

**E. Marcus Davis**  
**Davis, Zipperman, Kirschenbaum & Lotito, L.L.P.**  
**918 Ponce De Leon Ave., N.E.**

**Atlanta, Georgia 30306**

Phone: (404) 688-200

Facsimile: (404) 872-1622

[marc@dzkl.com](mailto:marc@dzkl.com)

[www.emarcusdavis.com](http://www.emarcusdavis.com)

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**Proving Damages in an Adult**  
**Traumatic Brain Injury Medical Malpractice Case**

The number of people who sustain a brain injury every year will surprise you. It is estimated that 1.4 million people sustain a traumatic brain injury every year in the United States. 50,000 people who suffer a traumatic brain injury die. 35,000 are hospitalized. 1.2 million of the 1.4 million who do receive treatment are simply released to their family members to care for them. Also, these figures do not include the number of patients whose brain injury was either exacerbated by or caused by medical negligence. The cause of this medical negligence is frequently the result of failure to timely diagnose a condition or disease which can result in brain injury or recognize an injury and properly treat the evolving brain damage condition during presentation to a medical care provider or during a current hospitalization.

A traumatic brain injury is almost always the absolute worst experience of a person and their family's total life experiences. The plaintiff's lawyer in a brain injury case should be sensitive to the enormous stress a brain injured person and their family suffer under following a brain injury.

Traumatic brain injury survivors and their family members experience a wide range of functional changes. Functional changes include, but are not limited to, changes in cognition,

language, emotions, and behavior. Survivors are also susceptible to medical mismanagement, burns, and falls due to their physical problems with balance, problems with visual perceptual skills, sensory impairment, as well as memory and judgment problems. Moreover, studies have shown that persons who have sustained one brain injury are more likely to sustain a brain injury of significance from a second trauma. They are also subject to financial and vocational difficulty due to memory problems, problem solving, judgment and executive functioning deficits, as well as impaired social skills.

As you could well imagine, the effects these life altering changes have on a family can be devastating. Frequently, the spouse of a brain injury survivor feels as though they are now married to a completely different person other than the original life partner they married. Children of brain injured patients often require increased emotional support from the uninjured parent and family members to help them to understand and manage the emotional changes they may be experiencing as a result of the changes exhibited by the brain injured parent. In addition to the devastating emotional changes, the family's income will also be affected because the survivor's skills and job performance will be adversely affected. All of these factors, and much more, must be thoroughly explained to the jury so that they can fully understand and appreciate the wide ranging impact that a brain injury has on the survivor and their family. The problems they will face will never be over.

### **Facts About Brain Injury**

The leading causes of TBI are falls (28%), motor vehicle accidents (20%), a head injury as a result of a trauma from a strike to the head (19%), and assault (11%). In addition to these numbers, our veterans are returning from the wars in Iraq and Afghanistan with brain injury in staggering numbers. According to a recent Rand Corporation study, 300,000 Iraq and Afghanistan

veterans returned to the United States with either Traumatic Brain Injury from exposure to Improvised Explosive Devices, IEDs, or Post Traumatic Stress Disorder, PTSD.

Any brain injury, whether diagnosed as mild, moderate or severe, can temporarily or permanently impair a person’s cognitive skills, interfere with emotional well being and diminish physical abilities. The physical deficits will effect the following: eating, dressing, grooming, bathing and speech, while the cognitive deficits include: memory loss, decreased reasoning skills, impaired judgment or planning skills, short attention span, inability to concentrate as well as language (communication) deficits.

Injury severity can be initially assessed by the Glasgow Coma Scale (GCS); time to follow commands; duration of post-traumatic amnesia; and neuro-cognitive functioning. The injury severity is based on the general Glasgow Coma Scale plus other factors:

- No Injury (GCS = 15/no loss of consciousness/no post-traumatic amnesia)
- Mild (GCS = 13-15/loss of consciousness and/or post-traumatic amnesia/ lesion)
- Moderate (GCS = 9-12/loss of consciousness/post-traumatic amnesia/lesion typical)
- Severe (GCS = 3 - 8/loss of consciousness/post-traumatic amnesia/lesion common)

Eye Opening Response	Spontaneous eye opening	4 Points
	Opens to speech	3 Points
	Opens to pain	2 Points
	None	1 Point
Verbal Response	Alert and Oriented	5 Points
	Confused conversation, but coherent speech	4 Points
	Inappropriate responses, words discernable	3 Points
	Incomprehensible speech or sounds	2 Points

	None	1 Point
Motor Response	Obeys commands for movement	6 Points
	Purposeful movement to painful stimulus	5 Points
	Withdraws from pain	4 Points
	Abnormal (spastic) flexion, decorticate posture	3 Points
	Extensor (rigid) response, decerebrate posture	2 Points
	No response	1 Point

Fifteen is the best score and usually predicts a normal outcome.

