E. Marcus Davis
Davis, Zipperman, Kirschenbaum & Lotito, L.L.P.
918 Ponce De Leon Ave., N.E.
Atlanta, Georgia 30306
Phone: (404) 688-2000
Facsimile: (404) 872-1622
marc@dzkl.com
www.emarcusdavis.com

~ ~ ~ ~ ~

Proving Damages In Traumatic Brain & Spinal Cord Injury Cases

The number of people who sustain a traumatic brain injury every year in the United States is staggering. Approximately 1.4 million people sustain brain injuries every year; 50,000 of these people die; 35,000 are hospitalized and 1.2 million are simply released to their sometimes poorly trained care-givers or family members. Approximately 12,000 new spinal cord injures occur each year and this figure does not include those who sustain fatal spinal cord injuries. No matter the mechanism of injury, the effects of a brain or spinal cord injury can be devastating. Because of the speed, weight and mass and momentum of tractor trailer rigs compared to automobiles and motorcycles, truck wrecks cause a disproportionate share of brain and spinal cord injuries compared to other motor vehicle wrecks.

Brain Injuries

The lawyer should recognize that brain injury survivors experience a wide range of functional changes in cognition, language, emotion and behavior. Their clients will also be susceptible to medical mismanagement, burns and falls due to their physical problems with

balance, visual perception and sensory impairment, as well as memory and judgment impairment. The plaintiff's lawyer should not be surprised to find that as a result of these functional deficits, brain injured clients may frequently experience financial and vocational difficulties. Therefore, obtaining a history from the family and care-givers as well as the injured survivor is imperative.

When obtaining the clients history, keep in mind that the functional deficits your brain injured clients suffer from also have devastating effects on the family unit. Spouses of brain injury survivors often feel that they are suddenly married to a different person other than the original life partner they married. The children of brain injury survivors may experience emotional neglect or abuse as well as depression, because Mom or Dad have become "different people." These children often require an increase in emotional support from the uninjured parent and extended family to help them manage the emotional changes they may be experiencing, as they witness and are subjected to the changes in the behavior of the brain injured parent. All of these factors, and much more, must be thoroughly explained to the jury, so they can fully appreciate the devastating effects a brain injury can have on the survivor and their family. Proving all of the different elements of damage in a brain injury case is critical to a successful plaintiff's verdict.

Medical Overview of Brain Injury

Before you can effectively prove the damages on behalf of your brain injured client, you must fully understand the facts regarding brain injury. The National Institute of Neurological Disorders and Stroke defines traumatic brain injury as follows:

> "Traumatic brain injury (TBI), also called acquired brain injury or simply head injury, occurs when a sudden trauma causes damage to the brain. TBI can result when the head

> suddenly and violently hits an object, or when an object pierces the skull and enters brain tissue. Symptoms of a TBI can be mild, moderate, or severe, depending on the extent of the damage to the brain. A person with a mild TBI may remain conscious or may experience a loss of consciousness for a few seconds or minutes. Other symptoms of mild TBI include headache, confusion, lightheadedness, dizziness, blurred vision or tired eyes, ringing in the ears, bad taste in the mouth, fatigue or lethargy, a change in sleep patterns, behavioral or mood changes, and trouble with memory, concentration, attention, or thinking. A person with a moderate or severe TBI may show these same symptoms, but may also have a headache that gets worse or does not go away, repeated vomiting or nausea, convulsions or seizures, an inability to awaken from sleep, dilation of one or both pupils of the eyes, slurred speech, weakness or numbness in the extremities, loss of coordination, and increased confusion, restlessness, or agitation."[1]

Brain injuries are classified into three categories: mild, moderate or severe. A brain injury sustained in any of these three categories can temporarily or permanently impair a person's cognitive skill and interfere with his or her emotional well-being, as well as physical abilities. The aforementioned brain injury categories can be somewhat misleading. It is important to fully explain your client's injuries to the jury. A "mild" brain injury can severely impact a person's ability to function due to subsequent memory or concentration problems. A jury might misinterpret or be dismissive of a "mild brain injury," but these individuals have significant sequellae that should be fully elucidated. Moreover, a mild brain injury in a person with a cognitively demanding career, e.g. an air traffic controller, doctor, lawyer, engineer, teacher, etc. may cause the injured person to be completely disabled from performing his or her job. Moderate or severe brain injuries are more devastating than mild brain injuries. The Mayo Clinic provides helpful information

[1] "NINDS Traumatic Brain Injury Information Page," <http://www.ninds.nih.gov/disorders/tbi/tbi.htm>, accessed on February 24, 2009.

regarding the symptoms of each classification[2]:

The signs and symptoms of a mild brain injury may include:

- A brief period of unconsciousness
- Amnesia for events immediately before and after the injury
- Headache
- Confusion
- Dizziness or loss of balance
- Sensory problems, such as blurred vision, ringing in the ears (tinnitis) or a bad taste in the mouth
- Mood changes
- Memory or concentration problems

The signs and symptoms of moderate to severe traumatic brain grows to include:

- Persistent headache
- Repeated vomiting or nausea
- Convulsions or seizures
- Inability to awaken from sleep
- Dilation of one or both pupils of the eyes
- Slurred speech
- Weakness or numbness in the extremities
- Loss of coordination
- Profound confusion
- Agitation, Combativeness

Medical providers initially assess brain injury severity by the Glascow Coma Scale (GCS). The best score of a GCS is 15 and usually predicts a normal outcome. There is no loss of consciousness and no post-traumatic amnesia with a GCS of 15. A GCS of 13-15 indicates a mild brain injury, with a loss of consciousness and/or post-traumatic amnesia present. A GCS of 9-12 indicates a moderate brain injury with a loss of consciousness and post-traumatic amnesia. With a GCS of 3-8, a patient will also have a loss of consciousness as well as post-traumatic amnesia, but the injury is severe.

