. LEXIS 76761, at *5–6 (excluding opinion attributing headache to fall due in part to expert's failure to identify and consider pre-existing conditions, including headaches and migraine headaches).
38. *Bowers*, 537 F.Supp.2d 1343.
39. *Hardyman v. Norfolk & W. Ry. Co.,* 243 F.3d 255, 260 (6th Cir. 2001) (quoting FEDERAL JUDICIAL CENTER, REFERENCE MANUAL ON SCIENTIFIC EVIDENCE 214 (4th ed.1994)) (emphasis added).

ABOUT THE AUTHORS

Brandon A. Woodard is an attorney at Montgomery, Rennie & Jonson, in Cincinnati, Ohio, where he devotes his practices full time to the litigation of traumatic brain injuries and complex psychological injuries. He graduated from the University of Cincinnati College of Law, where he completed a fellowship in Law and Psychiatry.

Gregory A. Kendall is an attorney at Montgomery, Rennie & Jonson and a member of the firm's Brain Injury Practice Group. He is a graduate of the University of Cincinnati College of Law, where he served as executive editor of the Law Review.

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Doug Rennie is a managing partner at Montgomery, Rennie & Jonson. Doug has tried more than 125 cases to verdict in 18 states and has litigated cases involving brain injury claims for more than 20 years.

WHAT YOU CAN EXPECT WHEN YOU BECOME AN EXPERT

KENNETH KOLPAN, ESQ.

If you have ever been served with a subpoena (read "Greetings) compelling you to give fact testimony at a deposition or trial, your testimony will be limited to your factual observations of your patient. (In some jurisdictions, you may be asked about any opinions you held during the treatment.) As a fact witness, you are not entitled to be paid for time testifying and you schedule may not be accommodated. But if you are an expert witness, you can expect to be treated differently and more will be expected of you.

Brain injury specialists are key to brain injury litigation. As a brain injury specialist, you are in a unique position to educate jurors, opposing counsel, courts, and insurance companies about a brain injury's impact on a plaintiff's future education, medical, living and employment needs as well as the person's life expectancy and state of consciousness. Without your expertise, jurors would be left to speculate about the nature of a brain injury, its cause(s) and sequelae in a particular case. Court determined are the only witnesses who are allowed to give opinion testimony as long as the testimony is within the expert's education, training and experience and is stated in terms that meet the jurisdictions standard of proof. When you become an expert witness, you should expect that your opinions will be challenged, your background scrutinized and you work criticized.

You can anticipate that despite your well-earned reputation as a brain injury specialist, opposing counsel will challenge your credentials, experience, education, method analysis, past presentations, prior testimony, published research articles, previous work for counsel and prior inconsistent opinions and statements in an effort to diffuse your expert opinion(s).

Before you agree to be a testifying expert, there are several things you should do. When contacted, find out the names of all the parties, insurers, attorneys and law firms to ensure you have no conflicts. Learn what legal issues you are to address. Ask whether or not you will be examining the injured party.

If you have no conflicts and are willing to address the legal issues, send the retaining office your written fee contract containing your fee schedule, cancellation policy, retainer terms, payment schedule and the person or company responsible for paying you. Do not agree to a contingent fee arrangement or take a lien against the case. You should expect to defend your compensation arrangement no matter the (hourly or flat) rate is; justify your billing accuracy by maintaining records of what you reviewed and wrote as you invoice for your time.

Unlike an fact witness, you should expect to be given all of the discovery materials including to the claimant's entire medical records both preceding and after the incident plus depositions, Answers to Interrogatories, the Complaint, Admissions, photographs , videos (including Day in the Life) and opposing parties' expert witness disclosures. Review all of the materials.

Understand, that as you review the materials and prepare your expert report or disclosure and for testimony, any and all communications between you and those who retained you are

discoverable by the opposition because your work is usually not considered privileged or otherwise protected from disclosure. This includes electronic communications.

You will be expected by most state jurisdictions and federal courts to provide a list of cases where you have testified (whether at deposition or trial) for last 4-5 years. Additionally, anticipate that opposing counsel will question you about all cases in which you served as an expert, whether or not you gave testimony. Opposing counsel will look for prior inconsistent statements and opinions in previous testimony, reports, public presentations and published research. Anticipate that opposing counsel will ask how often you are retained by the plaintiff as compared to the defense, in an effort to demonstrate your lack objectivity.

While you do your expert review and draft your expert report, keep in mind the legal questions you have been retained to answer. The questions may include the following: Is the plaintiff's brain injury likely permanent? What is his likely diagnosis? Did the defendant(s) deviate from the standard of care? Did the defendant(s)' negligence likely cause plaintiff's brain injury? Will the plaintiff likely require future medical care and, if so, what are the treatments, their frequency and duration? Does the plaintiff's brain injury likely affect his/her ability to return to work, or school? If the person with a brain injury is a minor, does the brain injury likely cause a loss of vocational potential, earning capacity and/or educational opportunity. Does the plaintiff's brain injury likely affect his/her life expectancy? Does the plaintiff likely feel pain? What is plaintiff's level of awareness, e.g., is she "minimally conscious"? Once you understand the questions to be answered, your opinions must meet certain legal standards including the Daubert case.

Your expert opinions to the above questions must be scientifically based on valid research, utilize science accepted by your peers and substantiated by peer review articles. In order to meet a Daubert challenge, you will be expected to assist the attorney by identifying supportive research literature. We often see Daubert challenges to new diagnostic tests (such as QEEG and DTI) and causal relationship between certain medical conditions and brain injuries. Be aware that all your work and opinions in the matter will be for naught if there is a successful Daubert challenge to your methodology.