Some injuries which are classified as “mild brain injury” are really quite severe in terms of the effect on a patient’s ability to function. “Mild” can be a misleading term as interpreted to mean inconsequential or injury with only minimal and transient effects. Clinical data indicates that some patients diagnosed with only mild brain injury have significant sequellae. Symptoms of mild TBI include: headache, ringing in ears (tinnitus), confusion, bad taste in mouth, lightheadedness, fatigue or lethargy, dizziness, change in sleep patterns (increase or decrease in sleeping), behavioral or mood changes, tired eyes, memory problems, and problems with concentration and thinking. Symptoms of moderate to severe brain injury include: as above, but the headaches get worse or do not go away, repeated nausea or vomiting, seizures, dilation of one or both pupils, slurred speech, weakness or numbness in extremities, loss of coordination, increased confusion, restlessness and agitation.

The Rancho Los Amigos Scale measures behavioral and functional measures for rehabilitation. The plaintiff’s lawyer should be familiar with this scale and where his or her client fits on the Rancho scale.

#### Rancho Los Amigos Scale

##### Levels of Cognitive Functioning

- Level I - No response: Total Assistance
- Level II - Generalized Response: Total Assistance
- Level III - Localized Response: Total Assistance
- Level IV - Confused/Agitated: Maximal Assistance
- Level V - Confused, Inappropriate Non-Agitated: Maximal Assistance
- Level VI - Confused, Appropriate: Moderate Assistance
- Level VII - Automatic, Appropriate: Minimal Assistance for Daily Living Skills
- Level VIII - Purposeful, Appropriate: Stand-By Assistance
- Level IX - Purposeful, Appropriate: Stand-By Assistance on Request
- Level X - Purposeful, Appropriate: Modified Independent

Brain Injury also has a severe impact on a survivor's emotional state. Brain injury patients are susceptible to Depression. Persons with brain injury are at great risk for developing Major Depressive Disorder (27-50%): feeling hopeless, feeling worthless, difficulty enjoying activities. Emotional changes include: depression, anxiety, irritability, anger, frustration, anhedonia (lack of ability to perceive pleasure), and paranoia. Emotion related changes include sleep dysfunction, disruption of appetite, lack of initiation, follow through, motivation and fatigue. Behavior dysfunction can include: confusion, agitation, aggression, poor ability to manage anger, sexual inappropriateness, poor safety awareness and impulsivity. In addition, the brain injury survivor is susceptible to social isolation which increases with time. There is a greater risk for isolation in younger and single survivors. Moreover, as injury severity increases, alcohol and drug use decrease, but depression and psychological issues increase.

Many clients with brain injury have difficulties with executive functioning. Executive functioning consists of those capabilities that enable a person to engage successfully in independent, purposeful, and self-serving behavior. Executive functioning comprises the mental functions critical for formulating goals, developing plans to achieve those goals, and effectively following through with plans. When executive functions are impaired, the individual may no longer be capable of self care or performing useful work independently or maintaining normal social relationships, regardless

of how well- preserved the cognitive capacities are, or how high the persons scores on tests of skills knowledge and abilities. The components of the executive control system include: self-awareness, goal setting, planning, initiating, inhibiting, self-monitoring and evaluation, problem solving, strategic thinking as well as flexible thinking.

Poor outcomes from brain injury result from shortened length of stay in both inpatient and outpatient medical settings, due to lack of medical insurance; insurance coverage denials for rehabilitation; and inadequate funding for public services. Too often individuals with brain injury are prematurely discharged, untrained, have unsupportive care givers, or are inappropriately placed in nursing homes, psychiatric institutions or correctional facilities. Maximal recovery and long term health maintenance with people with brain injury can only be achieved through a comprehensive coordinated neuro-trauma disease management system, providing for immediate treatment, medically necessary rehabilitation and supportive services delivered by appropriately trained TBI specialists in the public and private sectors.

Some brain injured clients have such behavioral dysfunction, that they are difficult or impossible to manage in a home, hospital or community setting. (They can also be challenging and difficult clients to represent). Neurobehavioral facilities offer secure settings and structured activities. Neurobehavioral programs offer treatment programs tailored to the specific cognitive, physical and behavioral needs of the patient. The neurobehavioral treatment team can include: psychiatry, neuropsychology, clinical pharmacology, behavior therapy, speech therapy, physical therapy, occupational therapy, case management, vocational rehabilitation, nursing and therapeutic recreation.

