CENTRAL NERVOUS SYSTEM IMPAIRMENTS

MIR PHYSICIAN SPOTLIGHT
MARK MCQUAIN, MD

2017 CASE LAW REVIEW
CAUSATION
BUREAU EVENTS CALENDAR


October 17, 2017, 1:00 PM, Medical Payment Committee Meeting will be held at 220 French Landing Drive, Suite 1-A, Nashville, TN 37243. Contact Suzy Douglas, Nurse Consultant, TN Bureau of Workers’ Compensation, at (615) 532-1326 for more details.

4th Annual TN Workers’ Comp Physicians’ Conference: This event will include approved AMA Guides, 6th edition, training prerequisite for appointment consideration to the MIRR. Details for this event are to be announced.

The 21st Tennessee Workers' Compensation Educational Conference
June 6-8, 2018
Embassy Suites Hotel, Nashville Southeast
Registration details TBA.
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“| enjoy writing MIR Reports,” says physiatrist Mark McQuain, MD, of Johnson City, Tennessee. “They feel like puzzles to sort out.” Dr. McQuain has been sorting out MIR puzzles with remarkable accuracy and aplomb since 2005, when he was appointed to the Medical Impairment Rating Registry. Receiving referrals for disputes that require the musculoskeletal chapters of the AMA Guides, both 5th and 6th editions, he faithfully renders his impairment opinions by the book.

“The Guides are certainly not perfect,” admits Dr. McQuain, “but since we have all agreed to use them for determining impairment ratings, they need to be used as consistently and accurately as possible.”

Board-certified in both physical medicine and rehabilitation, and neuromuscular and electrodiagnostic medicine, Dr. McQuain is a partner of Watauga Orthopaedics, which started in 1950 as an orthopaedic surgical practice. It has since morphed into a multi-specialty musculoskeletal practice to include sports medicine and PM&R. Dr. McQuain and his colleague of twenty-one years, Pat Flint, care for patients with chronic neuromusculoskeletal diseases. “It has a hint of a family practice, since we’ve seen many of the same patients for many years.”

While in college at MIT (Massachusetts Institute of Technology), Dr. McQuain worked as a researcher on a project that became one of the 1983 space shuttle experiments designed to explore why astronauts suffered motion sickness in space. His findings led indirectly to the creation of medications such as Dramamine and Scopolamine. “I was privileged to work with several space shuttle astronauts but only recognize them by pictures of their eyes twitching during ocular saccadic movements that occurred while we made them motion sick.”

Dr. McQuain grew up in Centerville, Ohio and graduated from Centerville High School in 1978. As president of the local chapter of Lambda Chi Alpha fraternity while at MIT, he studied and graduated with a Bachelor of Science degree in electrical engineering. During the summers he worked at a Texas Instruments division in Johnson City, Tennessee, where he met his future wife, Dee. He graduated from Ohio State University College of Medicine in 1986 and completed residency in Physical Medicine and Rehabilitation at the Mayo Clinic in Rochester, Minnesota in 1990. He and his family then moved to Topeka, Kansas, where he served as the medical director for the Kansas Rehabilitation Hospital for two years before then moving to his wife’s hometown of Johnson City. They have lived there since 1992.

In 2013, Dr. McQuain graduated Summa Cum Laude with a Master’s degree in Bioethics from Trinity International University (TIU) outside of Chicago. He enjoys reading Christian apologetics and philosophy and regularly contributes to TIU’s Bioethics Blog.

Dr. McQuain and his wife of thirty-three years attend Grace Fellowship church and hold a weekly Bible study in their home. In their free time, they enjoy sailing on beautiful Watauga Lake near Butler, Tennessee. They have three grown sons. One, an attorney, lives in Denver, another, a small business owner, lives in San Francisco, and another, a Marine officer at Camp Lejeune, lives in Jacksonville, North Carolina. All are married. Dr. McQuain is currently board chair-
Work injuries that affect the central nervous system can be catastrophic, since they involve the brain or spinal cord. Determining the underlying clinical cause of impairment is essential in determining which *Guides* chapter to use for rating purposes. Most documented neurogenic dysfunctions of the brain and spinal cord are rated in Chapter 13, The Central and Peripheral Nervous System. Dysfunctions without known neurogenic causes, including abnormal psychiatric manifestations, are rated elsewhere in the *Guides*.