---

[2] "Traumatic Brain Injury," <http://www.mayoclinic.com/health/traumatic-brain-injury/DS00552/DSECTION=symptoms>, accessed on February 24, 2009.

Another type of assessment tool used to measure the levels of awareness and cognition, behavior and interaction with the environment is the Rancho Los Amigos Scale. (*See* attachment "A"). This assessment is typically used after the initial injury, when the GCS is most informative.

Besides the obvious physical impairments, one of the most significant impairments brain injury survivors struggle with is one of diminished capacity of their "executive functioning." "Executive functioning" consists of those capabilities that enable a person to engage successfully in independent, purposeful, and self-serving behavior. It comprises mental functions critical for self-awareness, goal setting, planning, initiating, inhibiting, self-monitoring and evaluation, problem solving, strategic thinking as well as flexible thinking. 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 capabilities are, or how high the persons scores on tests of skills, knowledge and abilities.

Any impairment a brain injury survivor suffers from can have a severe impact on his or her emotional state. Brain injury survivors are more susceptible to depression, anxiety, irritability, anger, frustration, anhedonia (lack of ability to experience pleasure), and paranoia. The percentage of brain injury survivors who suffer from a major depressive disorder is 27-50%. Depression often leads to social isolation as well as an increase in drug and alcohol consumption. It is important for the lawyer to stay in regular contact with the care-giver in order to monitor your clients well-being and to stay current with their medical and psychological issues.

Along with these life-altering emotional changes, brain injury survivors experience

significant behavioral changes. These changes can include: confusion, agitation, aggression, poor ability to manage anger, sexual inappropriateness, poor safety awareness and impulsivity. In fact, some brain injury survivors have such behavior dysfunction that they are difficult or impossible to manage in a home, hospital or community setting. There are few neurobehavioral facilities which offer secure settings and structured activities for these types of patients/clients.

Hopefully, the general information provided has given you a greater appreciation for the hardships survivors and their families suffer. This information should be a starting point for your own investigation into the specific deficits and hardship from which your client may be suffering. Your full understanding of these impairments will allow you to effectively convey this information to the jury in a way each juror can understand, appreciate and acknowledge.

Proving Brain Injury At Trial

As you are aware, it can be difficult explaining and holding the attention of a jury long enough to explain the mechanics of the brain injury, much less the cognitive, emotional and behavior impairments associated with brain injury. Complex medical data and other evidence takes most of us the length of time of initial client consultation to the time of trial to fully understand and appreciate. At trial, it is our job to creatively and concisely convey this information to a jury in a few days. It is a daunting task and your brain injured client and their family are counting on you for a positive outcome. So how do you go about proving the damages in your brain injured client's case?

Realizing the jury will only absorb so much in details, it is important to explain the damages in a way that any lay person can understand with ease. Some methods to prove

damages in a brain injured case are as follows: (1) lay witness testimony; (2) demonstrative evidence in the form of various imaging studies, anatomical diagrams and videos, and "day-in-the-life" videos and photographs; (3) utilization of neuropsychologist testimony; and (4) testimony from a life care planner. Lay witness testimony can be the most important witness testimony at trial as well as the most persuasive evidence. This testimony has the potential to elicit the most empathetic response from the jury. Demonstrative evidence in the form of various MRIs, fMRIs, SPECT and PET scans, CT scans, EEG's and DTI scans will require a physician, most often a neurologist or neuroradiologist, to interpret for the jury. "Day-in-the-life" videos and photographs are both educational and empathy provoking. The quote "a picture is worth a thousand words" was never more applicable than in proving damages in a brain injury case. Neuropsychologists offer testimony regarding the brain injury survivors brain function, as well as emotional and behavioral issues your client may be experiencing. Last but not least, life care plans can provide the jury with an understanding of the comprehensive plan necessary to care for and rehabilitate your brain injured client.

Lay Witness Testimony

As previously stated, lay witnesses can provide the most important testimony presented at trial. Witness testimony from family, friends, co-workers, and employers serve as a necessary foundation of proof in a brain injury case. The reason the testimony of the lay witness is so important is because it offers the best "before and after" description of the brain injury survivor's physical, cognitive, emotional and behavioral deficits. Lay witnesses will tell the story of the survivor's suffering in a way that jurors can relate to and understand, as opposed to the technical jargon experts may use throughout the trial. While

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 visible proof such as an x-ray, MRI or CT scan results. Sometimes, in the brief time the jury is able to see the brain injury survivor, he or she may seem quite normal. Some lawyers will not bring a brain injured client to trial because the testimony may be devastating to their self-esteem. Plaintiff's physician may advise against attending trial. Lay witnesses provide validation of the injury. They also remove the case from the realm of complicated medical terms and set forth simple examples of how the injury is effecting to the plaintiff on a day-to-day basis. The lay witness also offers simple anecdotal testimony regarding the plaintiff that the jurors can easily understand. 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, while 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 the extent 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. A basic direct examination might include questions relating to the before the injury status of the

plaintiff as follows[3]:

- 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.
- Describe the plaintiff's physical appearance, family lifestyle, emotional status *after* 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, work ethic, 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?