Increase in behavioral health issues such as Depression and Bipolar Disease following

discharge from active rehabilitation programs are common.<sup>1</sup> The discharge challenges for the neurobehavioral client include: cognitive dysfunction, the inability to manage daily affairs independently, inability to return to work or school in the same capacity as previously held: behavior dysfunction and continuing need for behavioral intervention; need for supervision and structure due to behavioral physical and cognitive dysfunction. Traumatic brain injury also is linked with early onset Alzheimer's and Dementia. Moreover, survivors are at increased risk for brain atrophy.<sup>2</sup>

Direct medical costs and indirect costs such as lost productivity of brain injury is an estimated \$60 Billion in the United States in 2004. The Centers for Disease Control estimates that at least 5.3 million Americans currently have a long term or life long need for help to perform activities of daily living as a result of brain injury. According to one study, about 40% of those hospitalized with brain injury had at least one unmet need for services one year after their injury. The most frequent unmet needs were: improved memory and problem solving, managing stress and emotional upsets, controlling one's temper, and improving one's jobs skills. Studies have shown that 10 years post injury 38% require paid support in the home more than two hours per day. 62.5% report significant changes in a role as spouse and/or parent as well as with friends. 62.5% regard their needs as dependent upon family members for basic assistance.

After reading these facts and effects of traumatic brain injury, you should have greater appreciation for the hardships survivors and their families suffer. It is imperative to convey these hardships to the jury in way they can understand, appreciate and acknowledge.

### **Proving Damages**

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<sup>1</sup> Gainer, R. 2002.

<sup>2</sup> Filopivic & Teofilovski - Parapid, 1998.

Proving damages in the adult brain injury case is accomplished by four primary methods: (1) lay testimony from friends, co-workers, family members, spouses, children or parents; (2) demonstrative evidence such as using various imaging studies such as MRIs, fMRIs, SPECT and PET scans, CT scans and EEG along with the physicians need to interpret and explain these studies, as well as photos and videos of the client such as a day in the life video; (3) utilizing testimony from neuropsychologists who perform sophisticated testing of the brain to determine it's functionality; and (4) creation of a Life Care Plan and testimony by a life care planner.

Lay witnesses can be the most important witnesses at trial. It is their testimony that truly elucidates the injury for the jury and provides the opportunity for empathy. Lay testimony provides the best "before and after" description of the brain injury survivors physical, cognitive, emotional and behavioral deficits. The employer or co-worker can testify about job performance and describe the "before" productivity in contrast to the "after" inability to concentrate, perform job duties, etc. Lay witnesses also explain everyday life deficits experienced by the survivor and their family. They tell the story of the survivor in way that a juror can relate to and understand as opposed to technical jargon.

Demonstrative evidence such as imaging studies in the form of MRIs, fMRIs, SPECT and PET scans and CT scans, as well as photos and videos of the client assist the expert and you in educating the jury regarding the injury the client has sustained. The use of brain scans to investigate the structure or function of the brain is common, either as simply a way of better assessing brain injury with high resolution pictures, or by examining the relative activations of different brain areas. Such technologies may include: fMRI and PET scans, which yields data related to functioning, by showing areas of abnormal brain blood flow and glucose metabolism as well as MRI and CT, which



yields structural data. The electrophysiological measures designed to measure the activation of the brain by measuring the electrical or magnetic field produced by the nervous system may include EEG electroencephalography or MEG magneto-encephalography. One of the draw backs of EEG is that it will not demonstrate a seizure unless a patient is actively having a seizure at the time the test is conducted.

Neuropsychological evaluation is the best way to establish and devise a treatment plan for mild to moderate brain injury. A neuropsychologist relies on a series of tests of various aspects of cognition, beginning with a six to twelve hour interview. These tests can identify injury to specific parts of the brain by discovering corresponding deficits on various tests. Furthermore, some of these tests can measure pre-injury I.Q. level. An alternative is to obtain testing from the client's school records and compare them to the client's post-morbid test scores.

The plaintiff lawyer also needs to take into consideration the long-term effects of personality and functional changes such as judgment and decision making, on-the-job stability, and home safety, as these limitations effect the plaintiff's life and may effect it more as he or she ages.

A life care planner can assist with the acute and long-term plan of healthcare management for your client. As previously stated, the effects of a brain injury do not end with discharge from the hospital. The brain injury survivor will require long-term assistance and resources to obtain their maximum level of recovery and independent functioning. A life care planner can provide a plan as well as demonstrate the cost of that plan to the jury.