You must state your opinions in terms that meet the applicable standard of proof. When you become a designated expert witness, you must know the applicable expert witness opinion standard of proof. Unless you are involved in a criminal proceeding (where the proof standard is "beyond a reasonable doubt"), the civil standard will be "preponderance of the evidence". Legal standard of proof differs from scientific proof. Your opinions need not be stated with 100% certainty (or +/- one standard deviation). Your opinions do have be expressed as "more probable than not", "greater than 50% likelihood", "more likely than not", "with a reasonable degree of [medical/scientific] certainty [or probability]". If you fail to state your opinions using the jurisdiction's standard of proof or fail to understand how the standard is applied, your opinion testimony may be precluded.

As the majority opinion in a Nebraska case pointed out, an expert need state his/her opinion with absolute certainty: "it is impossible for a reputable doctor to testify with absolute certainty that one cause and one cause alone is the reason for [a] disability. Absolute certainty is not required. Medical diagnosis is not that exact a science." *Sanchez v. Derby*, 433 N.W.2d 523, 230 Neb. 782 (Neb. 1989) In *Sanchez v Derby*, the plaintiff suffered a traumatic brain injury in a 1982 motor vehicle accident. At the request of her attorney and neurologist, the plaintiff was referred to a board-certified neuropsychologist for evaluation. The neuropsychologist interviewed and tested the plaintiff, reviewed her medical records. If the expert's opinion were excluded as to the cause of the plaintiff's head injury, the jury could not award damages because there would be no causal connection between the plaintiff's brain injury and the motor vehicle crash. The testimony offered by the neuropsychologist was as follows:

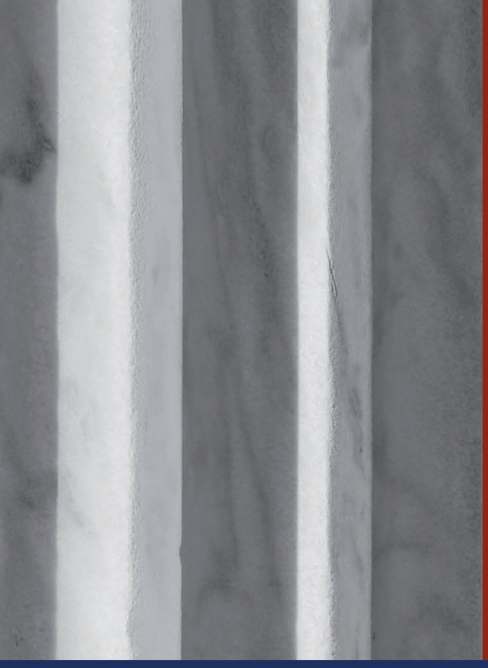
> *Most probable causes (sic) of this behavioral change is either (1) a combination of a post-traumatic stress disorder and a reaction to chronic pain, in a previously marginal personality, or (2) an organic affective disorder secondary to mild subcortical brain injury (around the orbital frontal areas) which can occur in such accidents such as this. While it is possible at this time to state firmly that one of these causes is indeed the most probable cause of her problems..., it is not possible to choose between them at present."*

Sanchez makes clear the expert must say that the plaintiff's current condition was likely caused by the motor vehicle accident. (Be forewarned that the dissenting Judge would have excluded the brain injury expert's opinion because the expert stated there were two alternative likely causes and one was not more probable than the other.) Though most courts will recognize well-qualified brain injury professionals as experts, their opinion testimony must meet the legal criteria or it may be inadmissible. You can expect guidance from the attorney about the legal standard of proof but it is the expert's responsibility to state opinions that meet the requirement. It is then the professional's responsibility, with the guidance of the attorney, to present expert testimony that meets the legal criteria.

You can anticipate that despite your well-earned reputation as a brain injury specialist, opposing counsel will challenge your credentials, experience, education, method analysis, past presentations, prior testimony, published research articles, previous work for counsel and prior inconsistent opinions and statements in an effort to diffuse your expert opinion(s). As long as you know what is expected of you once you are an expert witness, you will meet these challenges with a renewed sense of intellectual curiosity and the professional satisfaction that you are meeting an important goal of your profession to educate the public about brain.

ABOUT THE AUTHOR

Kenneth I. Kolpan, P.C. has worked as a lawyer in the field of traumatic brain injury and other catastrophic injuries for over 30 years. He is the principal and founder of the firm, Kenneth I. Kolpan, located in Boston, Massachusetts. He has handled cases in the trial courts of Massachusetts (both state and Federal) and has represented individuals with brain injuries in Nevada, New Jersey, Ohio and elsewhere. He is Past President of the Brain Injury Association of Massachusetts, a member of the Board of Directors and its Executive Committee. Mr. Kolpan has made numerous national and international presentations to attorneys, medical providers, brain injury programs and survivors on the legal rights of persons with brain injury.



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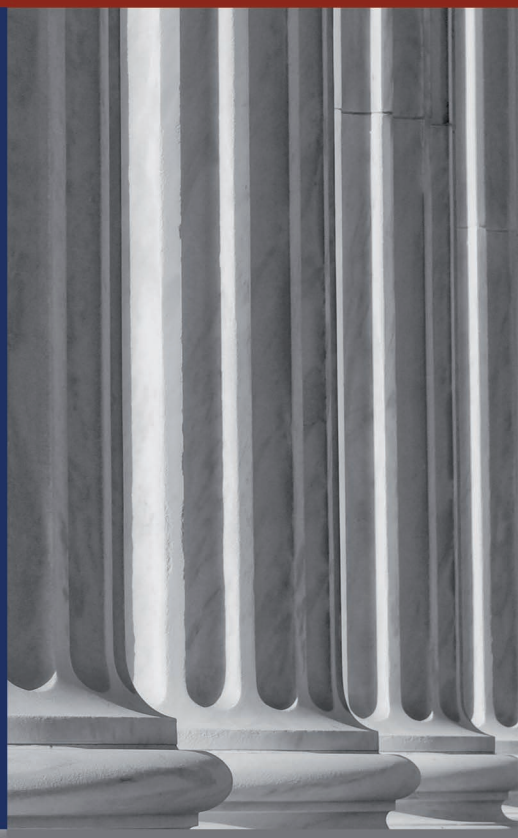