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, 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. New types of scanning, fMRI or Functional Magnetic Resonance Imaging along with DTI, Diffusion Tensor Imaging, are powerful new tools which can be utilized to demonstrate a plaintiff's injuries. These newer tests can graphically illustrate diffuse axonal

[3] From lecture by Pete Law, Esquire

shearing, which is not visible on CT or MRI. 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 may use 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 or malfunctioning, 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, 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, so as not to injure functional areas 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 which 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 constitutes a new modality 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 development of fMRI, functional neuro-imaging was typically performed with Positron Emission Tomography, PET scans, QEEG, Quantitative Electo-encephalogram 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 active 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.

MRI may show changes or shifts in massive brain injuries but without the resolution, required to demonstrate the microscopic changes of cellular shearing such as in diffuse axonal 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, DTI and SPECT scans. Positron Emission Tomography, PET scans, can detect regions of dysfunction by identifying areas of decreased glucose metabolism.

Another relatively new technology is a DTI scan or Diffusion Tensor Imaging. DTI is a MRI technique that measures the diffusion characteristics of water molecules in brain tissues in order to produce neural tract images. The principal application of this scan is the imaging of white matter location and orientation of axons in parallel bundles and myelin sheaths which facilitate the diffusion of water molecules. DTI is used clinically in the tract-specific localization of white matter lesions to show the disruption of such neural tracts caused by trauma and to define the severity of diffuse traumatic brain injury.

The capabilities of today's imaging specialists using SPECT scanning, PET scanning, MRI, fMRI and DTI 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.

In some injuries, imaging studies such as CT scan and MRI are negative. In such

cases, demonstrative evidence and lay testimony can be crucial. 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. *ScanSelector*™, is 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 available neural pathways animation sequences demonstrate the general pathways which 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.

Various types of surgeries can be required because of brain injury. Demonstrative aids demonstrating the invasive, life threatening surgical procedures necessary to address intracranial injuries can prove quite impressive for juries. Demonstrative aids 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 a medical illustrator or stock boards demonstrate various brain function areas. Said boards are available through such companies as Medivisuals, and the Doe Report. In demonstrating brain function, the plaintiff's lawyer should select the best possible charts to emphasize these deficits. These exhibit boards can be left in place in the sight of the jury while the expert testifies and are not subject to the type of electronic snafus that sometimes occur with computer animation.

An essential use of videos and photographs is to help demonstrate the severity of the injury. The lawyer can effectively use videos and photographs of the patient taken in the hospital to show the plaintiff's status 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 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 objective to avoid any claims that they should be excluded as unduly prejudicial.

The Neuropsychologist

As you probably know, neuropsychology is the applied scientific discipline that studies the structure and function of the brain related to cognitive functioning and 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.

It is a challenge for the plaintiff's 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 them 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.

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 related to a known function of a specific area of the brain, it is probable 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 neurpsychological 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, which 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.

The objectives of neuropsychological testing are to document post-injury functioning: neuro-cognitive, behavioral, emotional, in order 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 criminal activity.

Technical concerns for neuropsychologists, which contribute to error, 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, failing to discover medication or substance impairment and the use of unskilled 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 elementary schools and these records are easily obtainable and offer a comparison to other students of that age. For older clients, SAT scores as well as college, vocational school and graduate school records and grades can be useful, along with records of employment or military service. It is essential that the neuropsychological evaluation include 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 tests do, how they work and what they demonstrate in layman's terms. Neuropsychological jargon will not prove to be effective communication. The biggest challenge for presenting neuropsychological testimony is to make the testimony both understandable and interesting for the jury.

The cumulative effect of various deficits must also be explained in terms of the overall functioning of the plaintiff. Often times these neuropsychological work-ups take two days to perform and to go through each test and the results with the jury 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's verdict. The cumulative effect of various deficits must also be explained in terms of the overall functioning of the plaintiff.

The Life Care Planner

The cumulative effect of the brain or spinal cord injury survivor's deficits should also be explored by a life care planner who examines the needs of the brain injury survivor for optimal independence and who can enlist services to assist survivors to reach their greatest potential.

The development of a comprehensive life care plan is a critical part of the rehabilitative process. The testimony of the life care planner is very important in proving damages in your brain or spinal cord injury case. 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 services relating to long term care.[4] 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

[4] LuRae Ahrendt, RN, CRRN, CCM; Life Care Planning for the Person with a Brain Injury, March 31, 2008.

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 be a collaborative effort among the various parties and reflect goals that are preventative and rehabilitative in nature. 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, 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. In addition, the survivor's primary care physician should read and approve of the content of the life care plan.

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

recovery.