**DEFINITIONS**

APHASIA: impairment due to a brain injury severely affecting the production and/or comprehension of speech and the ability to read or write. It is usually the result of a stroke but can also be caused by head trauma, infections, and tumors.¹

CENTRAL NERVOUS SYSTEM (CNS): the part of the nervous system comprised of the brain and spinal cord. The brain consists of the cerebrum (largest part), brain stem, and cerebellum (hindbrain). The spinal cord is the tubular nervous tissue extending from the medulla oblongata in the brain stem down to the second lumbar vertebrae.²

CEREBRAL: of or relating to the cerebral cortex of the brain.

COMPLEX REGIONAL PAIN SYNDROME (CRPS): an uncommon form of chronic and disproportional limb pain that typically develops after surgery, stroke, heart attack, or injury, but can also be idiopathic.³

CRANIOCEPHALIC PAIN: head pain or headache.

CYSTOSCOPY: endoscopy of the urinary bladder via the urethra, carried out with a cystoscope, allowing the physician to focus on the inner surfaces of the urinary tract.⁴

DYSPHONIA: a descriptive term for all disorders of the voice involving structures such as the larynx (voice box) and vocal cords, presenting most typically as hoarseness (functional dysphonia) or voice instability and weakness (spasmodic or muscle tension dysphonia).

DYSARTHRIA: a disruption to the muscles that are used to produce speech that has no effect on the ability to understand the meaning of words or manipulate grammar.

DYSPHASIA: a moderate, or less severe, form of aphasia. In medical terminology, the prefix “a” means absence while the prefix “dys” means abnormal.⁵

DYSESTHESIA: abnormal sensation, which often presents as pain, but also as itching, wetness, electric shock, and other inappropriate responses.⁵

GLOSSOPHARYNGEAL NEURALGIA: a rare condition presenting as severe, yet episodic, pain in the tongue, tonsils, ear, and/or throat. It is caused by irritation of the ninth cranial (glossopharyngeal) nerve.⁷

INFARCT: a lesion of dead tissue resulting from inadequate blood supply.

MIDAS: (Migraine Disability Assessment Questionnaire) a questionnaire used to help determine how “severely migraines affect a patient’s life.”⁸

MSCHIF: abbreviation for Mental Status, Cognition, and Highest Integrative Function, which is one of the 4 major categories of cerebral impairments for *Guides* CNS rating purposes.

NEUROGENIC: “Giving rise to or arising from the nerves or nervous system.”⁹

RADICULOPATHY: condition most often caused by a compressed spinal nerve root resulting in pain, numbness, and/or motor weakness along the course of the nerve.¹⁰

TRIGEMINAL NEURALGIA: a chronic pain that affects the trigeminal nerve, which carries sensation from the face to the brain.¹¹

URODYNAMIC TESTING: assesses the bladder’s ability to store and release fluid through a variety of clinical tests ranging from cystoscopy to urodynamic stress testing (UUT) and pressure-flow studies (PFS).

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**The Nervous System**

- **Brain (Cerebrum)**
  - Frontal Lobe
  - Parietal Lobe
  - Temporal Lobe
  - Occipital Lobe

- **Spinal Cord**
  - Cervical
  - Thoracic
  - Lumbar

- **Peripheral Nervous System**
  - Autonomic (Subconscious, control systems)
  - Somatic (Voluntary, muscle movement)

- **Sympathetic**
  - (Fight or Flight)

- **Parasympathetic**
  - (Rest and Digest)
from post-void residual volume and urethral pressure to EMG of the bladder neck and fluoroscopy (real-time x-rays).

SCOPE

CHAPTER 13: Documented neurogenic dysfunction leading to impaired consciousness, respiration, awareness, mental status, reasoning, comprehension of language, use of language, emotional expression, behavior, upper and lower extremity function, and bowel, bladder, and sexual function are all rated from Chapter 13, Central and Peripheral Nervous System. Seizures, migraines, dysesthetic and craniocephalic pain, trigeminal and glossopharyngeal neuritis, and certain miscellaneous nerves, as discussed below, are also rated in this chapter.

CHAPTERS 15 and 16: Radiculopathy, CRPS, and acute lesions on specific peripheral, digital, and plexus nerves are rated in their respective extremity chapters.

CHAPTER 14: Emotional, mental, and behavioral disorders without clinically documented neurogenic causes are rated in Chapter 14, Mental and Behavioral Disorders.

CHAPTER 12: Visual disorders of all types are rated in Chapter 12, Visual Disorders.