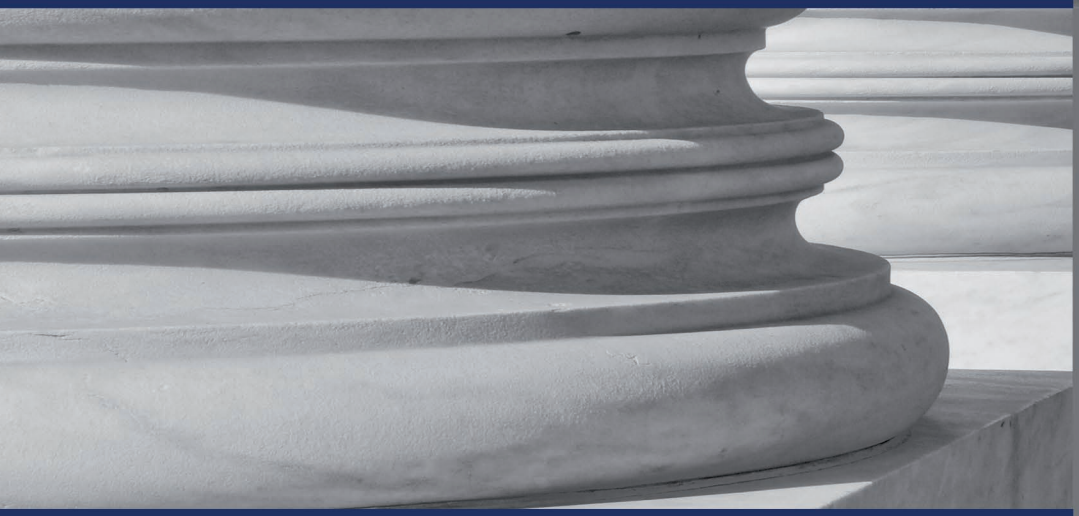

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NO REALLY, IT TAKES A TEAM

FRANK TORAL, ESQ.

Traumatic Brain Injury (TBI), according to the World Health The very nature of TBI rehabilitation means that rehabilitation professionals normally don't have access to patients and their families until after the critical care component of treatment is over.

During the critical stages of recovery, the medical team is focused on stabilizing the patient, and more often than not, the family receives very little information regarding the long term care and treatment the patient is going to require. During the transition from critical to rehabilitative care, the communication between the two teams is not optimal, and it is not unusual that families arrive at the rehab facility ill-equipped to deal with the difficult road they have ahead of them.

This gap in communication can be bridged, and patient and families can benefit greatly, by the often overlooked, and frequently disregarded, legal team.

Aside from the critical care team, the legal team is often among the first responders who are fielding the families concerns and helping them with the countless problems they face. Unlike the critical care team who treat the patient for a limited time period, the legal team is unique in that it is with the family on day one, continues to assist the family throughout the continuum of care from resuscitation to rehabilitation. In catastrophic cases, it is not uncommon for the legal team to stay involved with the patient and family for years. Because of the longevity of the legal team's involvement, they can provide the necessary bridge between critical care, rehabilitative care, and reintegration into the community.

This bridge can also help address some of the major obstacles faced by rehabilitation professionals in the care and treatment of TBI patients and their families which include:

1. Providing information and education to patients and their families regarding resources, healthcare, insurance, rehabilitation and long term care;
2. Serving as advocates for the patient and families to ensure that adequate funding is available to provide the rehabilitation and long term care the patient needs and;
3. The value of patient/family centered team approach.

Education & Resources

Initially, patients and families are overwhelmed with possible life threatening issues, the confusion of insurance, navigating the healthcare system, and the lack of complete information regarding their loved one's condition. By the time the patient reaches rehabilitation, their families are mentally and physically exhausted. The responsibility then falls upon the rehabilitation professional, who aside from their usual rehabilitative functions, must manage a family in crisis. Families want to know how soon their loved one will be well, who is going to pay for their care and how they are going to face the overwhelming task of caring for the patient if they do not make a full recovery.

Traditionally, the legal team's functions were limited to liability and funding issues, however many law firms have realized that their roles must necessarily be expanded to provide a more comprehensive and collaborative approach to their clients. Law firms that specialize in catastrophic injury are now employing social workers and nurses as part of their legal team. These expanded roles allow the legal team to closely collaborate with the critical care and rehabilitative teams and ultimately improve the patient outcomes.

Through early intervention, the legal team can begin the process of educating the family and connecting them to resources early on. Qualified legal teams will ensure that families register with local and state brain injury programs, apply for Medicaid, file claims with automobile policies and apply for disability benefits. As advocates for the patient, the legal team can also ensure that health insurance policies provide the maximum benefits available, and any liability and worker's compensation insurance benefits can be taken advantage of.

Educating the families about the injuries and their long term effects and what other resources are available can help manage the patient and families expectations long term. Families should also be informed about what rehabilitation facilities are available, coordinate tours of the facilities, and set up evaluations when necessary to determine what rehabilitation facilities are most appropriate

for the patient. Connecting the families to other local resources such as support groups, all contribute to the families greater understanding of the injury and how they can play a manageable role in their loved one's recovery. A qualified legal team should be able to bridge this gap in education and resources and play a key role is properly preparing both the patient and the family for rehabilitation.