Enlargements of select pages from the life care plan, as well as the economist's calculations based upon elements of the life care plan are useful demonstrative aids to assist the jury in digesting the dense and technical elements of the plan as the life care planner testifies. Frequently, jurors take notes memorializing the type and cost of each element of the life care plan. Photographs or examples of equipment should be used by the life care planner to show the jury the purpose of such devices.

Spinal Cord Injury

Representing those who suffer from paraplegia or quadriplegia presents the most challenging, yet potentially most rewarding damages case a lawyer can undertake. The spinal cord injured client has lifetime care needs that will cost in the millions of dollars. The reward to the lawyer of knowing he or she has met those needs in a skillful, dedicated and compassionate manner results in the highest degree of career satisfaction. Such a case also represents an opportunity for the lawyer to earn a Multi-million dollar fee, "doing well while doing good" for a human being in dire need. Such a case deserves the very best representation the lawyer can deliver.

The National Institute of Health provides some shocking facts about spinal cord injury. Approximately, 12,000 new spinal cord injuries occur each year, not including those that cause death. For instance, there are a quarter of a million Americans who currently live with spinal cord injuries. The cost of managing the care for these patients approaches $4 billion dollars each year. 55 percent of spinal cord injury victims are between the ages of 16 and 30 years of age and more than 80 percent of all spinal cord injury patients are men. 38.5 percent of spinal cord injuries are the result of a motor vehicle collision, 24.5

percent are related to violent encounters, and the rest are due to accidents, falls and work-related accidents. If you are a personal injury lawyer, chances are more likely than not that you will encounter a spinal cord injury case in your practice at some point.

So where do you begin? Most lawyers and the general public are misinformed or under-informed about the myriad complications and conditions that are associated with spinal cord injuries. Actor Christopher Reeve's sad plight following a horse jumping accident, which left him a ventilator dependent quadriplegic and years later from a decubitus ulcer that would not heal caused his death, has heightened public awareness and interest in spinal cord injuries. Reeve's injury has also resulted in funding for cutting edge research concerning spinal cord injury in the areas of treatment, technology for adaptive devices and the like.

Reeve, in his book *Still Me*, wrote that after his spinal cord injury his definition of a hero was completely different, "I think a hero is an ordinary individual who finds the strength to persevere and endure in spite of overwhelming obstacles."[5] Fortunately for Reeve, his movie career had made him independently wealthy so that he could afford optimal care. Even with such care, Mr. Reeve has been hospitalized for autonomic dysreflexia, pneumonia, broken bones, blood clots, urinary tract infections, decubitus ulcers and the like. He found that the longer he sat in a wheelchair, the more his body broke down and the harder he had to fight against it. Unlike Mr. Reeve, however, many potential clients cannot afford the sort of care that their injuries require. Oftentimes lifetime caps on medical insurance are exhausted and payment ceases. Furthermore, many suffer paralysis

[5] Christopher Reeve, *Still Me*, New York, New York, 1998, p. 267.

through no fault of their own and thus should be compensated for their life altering injuries so that they can afford good care. In handling these cases, the lawyer will represent some real life heroes like Reeve. Unfortunately for Mr. Reeve, a decubitus ulcer eventually killed him, even though he had received optimal care.

Medical Overview of Spinal Cord Injury

Before we delve into the mechanisms of spinal cord injuries, it is important to understand some of the gross anatomy and physiology of the spine and spinal cord. The spinal cord is located inside the vertebral canal formed by the foramina of 7 cervical, 12 thoracic, 5 lumbar and 5 sacral vertebrae. Together these foramina form the spine. The spine extends from the foramen magnum down the to level of the first and second lumbar vertebrae. The spinal cord is composed of 31 segments: 8 cervical (C), 12 thoracic (T), 5 Lumbar (L), 5 sacral (S) and 1 coccygeal (Co). Between the vertebrae are discs of semi-rigid cartilage, and in the narrow spaces between them exit the spinal nerves, which consist of the sensory and motor nerve roots. The sensory nerve roots enter the spinal cord at each level and the motor roots emerge from the cord at each level. For example, C1-7 nerves emerge above their respective vertebrae and C8 emerges between the seventh cervical and the first thoracic vertebrae. The remaining nerves emerge below their respective vertebrae.[6]

The spinal cord is generally 15 to 17 inches long depending on a person's height and the circumference varies upon its location. It is larger in the cervical and lumbar areas because it supplies the nerves to the arms and upper body as well as the legs and the lower body. The soft, jelly-like spinal cord has a core of tissue that contains nerve cells. If you

---

[6] "Spinal Cord, Topographical and Functional Anatomy," <http://www.emedicine.medscape.com/article>, accessed on January 27, 2010.

were to view a cross-section of the spinal cord, you would see the H-shaped region of the "grey matter" of the spinal cord. This H-shaped grey matter contains the motor neurons that control movement, smaller interneurons that handle communication within and between the segments of the spinal cord, and cells that receive sensory signals and then send information up to the centers of the brain.[7] White matter surrounds the H-shaped grey matter. The axons in the grey matter are covered with myelin, which is whitish in appearance and allows electrical signals to flow freely and quickly downward and upward to and from the brain. Their branch ends can make connections with other nerve cells simultaneously and some extend the entire length of the spinal cord.