### **Lay Witnesses**

Witness testimony from family, friends, and co-workers serve as an important foundation of proof of a brain injury case. The most difficult issue in proving a brain injury case is often

convincing the jury that an injury has occurred. While the technical aspects of the medicine may be obtained and explained by an expert, a jury may still be skeptical when they are unable to see a physical injury or visual proof such as x-ray, MRI, or CT scan results. In the brief time that the jury sees him or her the client may seem normal. The use of lay witness testimony can be a critical method to validate the injury testimony during a brain injury trial. Thus, the most important witnesses at trial may be the 5 or 10 minute lay witnesses who testify as to the plaintiff's condition before and after a brain injury. The lay witness can remove the case from the realm of complicated medical terms and set forth simple examples of what the injury is doing to the plaintiff on a day to day basis. The lay witness may offer simple anecdotal testimony regarding the plaintiff the jurors can easily understand. The most important lay witnesses for the plaintiff may include family, friends, co-workers, employers, physical therapists and acquaintances. The witnesses who see, hear and observe the plaintiff every day can provide a view into the life of the plaintiff. These witnesses are often called, "before and after" witnesses because their testimony contrasts the plaintiffs observed behavior before and after the injury. The witnesses generally describe specific instances in the plaintiff's ability in a certain area prior to the incident as contrasted to occasions of disability subsequent to the injury. Despite the scientific imaging and neuropsychological evidence available to present damages in the brain injury case to a jury, frequently the most compelling witnesses are lay witnesses. The function of our brains is what constitutes the essence of who we are as individuals. Frequently, the people who know an injured person best: spouse, children, family members, co-workers, teacher are best able to illustrate the extent of brain injury anecdotally. Trying brain injury cases successfully requires a balance between expert witnesses and lay witnesses.

Fact lay witnesses compare and contrast the personality, functional and cognitive changes

and the expert witnesses can explain by imaging studies and neuropsychological test results why these changes have occurred. Present and former employers, co-workers and teachers can demonstrate changes in work ethic, speed of accomplishment, customer relations, personality, patience, and practical skills. With proper lay witness testimony, the jury learns “why” of the personality change after the time the injury occurred. Casual acquaintances can be powerful and credible witnesses because they often times have little connection to the plaintiff or the case and are not subject to being accused of bias. The basic direct examination might include questions relating to the before the injury status of the plaintiff as follows:

- Tell us how you know the plaintiff and describe your times together?
- Describe the plaintiff’s physical appearance, family lifestyle, emotional status before the injury.
- Have you watched the plaintiff in various circumstances including physical activities, mental activities, work activities? Tell us about it.
- Prior to the injury what kind of person was the plaintiff?
- How was his attitude, willingness, energy level, leadership qualities, ability to get along with others on the job, with the family, at church, in civic activities, in hobbies, at sports?
- How was his or her general health?
- After the injury describe the change in the plaintiff regarding appearance, personality, emotions, outlook, physical activities, energy level, driving, hobbies and sports, social activities, church, clubs, trips, sports, dancing, attitude, performance of job duties, mental activities, memory problems, problem solving abilities, performance of tasks at home and at work, general health, complaints of health, complaints of discomfort or pain, visible changes in health and physical condition, effective changes on the family health and lifestyle, change in relationship with spouse and children, family and friends. Interviews with a patient as well as family, friends and co-workers may reveal the existence and effect of brain injury changes. Counsel must demonstrate a contrast between the pre- and post-injured client. Lay fact witnesses can set the personality stage for the experts to explain the nature and extent of damages. Family members and friends may recognize subtle changes and be able to illustrate these changes to the jury with anecdotes. Present and former employers and teachers may be appropriate to demonstrate changes in work ethics, speed and function,

customer relations, patience and practical skills.<sup>3</sup>

### **Demonstrative Evidence**

Demonstrative evidence can be helpful in brain injury litigation in a number of ways. It is of most use in clarifying injuries evidenced in various imaging studies such as MRI's and CT's in order to assist jurors, (decision makers), in understanding and appreciating the injuries the patient has sustained and to help correlate the injuries and neuro-cognitive deficits directly with the injury.

The gold standard imaging tests for brain injury have been Magnetic Resonance Imaging, MRI and CT scanning. More sophisticated tests have included SPECT and PET scanning. A new type of MRI Scanning, fMRI or Functional Magnetic Resonance Imaging is a powerful new tool which can be utilized to demonstrate a plaintiff's injuries. As many of you know, magnetic imaging uses a powerful magnetic field, radio frequency pulses, and computer to produce detailed pictures of organs, soft tissues, bone and virtually all other internal body structures including the brain. The images can then be examined on a computer monitor, printed or copied to CD. MRI does not use ionizing radiation (x-rays). The MRI uses a contrast material called gadolinium, which does not contain iodine.