Funding

It is well established that the #1 barrier to care are insurance and financial issues. One of the greatest obstacles rehabilitation professionals face is the lack of funding resources available. More than any other individuals, rehabilitation professionals appreciate how timely and appropriate rehabilitation can make a huge difference in the outcome of patients. This very perspective makes it particularly frustrating when rehabilitation is obstructed by a lack of funds.

All of us intuitively and empirically realize, there is a direct correlation between access to insurance and financial resources and improved outcomes in TBI patients. Rehabilitation professionals often deal with insurance providers who deny claims for services that were clearly medically necessary. By working with a qualified legal team, insurance companies often overturn their decision to deny a claim after an appeal has been filed but this often takes a team effort. Legal teams frequently facilitate the communication between the treating doctor, the rehabilitation professional and the medical director of the health insurance company to get claims paid.

Auto or liability insurance can have the greatest impact in the availability of funds. Much like the way immediate medical intervention helps save someone's life, the early intervention of a legal team is critical in determining whether funds from car or liability insurance will be available for medical needs. These funds are above and beyond health insurance coverage and can cover both past and future medical expenses.

Regrettably, all too often I have represented clients that have experienced relatively the same injury but with comparatively vastly different outcomes. To preserve confidentiality of any client's case, I offer the following composite profile of two TBI cases with disparate results:

Johnny and Brad were two 17 year old boys travelling in the rear seat of an automobile that was involved in a violent collision with another vehicle. Both boys were unconscious at the scene and bleeding profusely from their heads. Both were transported to the local trauma center where they were independently diagnosed with severe TBI's involving subarachnoid hemorrhaging, diffuse axonal, injury and frontal lobe injury. Both boys would require in-patient rehabilitation and long term care.

This is where the story diverges. Unfortunately, the drivers of the vehicles responsible for the boy's accident was driving on a suspended license with no insurance available whatsoever.

Johnny's parents were both fortunate and financially able to purchase Uninsured Motorist (U.M.) benefits that allowed our firm to pursue Johnny's own insurance company for the injuries he sustained in the accident. Additionally, Johnny had private health insurance albeit with limited capped coverages and exclusions. Sound familiar?

Brad was not so fortunate. Brad's parents had elected not to purchase U.M. benefits. However, Brad did however have limited health insurance available to him. Our law firm care management team got involved almost immediately following the accident to assist the family through each phase of the care. And to begin to lay the groundwork for what would be a long road to recovery.

Both families were connected to local state and federal resources that would be vital to their ongoing care. Additionally, the families were provided with the appropriate psychosocial support by the care management team. Ultimately though, we were frustratingly unable to pursue a claim on brad's behalf due to the lack of any available auto insurance. This lack of funding for Brad prevented him and his family from gaining access to necessary in-patient rehab, support and services. His health insurance covered two weeks of rehab. He would require a lifetime of care. Today, Brad has been in and out of the criminal justice system due to behavioral and cognitive issues related to his TBI.

Johnny on the other hand has fared better. Following his hospital stay Johnny was transferred to a leading rehabilitation facility where he was able through the recovery from the legal case pay for extended care. Additionally, Johnny was able to gain access to high quality healthcare, support and services that have made all the difference in his life. Today Johnny has made a good recovery and is slowly making his way through college.

Reporting their two accounts are bitter sweet for me. I am happy for Johnny and his family. But everything in me wanted to do more for Brad.

Funding, particularly and almost always through the legal process provides an excellent opportunity for improved outcomes in TBI patient/families.

Patient/family centered team

While funding is more often than not pivotal to recovery, it is the value of a patient/family centered team that is mostly needed. I strongly believe that it is only through the collaborative and multidisciplinary team approach between patient/families, the healthcare and legal communities along with community resource providers that give TBI families the best chance at a successful recovery.

It is for this reason that our family founded, the Toral Family Foundation, to partner with healthcare systems in research, education and the provision of resources to families living with TBI. The foundation gives us a platform to discuss the absolute necessity of working together.

I have learned the value of a team approach to representing TBI families. I have also learned that no one of us is as smart as all of us.

ABOUT THE AUTHOR

Frank Toral is the Senior Partner of Toral Garcia Battista, a Florida-based law firm focusing on brain and spinal cord injury cases. Frank is a passionate advocate for brain and spinal cord injury survivors and their families and has served in various leadership and advisory roles with multiple organizations including Brain Injury Association of Florida, Brain Injury Association of America, Sarah Jane Brain Foundation and the University of Florida Presidents Council. Frank received his Bachelor of Science in Political Science from the University of Florida and his Juris Doctorate from Shepard Broad Law School at Nova Southeastern University. Frank is a frequent speaker and contributor on Brain injury topics and issues and has also authored the handbook Brain Injury: Where do we go from here? Frank founded the Toral Family Foundation whose mission is to collaborate with the healthcare community to improve the lives of all persons with a brain or spinal cord injury through research, education and access to resources.

legal spotlight

BULK UP YOUR OFFENSE BY ADDING A FORENSIC CASE MANAGER TO YOUR ROSTER

With football season underway, I look forward to watching my favorite team play on Sundays. But as I watched the game this past weekend, I was immediately disheartened after a key "playmaker" suffered an elbow injury and is now sidelined for several games. A playmaker is a player who has mastered a specific set of skills that consistently helps the team achieve victory. This got me thinking about the importance of having playmakers on a team. Every team has *key players,* but not every team has a *playmaker*. In order to ensure victory against their opponent, a team needs a playmaker. In football, a fast and elusive running back with the visual acuity to see gaps to run through can be that playmaker that makes all the difference in a game. On a legal team handling traumatic brain injury cases, the forensic case manager can be that playmaker.