The descending tracts control the smooth muscles and the internal organs as well as the striated muscles. They also help to adjust the autonomic nervous system. The ascending sensory tract transmits signals from the skin, extremities, and internal organs at specific segments of the spinal cord to the brain. Most attorneys are familiar with the concept through the dermatome chart. A dermatome chart indicates an area of skin that is supplied by a single spinal nerve. This is useful in finding damage to the spine.

Spinal cord injuries can occur at any level. The segment and the severity of the injured spinal cord determines the loss of body function. Motor vehicle collisions are the most prevalent cause of spinal cord injury, followed by acts of violence and accidents. Truck wrecks cause a disproportionate number of spinal cord injuries because of the weight and speeds involved. Most injures do not sever the cord completely. Many cause contusions, fractures or compression of the vertebrae which in turn damages the spinal

---

[7] "Spinal Cord Injury: Hope Through Research" <http://www.ninds.nih.gov/disorders/sci/detail_sci.htem>, accessed on January 27, 2010.

cord resulting in a loss of function. Of course, if the spinal cord is severed, paralysis results. The initial trauma to the spinal cord sets off a cascade of biochemical and cellular events. Frequently, days or weeks after the initial trauma, after the cascade has occurred, the area of destruction has increased. Steroids may be administered to prevent this cascade. A decrease in the amount of blood flow to the injured area causes cellular death, excessive release of neurotransmitters, kills nerve cells due to excitotoxicity, and the invasion of immune system cells creates inflammation at the injury site due to the breaking of the blood-brain barrier which normally keeps immune cells from entering the brain and spinal cord. These secondary biochemical and cellular events increase the area of damage to the injured spinal cord.

Typically, the higher the level of injury, the more severe the symptoms. For example, an injury at C2 or C3 affects the respiratory muscles and the ability to breathe, while a lower spinal cord injury, such as in the lumbar vertebrae, affects nerve and muscle control of the bladder, bowel and motor function of the legs. Spinal cord injuries are classified according to the individual's loss of motor function. The following are the main types of classifications:

- Quadriplegia/Tetraplegia - This classification involves loss of movement and sensation in all four limbs. This type of injury usually results from and injury at T1 or above. If the injury occurs at C4 or above, then a mechanical breathing machine (ventilator) will be required.
- Paraplegia - This classification involves loss of movement and sensation in the lower half of the body and usually results from injuries at T1 or below.
- Hemiplegia - This classification describes a loss of movement and sensation

on one side of the body, either the right or the left. This is most commonly caused by injury to the brain but it can also be caused by lesions to the spinal cord.

- Triplegia - This classification involves the loss of movement and sensation in one arm and both legs and is usually the result of an incomplete spinal cord injury.

The rehabilitation potential for spinal cord injury patient depends upon the level and the severity of the injury and the patient's motivation. The rehabilitation team includes many skilled medical professionals as well as family members to assist the injured individual to maximize their capabilities. This a long and difficult path. These patients require assistance in learning self-care skills or ADL's (activities of daily living i.e. feeding, grooming, toileting, etc.), physical care, mobility skills, respiratory care, communication skills, socialization skills, vocational training, pain management (due to muscle spasicity), and psychological counseling.

The most profound difference between the presentation of a brain injury case at trial versus a spinal cord injury case is that, in the latter, the injuries are visibly apparent for the jury to see. The impairments in mobility are indisputable. The key issue in damages is telling your client's story in terms of his or her journey from initial injury to the person sitting before them in the courtroom. Rehabilitation from a spinal cord injury is a long and painful process. It is a devastating injury both physically and psychologically. This is the story the jury needs to hear and understand.

Being paraplegic or quadriplegic does not simply mean that a person experiences an inability to move extremities, nor does it mean that your client can no longer act as a

functioning member of society; what it does mean is that he or she will require expensive medical care and assistive devices in order to carry out day to day activities and return to work in meaningful productive activities. The goal is to return the client to a life of meaning and purpose. In order to become accustomed to living with a spinal cord injury, occupational and physical therapy should be implemented, and more than likely psychological therapy will be necessary to help the client cope with the loss of function, subsequent life changes and the very real possibility that the client will suffer further injury or even premature death due to his or her condition.

For a lawyer to competently represent the client with a spinal cord injury, he or she must be aware of all the ramifications and complications of this catastrophic injury, both physical and emotional, but since the physical injuries cause the emotional and mental harm, these will be examined first.

Both paraplegics and quadriplegics experience a breakdown of bodily tissue due to the lack of movement in and pressure on their extremities. A visible sign of this breakdown is the development of decubitus ulcers, also known as pressure sores, on any part of the body that remains stationary with pressure applied to it. Sustained contact with a chair or a bed for more than two hours may cause these sores to develop. In order to avoid the formation of these ulcers, the client must be constantly moved and readjusted by mechanical means or caregivers, so that pressure is dissipated over various parts of the body. Also, pressure dissipating beds and chairs can reduce the pressure on the skin to below that of capillary arterial pressure and thus prevent such sores.