Functional Magnetic Resonance Imaging, fMRI, is a relatively new procedure that uses magnetic resonance imaging to measure the tiny metabolic changes that take place in an active part of the brain. FMRI is becoming the diagnostic method of choice for learning how a normal, diseased or injured brain is working, as well as for assessing the potential risk of surgery or other invasive treatment of the brain. Physicians perform fMRI to: (1) examine the anatomy of the brain; (2) determine precisely which part of the brain is handling critical functions such as thought, speech,

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<sup>3</sup> From a lecture by Pete Law, Esq.

movement and sensation, which is called brain mapping; (3) help assess the effects of stroke, trauma or degenerative disease such as Alzheimer's on brain function; (4) monitor the growth and function of brain tumors; (5) guide the planning of surgery, radiation therapy or other surgical treatments of the brain.

During the fMRI, the patient will perform a particular task during the imaging process causing increased metabolic activity in the area of the brain responsible for the task. This activity, which includes expanding blood vessels, chemical changes, and the delivery of extra oxygen can then be recorded on MRI images. The patient's head may be placed in a brace designed to help hold it still. This brace may include a mask that was specially created for each patient. The patient is then given special goggles and/or earphones to wear so that audio-visual stimuli (for example, a projection from a computer screen or recorded sounds) may be administered during the scan. The patient is also asked to perform a number of small tasks such as tapping the thumb against each of the fingers on the same hand, rubbing a block of sandpaper or answering simple questions. The examination takes approximately 45 minutes. (MR spectroscopy, which provides additional information on the chemicals present in the body's cells, may also be performed during the fMRI exam). fMRI enables the detection of abnormalities of the brain as well as the assessment of the normal functional anatomy of the brain, which can not be accomplished with other imaging techniques. Thus fMRI opens a new ability to directly observe brain function. This test is based on an increase in blood flow to the local vasculature that accompanies neural activity in the brain.

Before the rise of fMRI, functional neuro-imaging was typically performed with Positron Emission Tomography, PET scans, or more rarely with SPECT scans. Positron Emission Tomography, PET, is a nuclear medicine imaging technique which produces a three dimensional

image or map of functional processes in the body. The system detects pairs of gamma rays emitted indirectly by a positron emitting radio nucleide tracer which is introduced into the body on a biologically acted molecule. Images of tracer concentration in three dimensional space are then reconstructed by computer analysis. The CT scan or Magnetic Resonance Imaging scans are better at showing anatomic information, while the PET scan is better at showing metabolic information about how the brain metabolizes sugar. SPECT scanning or Single Photon Emission Computed Tomography, is a nuclear medicine thermographic imaging technique using gamma rays. It can provide true 3-D information. SPECT can be used to compliment any gamma imaging study where a true 3-D representation can be helpful e.g., tumor imaging, infection imaging, thyroid imaging or bone imaging. SPECT can assess brain metabolism regionally in an attempt to diagnose and differentiate the different causal pathologies of dementia.

The capabilities of today's imaging specialists using SPECT scanning, PET scanning, MRI and fMRI as well as CT combined with lay testimony can provide the proof required by even the most skeptical juror. Catastrophic and severe brain injuries are perhaps the easiest to demonstrate, because such devastating injuries are typically evident in the imaging studies.

MRI may show changes or shifts in massive brain injuries but without the resolution, required to demonstrate the microscopic changes of cellular shearing. Neuro-radiologists may be required to explain the limits of the diagnostic testing and to prescribe and interpret newly developed tests such as fMRI, PET and SPECT scans. Positron Emission Tomography, PET scans, can detect regions of dysfunction by identifying areas of decreased glucose metabolism, while proof in a mild brain injury case is more challenging and must rely heavily on lay testimony and neuropsychological testing.

In a case such as a failure to diagnose a stroke in progress, animations could prove helpful. A CT without contrast would only be effective in showing areas of hemorrhage (blood in the brain). Animation sequences can be created to compare the arterial supply to the entire brain to the area of the brain supplied by the affected artery. MRIs that demonstrate the multiple wide spread areas of injuries may be difficult for lay persons to appreciate. A custom medical illustration may prove to be much more persuasive and compelling.

In some injuries, imaging studies such as CT scan and MRI are negative. In such cases, demonstrative evidence and lay testimony can be crucial. In such a case the demonstrative aids must focus more on the behavioral and cognitive changes exhibited by the plaintiff following the incident. Usually, these behavioral and cognitive changes are testified to by lay witnesses such as friends, family, and spouses and a neuropsychologist. One of the more effective demonstrative aids for the less severe brain injury available today is the Mild TBI animation series developed by Medivisuals. These animation sequences very graphically communicate to the jury how injuries to the brain can occur that result in neuro-cognitive deficits.