The key players on a legal team typically include the attorney, an associate attorney, and a paralegal. Some lawyers also have a nurse on their staff to review medical records and evaluate cases. Traumatic brain injury, on the other hand, is in a league of its own. Having litigated numerous traumatic brain injury cases, I have seen firsthand the vast difference a forensic case manager can make in the case and in the lives of the client and their families. As a result, I now employ a case manager on all of my TBI cases. Due to the complexity of the injury, longevity of the treatment, and oftentimes complicated recovery and rehabilitation process, it is prudent for any legal team handling traumatic brain injury cases to utilize the services of a case manager.

A case manager's role is not limited to coordinating medical care and rehabilitative services for the client. A case manager can also handle other needs of the client, such as acting as the client's healthcare advocate, serving as a liaison between the client and his/her families and the healthcare professionals, securing social services and government benefits for the client, developing life care plans, and much more.

Brain injury litigation is complex, so having a case manager on your roster immediately puts you ahead of your adversary. First, the case manager will ensure that the client receives quality and ongoing treatment, which not only improves patient outcomes, but is essential to maximizing your recovery. A case suffers when the client fails to seek treatment. Thus, a case manager can effectively coordinate and monitor the client's medical treatment which will keep the case on track.

Second, the case manager is responsible for being apprised of the client's medical and rehabilitative needs, which includes reviewing medical records, going to appointments, observing therapy sessions, and attending meetings between the healthcare team and the patient. As such, the case manager is the most informed individual concerning the client's medical status, other than the client's caregiver. Since caregivers are so busy and overwhelmed taking care of their loved one, case managers are able to act as the primary contact for the family and provide updated reports to the attorney. In addition, because they are so intimately involved in the client's treatment, case managers have the unique ability to evaluate the damages of the case on an ongoing basis and help the attorney strategize.

Additionally, while an attorney is technically a legal counselor, they are often called upon to provide emotional support and guidance to their clients as well. Case managers are in the position to counsel clients and their families, listen to their concerns and offer guidance and support. Therefore, having a case manager on your legal team to assume some of these responsibilities will allow the attorney to spend more time on the intricacies of the case.

At the end of the day, clients who had case managers by their side are happier clients. Because the case manager actively and continually engages and advocates for them, clients and their families tend to be more pleased with the overall legal process. Furthermore, clients and their families will appreciate all of the extra effort, advocacy and attention, which could result in future referrals for the attorney.

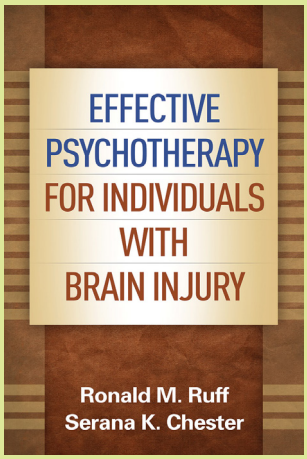
There is no question that it takes an adept team to successfully litigate a TBI case. However, you and your client have a greater opportunity to score big if a case manager is a part of your legal team.

ABOUT THE AUTHOR

Frank Toral is the Senior Partner of Toral Garcia Battista, a Florida-based law firm focusing on brain and spinal cord injury cases. Frank is a passionate advocate for brain and spinal cord injury survivors and their families and has served in various leadership and advisory roles with multiple organizations including Brain Injury Association of Florida, Brain Injury Association of America, Sarah Jane Brain Foundation and the University of Florida Presidents Council. Frank received his Bachelor of Science in Political Science from the University of Florida and his Juris Doctorate from Shepard Broad Law School at Nova Southeastern University. Frank is a frequent speaker and contributor on Brain injury topics and issues and has also authored the handbook *Brain Injury: Where do we go from here?* Frank founded the Toral Family Foundation whose mission is to collaborate with the healthcare community to improve the lives of all persons with a brain or spinal cord injury through research, education and access to resources.

EFFECTIVE PSYCHOTHERAPY FOR INDIVIDUALS WITH BRAIN INJURY

By Ronald M. Ruff, Ph.D., ABPP and Serana K. Chester, Ph.D.
The Guilford Press, 2014.



This is a book that should be an authoritative reference on the book shelf of all clinicians providing psychotherapeutic services to persons who sustain acquired brain injuries (ABI) and their families. It distills more than thirty years of clinical and research experience into a narrative that stimulates fruitful reflection on clinical issues. It also practically addresses a variety of difficult clinical problems, and provides practical thoughts on how to effectively address them. The book builds toward a concluding section that challenges the reader to consider how they can encourage patients in therapy to seek meaning for his or her future life. Clinicians new to the field of treating traumatic brain injury and experienced clinicians will find that the thoughtful approach to treatment to laid out in this volume will rapidly improve the quality of the therapy services they deliver. There are a number of practical aspects to the book that illustrate its strengths.

The book provides a nuanced discussion to the application of familiar treatment approaches to patients with acquired brain injury including cognitive behavioral therapy. There is discussion of practical accommodations for patients with acquired brain injury, which incorporates the worthy concept that striving for well-being has greater clinical utility than focusing on happiness. Chapter 11 addresses Acceptance Through Mindfulness with helpful thoughts about which patients can benefit from such treatment, and practical ideas about how to get them to buy in. Chapters such as these include useful ways to frame issues in a clinically sensitive manner.

Chapter 3 on "How Emotions Are Experienced?" includes a discussion of process issues that flow throughout productive psychotherapy with brain injured patients. The chapter addresses the ideas that change is continuous and that knowledge represents a process. Applying these ideas to fully engage patients is discussed in an illuminating manner that will make many clinicians reflect on they attempt to do this with their own clients. The related discussion of the principle of contradiction (that two pieces of knowledge may appear contradictory, yet both are true) is an extremely useful approach in treating many ABI patients. This is just one of the clinically salient ideas found throughout the book.