If ulcers are allowed to develop due to improper care, infections will appear and possibly erode down to and into the bone and cause overwhelming, life-endangering sepsis,

as in Christopher Reeve's case. If and when the spinal cord injury patient sustains pressure sores, there is a risk of cross infection between the pressure sores and the urinary tract as well. Nutritional depletion can have a direct impact on the intact skin's ability to withstand pressure injury. Once a decubitus ulcer forms, treatment and recovery are very difficult and expensive. These decubitus ulcers can also result in osteomyelitis, a life threatening bone infection that is difficult to treat and can take weeks or months to heal.

Another serious complication of paraplegia or quadriplegia is a propensity to develop deep vein thrombosis, (DVT), which may result in pulmonary embolism (PE). Without proper nerve conduction to the limbs and lack of movement to maintain muscle tone, the flow of blood through the veins is severely impaired as it travels back towards the lungs. These thromboembolic complications cause clots to develop in the lungs or blood clots to form elsewhere and migrate towards the lungs, ultimately causing a rupture in the one-cell thick membranes of capillaries in the lungs. Larger "saddle" emboli may clot off large blood vessels in the lung vaculature and cause death. Smaller emboli can cumulatively cause death. Immobility is the most common precipitating factor in the development of venous thrombosis. In addition, intrusion of catheters into the body, a common facet of a spinal injury patient's medical care, is also known to cause DVT.

A number of methods must be used to prevent DVT including: adjusted-heparin, low dose heparin, wafarin, dextran, external pneumatic compression, pressure elastic stockings, surgically implanted Greenfield filters and TED hose. Pulmonary emboli normally originate as blood clots from the calf muscle. Therefore, both paraplegics and quadriplegics are at risk. The best way to prevent a PE is to prevent DVT.

Quadriplegics are at risk for further pulmonary complications. Because of the

inability of these patients to effectively expand lung volume and clear airway secretions due to paralysis of muscles involved in breathing, pulmonary atelectasis and bronchio-pulmonary infection ensue. Mucous plugging is another potentially disastrous problem associated with inadequate ventilatory effort and secretion pooling. Infection and erosion of the trach stoma due to the plastic trach tube or Passy-Muir valve used for speaking in ventilator dependent quadriplegics are looming complications. Constant trach care and hygiene is required. Even with the best of care, infections occur.

Unfortunately, the likelihood of pulmonary complications increases with time. With breathing already entirely dependent on the diaphragm due to paralysis of the intercostal and abdominal muscles, the injured person no longer can cough, so clearing the lungs is impossible without intervention such as breathing treatment by respiratory therapists. To further complicate matters, quadriplegics often develop restrictive lung disease five to ten years after the initial injury, which can increase the incidence of pneumonia and aspiration. To avoid pneumonia, percussion and drainage methods should be employed along with abdominal binders that increase the resistance on the diaphragm and thus strengthen it. Early mobilization is also a key element of prevention.

Although some paraplegics retain normal bladder function, most paraplegics and all quadriplegics need a system of mechanical intervention in order to void urine from a neurogenic bladder. Most patients use a catheter of some sort, either a condom type or one that is inserted. These catheters increase the likelihood of urinary tract infection. The development of urinary calculi (mineral deposits) will also increase the likelihood of UTI. Most clients with severe spinal cord injuries will experience UTIs.

UTIs may result in further complications such as renal failure. Other causes of renal

failure are neurogenic bladder and sphincter dysfunction resulting in high pressure voiding and impaired renal tubular drainage and amyloidosis in the kidneys (abnormal protein build-up) as a result of chronic pressure sores. Other factors include chronic infection complicated by sepsis, hypertension, vasomotor instability and exposure to toxic medications and radiographic contrast agents. Even with expensive care, paraplegics and quadriplegics remain at risk for various diseases involving the kidneys and urinary tract.

Another risk to spinal injury victims is tubular necrosis in which the filtering function of the kidneys is severely hampered by tissue death. Progression of renal disease, associated with quadriplegia, may result in reduction of excretory function and renal related metabolic and endocrine dysfunction.

A further complication of renal insufficiency is platelet dysfunction, which causes bleeding problems. Dysfunctional kidneys can also cause disruption of bone and mineral metabolism, including negative calcium balance and osteomalacia. Bones will become weak and fracture if this condition is not diagnosed and treated especially since quadriplegics and paraplegics already have weakened bones due to lack of load bearing and movement resulting in osteoporosis.

A quadriplegic or paraplegic person will likely develop osteoporosis because of the lack of muscle activity and weight bearing that results from normal physical activity, thus increasing the likelihood of bone fractures. Using the legs to help support the body during transfers may help. Standing exercises or parallel bar walking will help prevent osteoporosis if the patient is capable. Newer techniques that flex the paralyzed muscles through external electric stimulation also are thought to help.

Due to kidney failure, clients also experience wide-ranging neurological effects

because the central and peripheral nervous systems are affected by uremia. Some of the major central nervous system manifestations of kidney failure include: the reversal of normal sleep patterns, reduction in cognitive function, confusion, obtundation, and coma. Severe renal insufficiency also predisposes patients to dehydration and volume depletion, fluid overload, congestive heart failure, pulmonary edema, and hypertension. Frequent follow-up with an urologist will be required of all clients with a neurogenic bladder.