In severe brain injuries, because of advances in animation, animation demonstrating injuries and surgeries are available and affordable. Some demonstrative aids showing severe brain injuries would include the following: *ScanSelector™*, an effective way to help those involved to understand the exact location and orientation of a scan while retaining the attention of the juror. With the *ScanSelector™*, presentation the scan glides out of the orientation view allowing the viewer to appreciate the exact level of the scans as well as how it is oriented. A *ScanSelector™* presentation can be viewed at the following link: <http://www.medivisuals.com/content/animations/ctss.html>

Sometimes a brain injury results in the disruption of neural pathways and these can also be

viewed at the Medivisual's website. The neural pathways animation sequences demonstrate the general pathways that impulses must travel in order to perform certain functions such as repeating a written or heard word, maintaining balance, eye and motor control, hearing, vision, memory, etc. The purpose of the animations is to help correlate neurological deficits with a traumatic event by helping experts explain how disruption of axons, neurons, and dendrites anywhere along these pathways can result in interference with the injured person's ability to effectively perform cognitive tasks. In addition, diffuse axonal injury, which may not show up on CT or MRI, can result in brain dysfunction.

Explaining brain function is a critical part of the evidence which must be presented in a traumatic brain injury case. The lawyer must explain brain function by correlating the areas of the brain that control various functions with the areas of deficits demonstrated in the plaintiff. There are various brain function charts available that demonstrate functional control. In demonstrating functional control, the plaintiff lawyer should select the best possible charts to emphasize these deficits.

Various types of surgeries can be required because of medical malpractice. Demonstrative aids demonstrating the invasive, life threatening surgical procedures necessary to address intracranial injuries can prove quite impressive for juries. Demonstrative aids when used by an expert witness can prove persuasive in matters such as placement of intracranial pressure monitors, ventriculostomy tubes, craniotomies and/or craniectomies. Even with all the new available technologies, traditional exhibit boards created by the a medial illustrator or stock boards sold by such companies as the DOE Report ([www.doerport.com](http://www.doerport.com)) are effective. These exhibit boards can be left in place in the sight of the jury while the expert testifies and are not subject to electronic



snafues.

One essential use of videos and photographs is to help demonstrate the severity of the injury. You can effectively use video and photographs of the patient taken in the hospital to show the plaintiff's state immediately after the injury and contrast it to the plaintiff's appearance at trial. You may also use video of any treatment performed, including the use of ventilators or other invasive medical devices to demonstrate the severity of the injury. Critical photographs should be enlarged and reproduced into several copies so that the witnesses can mark on them, if necessary. Day-in-the-life videos can be enormously effective in showing the consequences of a brain injury. These videos generally consist of short (5-15 minutes) video footage of the plaintiff, usually in his or her home environment, in the performance of the daily activities that we all take for granted including: eating, bathing, grooming, getting dressed and going to different appointments such as therapy or activities. In appropriate cases, the video can also include footage of the plaintiff at work, which can be combined with co-worker or supervisor testimony about the plaintiff's pre-trauma work capabilities, job performance evaluations, etc. These videos can be extremely compelling but it is important to make them tasteful and somewhat objective to avoid any claims that they should be excluded as unduly prejudicial.

Frequently a videotaped deposition of the neuro-radiologist can be of extreme usefulness at trial. The video can capture close-ups of the images created by the imaging machines, while the neuro-radiologist can explain what the images represent.

Of course, the trial lawyer has budget and time constraints that often require compromise in selecting demonstrative aids or other evidence required to present damages. Custom medical diagrams and charts are expensive but invaluable. Stock charts from the Doe Report

([www.doereport.com](http://www.doereport.com)) and other companies may be more cost effective and just as persuasive.

### **Use of a Neuropsychologist**

It is challenging for the plaintiff lawyer to go through the various areas of neuropsychological testing with the neuropsychologist and make it interesting and understandable for the jury. The neuropsychologist, while testifying, can summarize the various abnormal test results and contrast and compare that to the various normal or normative test results, he or she can then relate to the jury the effect of these deficits on the day to day functioning of the client.

As most of you probably know, neuropsychology is the applied scientific discipline that studies the structure and function of the brain related, to specific psychological processes in overt behaviors. Neuropsychology is scientific in its approach and shares the subject of information processing of the mind with cognitive psychology and cognitive science. In practice, neuropsychologists tend to work in academia (involved in basic or clinical research) or in clinical settings (involved in assessing or treating patients with neuropsychological problems).

Clinical neuropsychology is the application of neuropsychological knowledge to the assessment, management and rehabilitation of people who have suffered illness or injury to the brain which has caused neuro-cognitive problems. They particularly bring the psychological viewpoint to treatment and to understand how such illness and injury may affect and be effected by psychological factors. Cognitive neuropsychology is a relatively new development and has emerged as a distillation of the complementary approaches of both experimental and clinical neuropsychology. This specialty seeks to understand the mind and brain by studying people who have suffered brain injury or neurological illness.