CHAPTER 11: Vestibular (balance) disorders, dysarthria, dysphonia, and cranial neuropathies other than trigeminal/glossopharyngeal neuralgia are rated in Chapter 11, Ear, Nose, Throat, and Related Structures.

CNS METHODOLOGY OVERVIEW

The first step is to identify the most severely affected category of brain function from the four listed major categories. The MIR Physician then rates the category identified as the most severely affected. Next, all other impairments due to neurogenic problems are rated. Finally, using the combined values chart on page 605, the MIR Physician combines the rating of the single most severe cerebral impairment with all other impairments.

Unlike the musculoskeletal chapters, Chapter 13 does not utilize grades, grade modifiers, and a net adjustment formula. Instead it utilizes an approach very similar to prior editions of the Guides. Once the correct impaired function and rating table is identified, the impairment’s class, ranging from 0 to 4, is assigned in accordance with the patient’s ability to perform Activities of Daily Living (ADLs), both basic, such as feeding and toileting, and advanced, such as driving a car and managing money. The more that ADLs are adversely affected, the higher the impairment’s class, and, hence, impairment rating.

Within each impairment class is a range of impairment. Sometimes these ranges are large, as in Table 13-4, page 327, “Consciousness and Awareness,” with a Class 4 range of 51% to 100%, and sometimes these ranges are small, as in Table 13-17, page 339, “Dysesthetic Pain,” with a Class 4 range of 8% to 10%. Regardless, since no modifiers are used to move the impairment rating from a default value, the MIR Physician chooses a value within the range that is rationally and incrementally commensurate with the extent that ADLs are affected. The rationale for this choice should be included in the MIR Report.

STEP 1: EVALUATE ALL 4 MAJOR CATEGORIES OF CEREBRAL IMPAIRMENT AND CHOOSE THE ONE THAT IS MOST SEVERE.

For rating purposes, cerebral impairments are classified into 4 major categories that often overlap: 1. State of consciousness and level of awareness, whether permanent or episodic, 2. Mental status evaluation and integrative function (MSCHIF), 3. Use and understanding of language, and 4. Influence of behavior and mood. The same traumatic brain injury, for example, could conceivably cause impairment in each of these categories. The MIR Physician is to choose the one that is most severe, which means the one that adversely affects ADLs the most.

Definitions for the terms describing severity, like “mild” and “severe” are found in section 13.1 on page 322:

A minimal impairment in ADLs might be seen in a patient with epilepsy, in whom there are seizures approximately every 2 months despite optimal medical management. Such a patient would not be able to drive but would be able to carry out all other ADLs. Another example of minimal ADL impairment might be seen in a patient with mild hemiplegia who has recovered most of his or her motor abilities but cannot walk long distances, even with a cane, and cannot do heavy lifting or vigorous activities. All basic ADLs are intact. Moderate impairment of ADLs might be seen in a patient who needs minimal to moderate assistance with basic ADLs but does not re-
quire extensive assistive care throughout the day. The patient with severe impairment of ADLs performs few or none of their basic ADLs and needs extensive assistive care throughout the day.\textsuperscript{12}

The most severely impacted of the 4 categories is used to rate the entire group of 4 categories. In other words, choose the worst.

### STEP 2: RATE THE SINGLE MOST SEVERE CEREBRAL IMPAIRMENT OF THE 4 MAJOR CATEGORIES.

The most severely impacted of the major cerebral categories is rated by applying the appropriate table.

1. CONSCIOUSNESS AND AWARENESS: The MIR Physician uses Table 13-4, page 327, "Consciousness and Awareness" for rating altered states of consciousness such as persistent vegetative state and coma; Table 13-5, page 328, "Episodic Loss of Consciousness or Awareness," for rating conditions such as convulsive disorders; and Table 13-6, page 329, "Sleep and Arousal Disorders," for rating conditions such as sleep apnea and narcolepsy.

2. ALTERATION IN MSCHIF: Table 13-8, page 331, is used for rating impairment due to alteration in mental status cognition and highest integrative function (MSCHIF). This category of cerebral impairment includes conditions such as intellect and memory dysfunction.