Spinal injury sufferers also frequently have a condition known as a neurogenic bowel in which fecal matter builds up until it causes an impaction, unless relieved. Many patients require a stoma or hole into the large intestine known as a colostomy in order to evacuate waste into a bag. Others must be manually stimulated with a gloved finger after a suppository is inserted to evacuate their bowels either daily or every other day.

Spacticity, the sometimes violent rapid flexing of muscles at will, occurs because the nerves connecting the brain and muscle no longer conduct impulses. When any sort of stimulus occurs below the region of paralysis, the muscles respond by flexing. This may indicate that muscles are being overstretched. However, spasticity may also be an indication that a urinary tract infection, renal infection, bowel impaction or large pressure sore is present.

For unknown reasons the body begins to create bone outside of the normal skeletal dimensions in paralyzed people. Heterotropic ossification begins to limit the range of movement at major joints such as the hips and knees. When either this abnormality occurs or muscle spasticity has become so severe that joints cannot move properly, surgery may be required. If untreated, heterotropic ossification may result in complete joint fusion.

Surgical intervention may be required to prevent contracture in the joints of

paraplegics and quadriplegics and improve dexterity so that the client can be moved, clothed, and bathed, etc. As an alternative or adjunct to surgery, botox therapy may be required to release contractures and prevent spaciticity. While it might seem unnecessary to maintain flexibility in a paralyzed person's non-functioning limbs, a caregiver to prevent further deterioration, such as pressure sores, must exercise the limbs daily and regularly.

During the range of motion exercises, which must be carried out by family members or caregivers such as nurses or therapists, the paralyzed limbs must be moved. A typical assisted range of motion exercise would involve one person holding down one leg, while another attendant stretches out the other one. First working at almost 90 degrees out at the side, then pushing the knee up to the chest, then straight up and finally doing the "frog," pushing the knee form side to side in a bent position. All the while, the attendants must be looking for any red spots that might indicate the first stage of skin breakdown. The redness is almost always caused by some kind of pressure, the heel of a shoe or the outside of a knee is pressing too tightly against a wheelchair.

Gastrointestinal complications such as partial ileus (paralysis of the intestines) is common among spinal cord injury patients. These episodes of ileus and subsequent fecal retention result from unbalanced actions of the vagus nerve. In some cases, a gastrostomy must be performed so that the client can be fed through a tube. Gastroesophageal Reflux Disease (GERD) is also common. Pancreatitis can occur in cervical spinal cord injury patients, because of predominate visceral parasympathetic tone.

Quadriplegia results in alterations of body composition and endocrine profile. Quadriplegic patients experience potassium depletion, low mean body osmolarity, and weight loss. Potassium depletion reveals the existence of a permanent metabolic change

in a paralyzed patient. Quadriplegic patients also experience a persistent elevation of aldosterone. Weight loss at the expense of lean body mass occurs. Potassium depletion can cause heart arrhythmia and death.

Perhaps the most frightening complication of paralysis below the sixth thoracic vertebrae is autonomic dysreflexia. Complications arising from this syndrome are stroke and death. What happens is that a pain stimulus from below the level of injury will activate the sympathetic nervous system, the part of our body responsible for fight or flight behavior. The blood pressure rises to potentially dangerous levels as a result. The parasympathetic nervous system tries to slow the heart rate, but blood pressure remains high, a potentially life threatening condition occurs. Signs that this condition is present include sudden sweating, flushing of the skin, goose bumps, piloerection and possibly nasal stuffiness or anxiety. To treat this condition, the painful stimuli must be removed immediately. When a urinary tract infection, constipation or impaction, or a skin infection lasts too long, the paralytic's body reacts by releasing norepinephrine into the blood, causing heightened blood pressure and a slowed heart rate. When this condition persists untreated, it can result in unconsciousness, seizures, cerebral hemorrhage and possibly death. Thus, the necessity of constant proper medical supervision is paramount.

Pain In Spinal Cord Injury

On top of the physical maladies that plague the paralyzed client, he or she may also experience severe pain akin to that experienced by amputees. It is a myth that spinal cord injury patients do not experience pain. Neuropathic pain or phantom limb pain is generated by the nerves when there may be no actual impetus. This type of pain varies from an aching pain to pain so severe that it has been described as "electric shock-type quality."

Neuropathic pain can be treated either with medicine or nerve blocking procedures such as surgery. There are three headings into which nerve block can be grouped: temporary nerve block, semipermanent nerve block and permanent nerve block. Temporary nerve blocks consist of injections of a local anesthetic around the nerve. Semi-permanent nerve blocks consist of freezing the nerve which may block the pain for weeks or even months until the body repairs the nerve damage. Finally, permanent nerve block, also known as rhizotomy, means surgically or electrically cutting the nerve. This procedure is also referred to as neurolysis. This permanent type of nerve blocking is done by heating the nerves by passing a high frequency electric current into them through the tip of a needle. This procedure is intended to be permanent, however, the nerves may grow back again in a year or so and the pain can sometimes be worse. This treatment can be repeated.

In day-to-day life, the injured person no longer can be completely independent. While paraplegic clients can function virtually independently in some areas of their life with the aid of a wheelchair, the will have to receive routine medical check-ups and be aware of the possibility of sudden complications that may require emergency care. Independence is not possible for a quadriplegic due to lack of ability to move and interact with their surroundings.