Ruff and Church probably did not intend that their book have direct application to improving how systems of care treat ABI patients but there are a variety of aspects of the book that have this form of utility in addition to being clinically relevant. For example, at the end of Chapter One there is a brief summary of circumstances in which psychotherapy is unlikely to work (for example global aphasia, global amnesia, severe receptive aphasia). The clinical realism of providing guidelines about which patients are unlikely to benefit from psychotherapy will be consistent with the experience of many readers, and will help psychotherapists address the heartfelt desires of other treatment team members who just want the patient's behavior to change now. The Ruff and Chester guidelines in regard to which patients may reasonably treated could readily be incorporated into in-services for treatment teams.

In view of Ron Ruff's contributions to the field it is no surprise that the book includes a salient commentary on the clinical assessment of ABI patients. There is an emphasis on having psychotherapists facilitate the patient's acceptance of their injury by asking patients to enumerate their strengths was well as their weaknesses. The logic of considering how neuroanatomical systems such as the frontally based systems may impact the ability to be flexible or emotional modulation are succinctly reviewed. The book also brings to the fore under addressed topics for the field of the psychological assessment of the brain injured patient such as the lack of standardized guidelines specifying if patients with ABI should respond as they feel currently or as they felt before their ABI. The authors discuss the clinical usefulness of asking patients to answering questions for Beck Inventories in terms of how they felt over the last two weeks. The volume thus provides useful ideas on using assessment to improve treatment as an on-going process.

The logic of considering how neuroanatomical systems such as the frontally based systems may impact the ability to be flexible or emotional modulation are succinctly reviewed. The book also brings to the fore under addressed topics for the field of the psychological assessment of brain injured patient such as the lack of standardized guidelines specifying if patients with ABI should respond as they feel currently or as they felt before their ABI.

Effective Psychotherapy For Individuals With Brain Injury will also challenge the reader to give more consideration to how they think about the constructs they use in case formulation, and to give more consideration to questions such as: is denial in this case at this time adaptive or rooted in impaired self-awareness? Chapter 6 on modifying psychotherapy provides useful questions for the clinician to consider in making such determinations.

Ruff and Chester also provide a solid review of why traditional retrospective and introspective are not helpful to patients with ABI. They state that a preinjury focus can be counterproductive if it bolsters false expectations of returning to a preinjury self-image/state. The discussion on "What works and What Doesn't" may also be helpful in consulting with some program administrators.

Clinicians of all disciplines will find this volume to be a wonderful read that reflects both existential roots and many practical ideas that will assist the clinician in helping patients with ABI to maximize their sense of well-being early on in recovery and as a life-long developmental process.

ABOUT THE REVIEWER

Dr. Schraa has been a clinical neuropsychologist for more than thirty years at Craig Hospital, and received the North American Brain Injury Society Award for Clinical Treatment in 2008.

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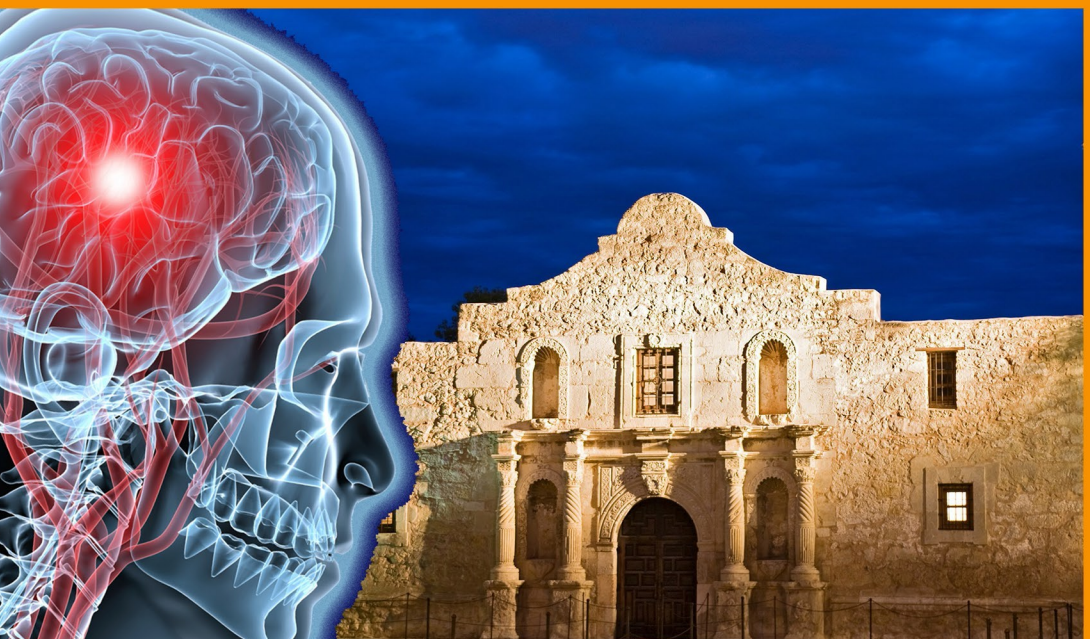