3. USE AND UNDERSTANDING OF LANGUAGE: Aphasia and dysphasia are rated using Table 13-9, page 382.

### Activities of Daily Living

<table>
<thead>
<tr>
<th>BASIC</th>
<th>ADVANCED</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bowel Status</td>
<td>Driving</td>
</tr>
<tr>
<td>Grooming</td>
<td>Sexual Function</td>
</tr>
<tr>
<td>Toileting</td>
<td>Medical Care</td>
</tr>
<tr>
<td>Feeding</td>
<td>Communication</td>
</tr>
<tr>
<td>Transfers</td>
<td>Phone, writing letters and checks</td>
</tr>
<tr>
<td>From chair to bed</td>
<td>Traveling</td>
</tr>
<tr>
<td>Indoor Mobility</td>
<td>As a passenger</td>
</tr>
<tr>
<td>Dressing</td>
<td>Shopping</td>
</tr>
<tr>
<td>Bathing</td>
<td>(Lifting, carrying groceries)</td>
</tr>
</tbody>
</table>

(From Table 13-2, page 323)

### STEP 3: RATE ALL OTHER IMPAIRMENTS DUE TO NEUROGENIC PROBLEMS.

After the MIR Physician assigns an impairment rating for the most severe category of cerebral dysfunction, impairments arising from the spinal cord and cranial nerve are rated. These include impairments in station and gait, the upper extremities, bladder and bowel function, and sexual function, provided they arise from objectively identifiable neurogenic abnormalities.

**UPPER EXTREMITY CNS DYSFUNCTION**, presenting as tremor, weakness, or altered sensation, and resulting from lesions in the brain or spinal cord, is rated using Table 13-11, page 335, with a range of 0% to 60%. These lesions may result from a variety of causes, including infection, traumatic brain injury, acute spinal trauma, and neurodegenerative disease, although the latter is not commonly found in a workers’ compensation setting. Dysfunction may affect one extremity or both, with more impairment assigned to the dominant side.

**STATION AND GAIT DISORDERS** are rated using Table 13-12, page 336, with a range of 0% to 50%. The same neurological pathologies that affect upper extremities may also affect the lower extremities, impairing the patient’s balance and ability to walk, rise from chairs, and climb stairs.

**NEUROGENIC BOWEL** incontinence is rated using Table 13-13, page 337, with a range of 0 to 50%. A higher impairment is assigned to bowel incontinence than bladder incontinence.

**NEUROGENIC BLADDER** incontinence is rated using Table 13-14, page 337, with a range of 0% to 30%. Diagnosis often involves cystoscopy or urodynamic testing, which the MIR Physician should document.

**NEUROGENIC SEXUAL DYSFUNCTION** is rated using Table 13-15, page 338, with a range of 0 to 15%. For males, the rating may be adjusted, at the MIR Physician’s discretion, for the patient’s age according to section 7.7 on page 143 of Chapter 7, Urinary and Reproductive Systems. For females, the rating may be adjusted if the patient is postmenopausal per Table 7-10, footnote “b,” on page 151 of Chapter 7, Urinary and Reproductive Systems.\textsuperscript{12}

**NEUROGENIC RESPIRATORY DYSFUNCTION** is rated using Table 13-16, page 338, with a range of 0% to 65%. Only neurological limitations should be considered for this table. Respiratory impairment with other causes is rated in Chapter 5, The Pulmonary System.
DYESTHETIC PAIN, secondary to peripheral neuropathy or spinal cord injury, is rated using Table 13-17, page 339, with a range of 0% to 10%. Since pain is the primary feature of this diagnosis, it may not be recognized for Tennessee Workers’ Compensation claims with dates of injury on or after July 1, 2014.

MIGRANE HEADACHES are rated using the MIDAS questionnaire. The results of each question are added and applied to Table 13-8, page 342, with a range of 0% to 5%. Non-migraine headaches are not ratable under the Guides. Migraines are reliably diagnosed when at least 3 of the following criteria are met: the headache 1) affects one half of the head, 2) is pulsating, 3) lasts 4 to 72 hours, 4) induces nausea or vomiting, 5) causes disability due to sensitivity to light, sound, or smell.

“Documentation of impairment on the MIDAS Questionnaire should be sought from school and/or work records if possible.”

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“Documentation of impairment on the MIDAS Questionnaire should be sought from school and/or work records if possible.”

TRIGEMINAL OR GLOSSOPHARYNGEAL NEURALGIA is rated using Table 13-19, page 343, with a range of 0% to 6%. For injuries on or after July 1, 2014, the MIR Physician should be mindful that, while sensory and motor loss are ratable, the degree of pain is not. Since there is no “default value” of pain is not supposed to be considered in impairment rating, the examiner may wish to select a mid-range rating, since the tables contain no “default rating”.