Although our society is becoming more handicap friendly, much of the world is still inaccessible by wheelchair. Imagine the frustration that a wheelchair dependent person must feel when he or she can no longer climb the stairs to get to the bedroom, go through a certain doorway, or reach into a kitchen cabinet. Driving somewhere for an outing requires a wheelchair accessible van and a wheelchair accessible venue for the outing.

With quadriplegic people, the loss is greater. One cannot get out of bed, feed onself,

scratch an itch, or use the bathroom without assistance. All of these complications of injury lead to embarrassment and loss of self-esteem. The quadriplegic may not be able to escape a fire or reach a phone to call for help. In most respects the quadriplegic is a prisoner in he or her own body.

For the adult who suddenly loses the function of the legs or the entire body, drastic changes will be necessary to continue working, if keeping the same job is at all possible. Any sort of manual labor obviously is precluded. Employers will likely have to make adjustments to the work environment in order to accommodate the employee. For a quadriplegic, the chance of continuing work is very slim. Even with current advances in computer interfacing for quadriplegics, he or she simply cannot operate a computer with nearly the speed that a person with the function of the hands can. As a result of spinal cord injury, most victims leave work causing additional problems of financial dependency both for themselves and their families, loss of self-esteem, and loss of direction, purpose and meaning in life.

With children who suffer spinal cord injuries, the effects can be worse. While other children can run and play at will, the severely injured child becomes a spectator to life rather than a happy participant. Some children have concerns that no one will take care of them. Schoolwork becomes much more difficult without the ability to take notes and operate a computer quickly.

Romantic Relationship Losses

Romantic relationships become more difficult for those who suffer spinal cord injuries due to the constant care they need, and of course, due to the psychological changes that occur. Certainly, getting out of the house and dating becomes much more difficult with

a spinal injury. Furthermore, concerns of spinal cord injured patients about their altered sexuality are common. They mourn losses of specific capabilities and sexual sensitivities such as erectile dysfunction, orgasm, use of hands or limbs, arousal thresholds, ability to please a partner and to enjoy sensation. A loss of consortium claim is a valuable claim for the spouse of a spinal cord injured patient. Injured men likely will not be able to procreate without surgical intervention, but paraplegic women can become pregnant if a doctor has weighed the risks and approved of this decision. Of course, caring for young children is a daunting if not impossible task for paralyzed people.

As a result of all of the negatively impacted aspects of life, most people suffer at least an initial period of depression, requiring therapy. He or she needs to reestablish their self-esteem. They need to understand that despite their loss of function, they are still capable of being valuable participants in society and leading productive lives. Psychotherapy, counseling and antidepressant medications are needed to deal with the psychological aspects of a paralyzed person's injury. Amazingly most spinal cord injured patients who were married at the time of injury remain married.

For the attorney to properly represent the spinal cord injured client, he or she must plan for this person's future and ascertain all of the special needs that surround an injury of this magnitude. In order to provide the proper medical care for the duration of the client's life, the plaintiff's lawyer should hire a professional, preferably a certified, life care planner to design a life-care plan. The plan should provide itemized expenses for all medical treatment, caregivers, and special housing needs that the client will need throughout his lifetime, broken down on an annual basis. Not only should the plan include routine care such as an in-house nurse, but it should also provide for the expensive medical

care that will be necessary when the paralyzed client has one of the many adverse events which are known to appear suddenly as a result of an inability to fight off an injury.

The physical injuries such as the loss of sensation and motor function can be explained at trial by the internist, neurologist/neurosurgeon, and physiatrist. The rehabilitation team of physical, occupational, and speech therapists can testify regarding your clients injury and difficulties he or she experienced during rehabilitation therapy. A vocational counselor may also be called to testify, if used during the rehabilitation process. The emotions felt by a spinal cord injury can range from irritability, anger, anxiety, depression, helplessness and loneliness. To cope with these emotions and more after such a devastating injury can be overwhelming, to say the least. This catastrophic injury requires a competent psychologist to help your injured client to recover. This same psychologist can be extremely helpful at trial to shed light on these issues for the jury.

As with proving damages in a brain injury case, lay witnesses can help tremendously in the explanation of the pain and suffering your client has experienced as a result of his or her spinal cord injury. Family members can often relate to the jury the quiet moments of fear and despair felt by your client on a very human level, which a jury will understand and relate to. Barring testimony from your injured client, lay testimony is perhaps the most dramatic testimony at trial.

As it is with any case, proving damages in brain and spinal cord injury cases can seem daunting. How does one explain the complex medical information to a jury in a few days or less? How do you hold the jury's attention long enough to explain the mechanics of a brain and spinal cord injury, the cognitive impairments, the emotional impairments, the physical impairments as well as the behavioral impairments? Hopefully, the basic

elements described above will assist you in this endeavor.

We as trial lawyers have a valuable and important role to play in society in helping spinal cord and brain injured patients to obtain full compensation for their losses and enough money to pay for all their specialized medical, caregiver, housing and transportation needs. With effort and study the trial lawyer can acquire the knowledge base required to provide the excellent representation these clients deserve.