One aspect of neuropsychological testing is functional localization. This is based on the

principal that if a specific type of problem can be found after an injury to a specific area of the brain, it is possible that this part of the brain is in some way involved. Neuropsychology may be used in conjunction with functional neuro-imaging, which uses neuro-imaging technologies to take readings from the brain, usually when a person is doing a particular task, in an attempt to understand how the activation of particular brain areas is related to the task.

Most neuropsychological tests in current use are based on traditional psychometric theory. In this model, a person's raw score on a test is compared to a large general population normative sample, that should ideally be drawn from a comparable population to the person being examined. Normative studies frequently provide data stratified by age, level of education, and/or ethnicity. Where such factors have been shown by research to effect performance on a particular task, this allows for a person's performance to be compared to a suitable control group, and thus provide a fair assessment of his or her current cognitive functioning. Some of the most common neuropsychological tests include: the Beck Depression Inventory, Anxiety Inventory and Hopelessness Scale, the Bender Visual Motor Gestalt Test, the Boston Naming Test, the California Verbal Learning Test, the D-2 Test of Attention, the Delis-Kaplan Executive Function System, the Finger Tapping Oscillation Test, the Halstead-Reitan Neuropsychological Battery, the Luria-Nebraska Neuropsychological Battery, the Minnesota Multiphasic Personality Inventory, the Millon Clinical Multiaxial Inventory (MCMI), the Rey Auditory Verbal Learning Test, the Tactual Performance Test, the Test of Memory Malingering, the Validity Indicating Profile, the Wechsler Adult Intelligent Scale (WMAIS), the Wide Range Achievement Test, the Wisconsin Card Sorting Task, and the Word Memory Test.

The specific tests within the battery include: the complex figure test, the Wisconsin card

sorting test, and the category test. Language skills are measured by the control oral word association test and the Boston naming test. Verbal memory is evaluated using the Auditory Verbal Learning Test or the California Verbal Learning Test. Attention is tested with the Wechsler Memory Scale, the trail making test and the Stroop test. The complex figure test assesses organizational efficiency, visuo-motor memory, and retention of motor information over time. Visuo-motor function can be evaluated with the Bender–Gestalt test. Tests to determine emotional status include the Minnesota Multiphasic Personality Inventory (MMPI), The Thematic Apperception Test and the Rorschach Test.

The objectives of neuropsychological testing are to document post-injury functioning: neuro-cognitive, behavioral, emotional; to assist in treatment planning; to monitor recovery and outcome; and to assist in decision making. Obtaining a history is important. The neuropsychologist should document injury history, post-injury history, pre-morbid history including developmental, neurological, psychiatric, educational and occupational. This should include prior drug use or problems with criminal activity. Technical concerns for neuropsychologists include using incorrect tests, using outdated tests, using tests with poor norms, using tests not validated in TBI, administering tests improperly, scoring tests improperly, failing to report standard scores, and the use of interpreters for non-English speakers.

In order to make these various tests useful in court, some assessment of the clients pre-morbid functional level must be included. Standardized testing such as the I.Q. Test and the Iowa Tests are conducted in even elementary schools and these records are easily obtainable and already offer a comparison to other students of that age. For older clients, SAT scores can be useful as well as college, vocational school and graduate school records and grades as well as records of employment or military services. It is essential that the neuropsychological evaluation includes the

change as to the cognitive functioning due to the injury in order to establish damages properly. Be sure to have your neuropsychologist explain what these various test do, how they work and what they demonstrate in layman's terms. Neuropsychological jargon will not prove to be effective communication. Often times these neuropsychological work-ups take two days to perform and to go through each test with the jury and the results can be tedious and beyond the attention span of the jury. Neuropsychological test results can be summarized in a chart which can be more readily understood and read by a jury. Neuropsychological assessment following traumatic brain injury is frequently the sine qua non for recovering a plaintiff verdict. The goal of the neuropsychologist is to document post-injury functioning including neuro-cognitive behavioral and emotional. The neuropsychologist also assists in treatment planning, monitoring recovery and outcome as well as assisting in decision making such as when it is appropriate to return to work or school due to diminished cognitive abilities.

Neuropsychologists can also assist in diagnosing the severity of injury based upon Glasgow Coma scale, duration of post-traumatic amnesia and neuro-cognitive functioning.

Neuropsychologists must record and interpret the history of the patient including the post-injury history, pre-morbid history including developmental, neurological, psychiatric, educational and occupational.

Neuropsychologists must attempt to determine whether the patient is allowing the neuropsychologist to conduct a valid test based upon reliability, validity and test interpretation. Some tests can determine whether the test-taker is putting forth his or her best effort. Plaintiffs must be instructed by their lawyer to use their best effort or the neuropsychologist may conclude the client is exaggerating or faking.