REFERENCES

STEP 4: COMBINE THE RATING OF THE SINGLE MOST SEVERE CATEGORY OF CEREBRAL IMPAIRMENT WITH THE RATINGS OF ALL OTHER IMPAIRMENTS.

This is done using Appendix A, Combined Values Chart, on page 604. Impairments from different organ systems must first be converted to whole person impairment before combining with nervous system impairments.12 (604)

CONCLUSION

Impairments due to neurogenic dysfunction of the CNS and peripheral nerves are rated in Chapter 13 according to patient’s ability to perform Activities of Daily Living. Since some neurological dysfunctions are rated elsewhere in the Guides, the MIR Physician may consult Table 13-1 to verify the appropriate chapter to use. Once the correct table and impairment class are chosen, rather than simply assigning the highest value within the range provided, the MIR Physician should consider choosing a value that is rationally and incrementally commensurate with the patient’s inability to perform ADLs within the range. This rationale should be provided in the MIR Report to avoid the appearance of assigning an arbitrary or capricious rating.

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Starting with the compensation appeals, *Bass v. The Home Depot U.S.A., Inc.* involved the compensability of an alleged work-related aggravation of an employee’s underlying arthritis. The Board affirmed the trial court’s ruling that Mr. Bass’ independent medical examiner did not rebut the presumption of correctness afforded to the opinion of an authorized treating physician. The Board reached a similar conclusion in *Darraj v. Mckee Foods Corp.*, while reiterating that self-represented litigants will be held to the same standard as attorneys. Mr. Darraj also faced a language barrier.

Then in *Panzarella v. Amazon.com, Inc.*, the Board clarified that a physician rendering a causation opinion doesn’t need to use the particular words or phrases within the statute’s definition of “injury.” Rather than a “rigid recitation” of the statute, there must be sufficient evidence from which the trial court can conclude that the statutory requirements are satisfied. The opinion harmonizes well with *Edwards v. The Job Shoppe U.S.A.*, an expedited appeal in which the Board rejected the employer’s “overly-narrow interpretation” of an authorized treating physician’s report, affirming the trial court’s grant of additional medical benefits. The implication is that trial courts and the Appeals Board should consider the record as a whole.

As in *Edwards*, preexisting conditions played a significant role in two additional cases where the authorized treating physicians appeared to give equivocal causation opinions. First, in *Gamble v. Miller Industries, Inc.*, the Appeals Board vacated the trial court’s order for Miller Industries to authorize the employee’s hip-replacement surgery. The dispute centered around an authorized physician’s opinion that the fall at work “was the proverbial straw that broke the camel’s back” but that Mr. Gamble’s avascular necrosis was “long standing and would represent greater than 51% of the need for hip replacement.”

Second, in *Stallion v. TruGreen, L.P.*, the authorized physician concluded that Mr. Stallion didn’t require further treatment, but if he did, it would be for non-work-related degenerative disc disease. The trial court ordered additional medical benefits, which the Board reversed, reasoning that no physician had rendered an opinion that satisfied the statutory requirements necessary to establish a compensable aggravation.

Moving on, another preexisting injury case—*Berdnik v. Fairfield Glade Community Club*—definitely merits a read by any Tennessee workers’ compensation practitioner. In the case, the employer provided neither treatment nor a panel but denied the claim largely upon Ms. Berdnik’s history of chronic back problems. Fairfield Glade later requested an IME, where the physician concluded the alleged injury was not work-related. The trial court found the employee was unlikely to prevail at a hearing on the merits but nonetheless ordered a panel. The Appeals Board reversed the panel order, citing the IME physician’s opinion as the only medical proof in the case. The Board cautioned employers not to construe its opinion as carte blanche to ignore their obligations under the Claims Handling Standards, and it referred Fairfield Glade to the Bureau’s Compliance Unit for consideration of a penalty.

The Appeals Board revisited the willful misconduct defense in *Roper v. Allegis Group*. The Board affirmed the trial court’s ruling that Allegis Group didn’t prove a willful violation of a safety rule, rejecting its argument that an employee’s lack of a valid excuse to follow a safety rule constitutes “willfulness.” The judges characterized this as an overly broad interpretation of *Mitchell v. Fayetteville Public Utilities*, which would allow employers to deny benefits to employees whose “merely negligent or reckless actions” result in a violation of a known safety rule.