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non-profit news

NORTH AMERICAN BRAIN INJURY SOCIETY

Abstracts are now being accepted for NABIS' 12th Annual Conference on Brain Injury which will be held April 29-May 2, 2015, at the Westin Riverwalk Hotel in San Antonio, Texas. NABIS welcomes the submission of original research on a range of neurotrauma and neurorehabilitation topics including: Basic & Translational Research, Clinical Research, Health Services and Outcomes, Prevention and Public Policy. Abstracts will be peer reviewed and graded by an outstanding scientific committee assembled by this year's conference chair, Jonathan Silver, MD, of the New York University School of Medicine. All accepted abstracts will be published in the *Journal of Head Trauma Rehabilitation.* The abstract closing date for the meeting is January 12, 2015. Dr. Silver has already made great progress in assembling an impressive list of invited speakers, including David Arciniegas, MD, Erin D. Bigler, PhD, Steven Flanagan, MD, Gerard E. Francisco. MD, Flora Hammond, MD, Ricardo Jorge, MD, Jeffrey Kreutzer, PhD, James F. Malec, PhD, Michael F. Martelli, PhD, Thomas W. McAllister, MD, Michael McCrea, MD, Gregory J. O'Shanick MD, Jennie Ponsford, PhD, George P. Prigatano, PhD, Ronald Ruff, PhD, Rodney D. Vanderploeg, PhD, Alan Weintraub, MD, Barry Willer, PhD, Ross Zafonte, DO, Nathan Zasler, MD, and many others. As in year's past, the conference will held concurrently with the 2015 NABIS Conference on Legal Issues in Brain Injury. Visit the NABIS website to see the complete list of speakers, www.nabis.org.

BRAIN INJURY ASSOCIATION OF AMERICA

As part of its mission to advance research and appropriate treatment for people with brain injuries, the Brain Injury Association of America (BIAA) announced in July that it has awarded a grant to the Brain Injury Research Center at the Icahn School of Medicine at Mount Sinai. The grant funds a three-year investigation to develop *Guidelines for the Rehabilitation and Disease Management of Adults with Moderate to Severe Traumatic Brain Injury (TBI).* Fifty of the nation's top researchers and clinicians, as well as family members of people with brain injuries, were selected to review and assess evidence in functional, medical, cognitive, behavioral, and social domains. They held their first meeting September 9 and 10 in Dallas, Texas. The goal of the project is to learn how much rehabilitation adult patients with moderate to severe TBI should receive, in what setting, and at what time. BIAA and Mount Sinai have pledged to keep the brain injury community fully informed and invite input and feedback at certain key points along the way. Visit www.biausa.org/TBIGuidelines for more information.

DEFENSE CENTERS OF EXCELLENCE FOR PSYCHOLOGICAL HEALTH AND TRAUMATIC BRAIN INJURY

Since 2000, more than 300,000 U.S. service members worldwide have been diagnosed with a traumatic brain injury (TBI), according to Department of Defense data. More than 80% of those TBIs occurred in non-deployed settings and resulted from primary causes including falls; motor vehicle or traffic accidents; and sports or recreation activities. The Defense and Veterans Brain Injury Center (DVBIC) and National Center for Telehealth and Technology (T2) – Defense Centers of Excellence for Psychological Health and Traumatic Brain Injury (DCoE) centers – have resources to advance TBI prevention, treatment and education. DVBIC's national TBI initiative, *A Head for the Future*, and T2's interactive website for children of military families, *Military Kids Connect*, are examples of efforts to inform service members, veterans and their families regarding how to respond to and recover from a mild TBI (known as a concussion).

A Head for the Future and Military Kids Connect are for service members, veterans and their families but the information can benefit the general population. For example, today all 50 states and Washington, D.C., have respective laws regarding concussions in sports for youth athletes – demonstrating the nation's commitment to concussion care – and DVBIC and T2 initiatives, as well as associated products, can be instrumental in brain injury education.

Many people don't think about brain injuries until they have occurred. The first step in the recovery process is to recognize the signs and symptoms of a possible head injury report them to a medical provider and then follow a treatment program. A Head for the Future focuses on taking proper safety precautions for high-risk activities, including engaging in sports, conducting military training or operating motor vehicles. And, as brain injuries can impact the whole family, Military Kinds Connect – an award-winning website – helps children prepare for challenges faced when a family member is diagnosed with a concussion.

To learn more about DVBIC's A Head for the Future initiative or access TBI-related products, visit www.dvbic.dcoe.mil. For information about T2's Military Kids Connect or to explore their portfolio of interactive psychological health and TBI technology, go to t2health.dcoe.mil. Learn more about DCoE at www.dcoe.mil.

INTERNATIONAL BRAIN INJURY ASSOCIATION

Members of NABIS are encouraged to mark their calendars for the International Brain Injury Association's Eleventh World Congress scheduled to take place March 2-5, 2016, at the Hague World Forum in the Netherlands. IBIA's biennial World Congress is the largest gathering of international professionals working in the field of brain injury. Delegates are comprised of physicians, psychologists and neuropsychologists, therapists, social workers, nurses, case managers, legal professionals, advocates and all others working in the field of brain injury. The Eleventh World Congress program will feature internationally recognized invited speakers, platform lectures, workshops, short oral presentations and poster sessions. Abstract submission for the Congress will close in September, 2015. For details, visit: www.internationalbrain.org.

NATIONAL ASSOCIATION OF STATE HEAD INJURY ADMINISTRATORS

The National Association of State Head Injury Administrators (NASHIA) celebrated its 25th Annual State of the States in Head Injury Meeting held October 27-30th in Philadelphia, Pennsylvania. Members adopted its public policy priorities for the 114th Congress. NASHIA continues to collaborate with federal agencies to advance TBI, including meetings and bi-weekly calls organized by the Centers for Medicare and Medicaid Services (CMS) with national associations of state directors representing Medicaid, intellectual/developmental disabilities, mental health, public health, aging and disabilities to discuss implementation of CMS' new rules pertaining to Medicaid Home and Community-Based (HCBS) Waiver services settings, as well as person centered planning.

In early summer, NASHIA presented a three-part webinar series on TBI Public Funding. All three of these webinars are archived and are posted on the website (www.nashia.org) along with three new handouts: State TBI Services; TBI/ABI Trust Fund Programs: Overview and Trends; and TBI/ABI HCBS Waivers and Options for Long-term Services and Supports. NASHIA is planning to resume its webinar series in November.