The neuropsychologist can explain to the jury how brain injury can cause physical deficits in eating, dressing, grooming, bathing and speech and cognitive deficits of memory, reasoning, attention, concentration or impatient in language. A neuropsychologist can also explain emotional changes including depression, anxiety, irritability, anger, frustration, anhedonia (lack of ability to perceive pleasure), paranoia, as well as emotional related changed including sleep dysfunction, appetite, motivation and fatigue.

The biggest challenge for presenting neuropsychological testimony is to make the testimony both understandable and interesting. The neuropsychologist must be encouraged not to use psychological jargon and to speak in lay terms. The neuropsychologist must explain how each test effects the activities of daily living for the injured party. The cumulative effect of various deficits must also be explained in terms of the overall functioning if the plaintiff.

### **Life Care Planning**

An important part of proving damages in a brain injury case can only be accomplished by the testimony of a qualified life care planner. A life care plan is a document based upon published standards of practice, comprehensive assessment, data analysis and research, which provides an organized, concise plan for current and future needs, with associated costs, for individuals who have experienced catastrophic injury or have chronic health care needs. The life care plan explores what patients need to be optimally independent and to put services in place to reach their greatest potential. The development of a comprehensive plan of care has always been considered a critical part of a rehabilitative process. The process of developing a life care plan and defining costs have evolved over many years and its now used by case managers, and other professionals. The concept of rehabilitation and life care plans has been utilized in a variety of health care and legal settings to

provide information and documentation regarding the cost of service relating to long term care.<sup>4</sup> Counsel should hire a properly certified life care planner who can meet a Daubert challenge. The life care planner should be an individual who has professional credentials including: membership within a professional healthcare discipline or rehabilitation discipline, a current professional licensure or national board certification within a professional healthcare discipline, completion of an accredited program in nursing with a baccalaureate or higher level of education in a professional healthcare or rehabilitation discipline, continuing education to ensure licensure or certification and knowledge of professional legal requirements. The life care planner should have an understanding of human anatomy and physiology, pathology, the health care system, the role and function of the health care system, and clinical practice guidelines or standards.

The life care plan should be a working document which provides information which can be utilized by the client and interested parties. It should serve as a guide to assist in the delivery of health care services. The care plan should be a collaborative effort among the various parties and reflect goals that are preventative and rehabilitative in nature. The life care planner should demonstrate methodology in accordance with the standards of performance outline by the International Academy of Life Care Planners. The process should include: collecting data, assessment, planning, collaboration and development, research, facilitation of information, evaluation and testimonies. The life care planner should collaborate with other treating professionals, determine replacement frequency for appropriate care items and delineate options of cost for each aspect of care. A typical life care plan includes the following: projected evaluations,

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<sup>4</sup> LuRae Ahrendt, RN, CRRN, CCM; Life Care Planning for the Person with a Brain Injury, March 31, 2008.

projected therapeutic modalities, diagnostic testing/educational assessment, wheelchair needs, wheelchair accessories and maintenance, aids for independent functioning and living, orthotics/prosthetics, home furnishings and accessories, modifications needed to make the home handicap accessible, drug/supply needs, home care/facility care, future medical care routine, transportation, health and strength maintenance, architectural renovations, potential complications, future medical care/surgical intervention or aggressive treatment or orthopaedic equipment needs and vocational/educational planning. Life Care Planning resources: International Academy of Life Care Planners [www.ialcp.org](http://www.ialcp.org), The Care Planner Network [www.careplanners.net](http://www.careplanners.net) (See Life Care Plan attached to this paper).

Typically, an economist is used to calculate the present cash value of the care plan.

With the institution caps on non-economic damages, the life care plan is critically important in obtaining special damages in a catastrophic injury case. Be sure and have the care planner explain why each element of the life care plan is critical to the plaintiffs well-being and chances for an optimal recovery. Counsel should have the life care planner explain what the negative effect the jury's decision to omit each element of the life care plan would have on the plaintiff's health, well-being and recovery.

Enlargements of the life care plan, as well as the economist's calculation are useful demonstrative aids to assist the jury in digesting the dense and technical elements as the life care planner testifies. Frequently, jurors take notes memorializing the type and cost of each element of the life care plan.

Counsel should insist that one of the plaintiff's main treating physicians read and approve the content of the life care plan.



## **Conclusion**

Proving damages in a brain injury case may at first seem daunting, but with some study of the brain and neuropsychology, along with the use of lay witnesses, injury studies and radiologist to explain them, neuropsychologist witnesses and life care plans, the plaintiff's chances of receiving a generous verdict encompassing all of the elements of his or her brain injury will be greatly enhanced.