UNITED STATES BRAIN INJURY ALLIANCE

The United States Brain Injury Alliance (USBIA) is pleased to announce that it is now officially a public charity with tax-exempt status under Section 501(c)(3) of the United States Internal Revenue Code! Having been approved as a 501(c)(3) organization means that USBIA can continue to focus its efforts on moving forward with its mission to engage the community in preventing brain injuries and improving lives through awareness, prevention, advocacy, support and research.

USBIA is also excited to announce a new partnership with MCC Association Management. MCC will assist the leadership of USBIA in a range of areas, including member support, social media and day-to-day administrative operations. Working with key stakeholders, MCC will develop a range of practical, hands-on resources to help USBIA members create and grow successful brain injury organizations in their state.

In other news, Geoffrey Lauer, USBIA IA, Executive Director, testified before the US Senate Health, Education, Labor, and Pensions Committee on barriers to people with brain injury and other disabilities. A link to the full transcript of Geoffrey Lauer's testimony can be found by visiting USBIA's website, www.usbia.org.

legislative roundup

Politicians are like diapers. They should both be changed frequently and for the same reason.
— Anonymous

With mid-term elections looming, Congress recessed in September with plans to return for a lame duck session following the November elections. Before adjourning, Congress passed a continuing resolution (CR) to fund federal government beginning October 1st, the new fiscal year, through mid December at current funding levels. None of the twelve annual appropriations bills for fiscal year (FY) 2015 had been signed into law necessitating the need for the CR.

In September, Congress passed legislation reauthorizing the Emergency Medical Services for Children (EMSC) program which was sent to the president for his signature. The EMSC program, administered by the U.S. Department of Health and Human Services (HHS), Health Resources and Services Administration (HRSA), funds activities that improve and integrate pediatric care within the state EMS system.

Also that week, the Senate passed it's version of the Traumatic Brain injury Reauthorization, S. 2539, sponsored by Senator Orrin Hatch (R-UT). The Senate added two sections which are not contained in H.R. 1098, the Traumatic Brain Injury Reauthorization of 2014, which passed in July. The senate added: (1) a section directing the Secretary of Health and Human Services (HHS) to develop a plan to improve coordination of federal activities with respect to TBI and 2) a section directing the Centers for Disease Control and Prevention (CDC), in consultation with the National Institutes of Health (NIH), to conduct a review of scientific evidence related to brain injury management in children and to identify ongoing and potential further opportunities for research.

Both bills removed HRSA from the administration of the State and Protection and Advocacy Grant Programs, leaving the placement of the program to the secretary of HHS. Members of Congress and stakeholders are supporting the move of the program to the Administration for Community Living (ACL) to align with other disability programs that provide services and supports over the lifespan of an individual. The House will need to approve the senate bill when it returns in order for it to be passed and ready for the President's signature.

The President signed legislation over the summer to improve healthcare services provided by the U.S. Department of Veterans Affairs (VA). The legislation extended the pilot program for TBI assisted living, initially authorized in the 2008 National Defense Authorization Act, for another three years in order to offer comprehensive rehabilitation in community settings that is provided by non-VA programs.

In July, the President signed the Workforce Innovation and Opportunity Act, which reauthorized the Workforce Investment Act of 1998 and certain provisions of the Rehabilitation Act of 1973. The legislation renamed the National Institute of Disability Rehabilitation Research (NIDRR) as the National Institute on Disability, Independent Living, and Rehabilitation Research (NIDILRR) and transfers the program from the U.S. Department of Education to the HHS' Administration for Community Living (ACL). The bill also renamed the Rehabilitation Research Advisory Council as the Disability, Independent Living, and Rehabilitation Research Advisory Council and moves the independent living program, along with transfer of the Assistive Technology program, both administered by education, to the ACL. Although the transfers were effective the date the bill was signed, the education department will continue to administer the programs until the two departments can make the transition with as little disruption as possible.

Members of Congress and disability and research advocates continue to focus on concussion related TBIs as well as overall brain and rehabilitation related research. The Disability Rehabilitation Research Coalition sponsored a luncheon during September for member organizations to advocate for improved and expanded rehabilitation research within NIH. The coalition supports S. 1097, introduced by Senators Mark Kirk (R-IL) and Tim Johnson (D-SD), to enhance rehabilitation research based on the 2012 Blue Ribbon Panel on Medical Rehabilitation Report.

During July, the Senate Special Committee on Aging held a hearing on "State of Play: Brain Injuries and Diseases of Aging." Prior to the hearing, the Committee and the Congressional Brain Injury Task Force (CBITF), along with the Alzheimer's Foundation of America, Brain Injury Association of America and the National Association of State Head Injury Administrators, sponsored a briefing on Sports-related Head Injuries and Concussions." The Congressional Kids' Safety Caucus also sponsored a briefing, "Tackling Sports Injuries in Young Athletes, On the Field, In Emergency Rooms and in the Home District," organized by Safe Kids Worldwide and sponsored by several brain injury, medical and injury prevention organizations.

Disability, veterans and business advocates continue to encourage Senators to ratify the U.N. Disability Rights Treaty when they return from recess. Over 150 countries have signed on to the treaty, which is modeled after the Americans with Disabilities Act.

While this Congress has not passed many bills compared to previous Congresses, there is still a window of time in November for Members to act. Election time is always a good time to impress on candidates the need for brain injury prevention, research, rehabilitation and community services and supports.

ABOUT THE AUTHOR

Susan L. Vaughn, S.L. Vaughn & Assoc., is the Director of Public Policy for the National Association of State Head Injury Administrators and consults with the Brain Injury Association of America on state policy issues. She retired from the State of Missouri in 2002, after working nearly 30 years in the field of disabilities and public policy. She served as the first director of the Missouri Head Injury Advisory Council, a position she held for17 years. She founded NASHIA in 1990, and served as its first president.

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